

Advanced native mass spectrometry towards an innovative platform for drug discovery

The Griffith Institute for Drug Discovery, Griffith University is continually working towards new therapies for diseases. We are seeking applications from prospective Doctor of Philosophy (PhD) students to work at our Nathan campus in a drug discovery research program supported by an industry collaboration. This project is your chance to make a difference in the global fight to develop new methods to accelerate drug discovery. The PhD candidate will work on membrane proteins and systematically explore various sample injection methods including standard ESI, nano spray, LC, and microfluidic methods.

We will use Gram negative bacteria as a model system to explore the application of native MS to studying membrane proteins. Gram negative bacteria represents a significant challenge for therapeutic development because of the double membrane and high abundance of lipopolysaccharide (LPS) protecting the outer membrane. Typical HTS compounds may not be able to penetrate the cell membrane and those that do may be rapidly depleted through efflux. There is a need for diverse screening sets to find compounds that can be effective against gram negative bacteria. Natural products represent a diverse class of compounds distinct from synthetic compound libraries that may provide an opportunity to drug these difficult targets.

The candidate will use fractional factorial design (FFD) and statistical design of experiments (DOE) in conjunction with response surface methodology (RSM). The work will also study the stability of membrane proteins in various matrices. This will provide a training in MS instrument optimisation as well as the membrane protein area.

About the Griffith Institute for Drug Discovery

Griffith Institute for Drug Discovery (GRIDD), part of Griffith Sciences, is dedicated to developing innovative new solutions for devastating conditions including cancer, drug resistance and infectious disease. To achieve this our research leaders innovate at the cutting-edge of chemistry and biology. GRIDDs core values are excellence, integrity, collegiality and respect, while GRIDD is a champion of gender equity in science, technology, engineering, maths and medicine.

About You

The selection of applicants for the award of higher degree research scholarships at Griffith University involves consideration of your academic merit and research background. To be successful within this role you will meet the following criteria:

- An international or domestic applicant intending to enrol full-time in an approved doctoral program at Griffith University
- Have completed, or expect to complete, a bachelor's degree with first class (or equivalent) honours
- Have a background in the field of organic or protein chemistry (highly desired)
- An interest and prior experience with mass spectrometry (highly desired)

About the scholarship

The scholarship will support you to undertake the project: *Advanced Native Mass Spectrometry Towards and Innovative Platform for Drug Discovery*.

The 2019 Griffith University Postgraduate Research Scholarship has an annual stipend of \$27,596 (indexed) for a period of up to three years of full-time study. Please see the [GUPRS Conditions of Award](#) for more information.

A successful International applicant will also be awarded a Griffith University International Postgraduate Research Scholarship to cover tuition fees for up to three years. Please see the [GUIPRS Conditions of Award](#) for more information.

What we offer

As a scholarship holder, you will study with a University that ranks among the top 3% worldwide and spans across five campuses in South East Queensland. At Griffith University, we've worked hard to create a culture that will challenge you to be curious, creative and courageous. We also support the professional and personal development of all our HDR candidates and invest in the skills of our people. Griffith University values diversity, inclusion and flexibility and we encourage Aboriginal and Torres Strait Islander, and people of all backgrounds to apply. Griffith's strategic goals are to also increase the proportion of women in senior academic and administrative roles and in Science, Technology, Engineering, Mathematics and Medicine (STEMM).

GRIDD has distinctive, world-class areas of expertise in environmental sustainability, water science, drug discovery and infectious diseases, climate change adaptation, artificial intelligence, physical sciences and emerging research areas such as micro- and nanotechnology and advanced manufacturing. We form strong partnerships with industry to undertake applied research that has the potential for commercialisation and positive impacts for the wider community.

Further information

For project related enquiries please contact:

Professor Ronald J. Quinn

Griffith Institute for Drug Discovery

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For administration enquiries please contact:

Griffith Graduate Research School

Phone: (07) 3735 3817

Email: hdr-scholarship@griffith.edu.au

Closing date for EoI submission

Closing date for EoI submission: 5pm AEST, Friday 4 January 2019

Interested applicants should submit an expression of interest (EOI) to Professor Ronald J. Quinn containing:

- Statement addressing your suitability for the project/scholarship
- A brief CV
- Research proposal
- Two references

The preferred applicant will then be invited to apply on-line.