PhD Opportunity

Fruit Fly Nutritional Immunology

Closing Date: Expressions of interest close at midnight on **Friday 15 January 2016**

A PhD opportunity is available on a project investigating nutritional immunology of the Queensland fruit fly (*Bactrocera tryoni*; Tephritidae) (‘Q-fly’) at Macquarie University’s Department of Biological Sciences (http://bio.mq.edu.au/), under the supervision of Dr Fleur Ponton and A/Prof Phil Taylor. This project aims to decipher the complex network of interactions between nutrition, immune function, gut microbiota, and infections. The approach will be multi-disciplinary, adopting approaches and concepts ranging from behavioural ecology to molecular biology, and can include a wide diversity of techniques such as diet manipulation experiments, microbiology, genomics, transcriptomics, proteomics, and immunology.

Several core research questions will be investigated, including:

1) How does nutrition affect innate immunity and resistance to infections?
2) How do nutrition, immunity and the gut flora interact?
3) Are Q-flies able to self-medicate through nutritional choice?

Within this overall scope, the successful applicant will have ample opportunity to develop areas of specific interest, and to develop skills as needed. This project envisages an integrated and multidimensional understanding of nutritional immunology.

This project is part of a $20.5 million multi-institution ‘SITPlus’ collaboration that aims to develop a detailed understanding of Q-fly biology as a foundation for effective, environmentally benign and sustainable management practises to combat this major pest. Research partners in this research program include Macquarie University, Commonwealth Scientific and Industrial Research Organisation (CSIRO), New South Wales Department of Primary Industries (NSW DPI), South Australia Research Development Institution (SARDI) and New Zealand Institute for Plant & Food Research (PFR). Collectively, these institutions bring vast expertise and research capacity to this substantial research program, and maintain a highly collaborative research culture. Accordingly, this project will be very well supported in terms of supervision, collaborative opportunities, facilities and funding.

The successful candidate will be based primarily at Macquarie University, where there is a large research community of Academics, Research Fellows and Research Students working on diverse aspects of Q-fly behaviour, ecology, physiology, and genomics. Macquarie University is set in a park-like campus just 20 minutes from the centre of Sydney, next to Lane Cove National Park. A train station on campus ensures easy transport to the city centre and across the region.
This scholarship is available to eligible candidates to undertake either:

- Research Training Pathway (RTP/iRTP) Masters of Research (MRes) Year 2 followed by a Macquarie University Research Excellence Scholarship (MQRES/iMQRES) for a 3 year PhD. This is referred to as an MRes/PhD ‘bundle offer’.

OR

- Direct entry into a 3 year PhD program.

The value and tenure of the scholarship is:

- $30,849 pa (2016 rate, subject to indexation, tax free) for up to four years for an MRes/PhD bundle offer or for 3 years for direct entry to PhD. This includes an MQRES stipend of $25,849 pa plus a scholarship ‘top up’ of $5,000 pa.
- International candidates successful for these scholarships are also awarded a tuition fee scholarship covering tuition fees at Macquarie University for up to four years.

To be eligible for a scholarship, applicants are expected to have a record of excellent academic performance and preferably, additional relevant research experience and/or peer-reviewed research activity, awards and/or prizes in line with the University’s scholarship rating guidelines. Refer to the Rating Scholarship Applicants section for more information about these guidelines.

Students on scholarships are not obliged to contribute to teaching, but may do so to supplement their income if desired. In addition to substantial financial resources to draw on for research, several generous schemes are available to fund travel to visit overseas laboratories or to attend overseas conferences.

Enquiries are welcome, and interested applicants are encouraged to make initial informal contact before applying. Interested applicants should email a letter of interest, academic transcripts, curriculum vitae and the names and contact information of three referees to Dr Fleur Ponton (Fleur.Ponton@mq.edu.au).

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