



PhD scholarship available at Murdoch University for an Australian Research Council Linkage project to develop a “gut-on-a-chip”.

Project background and description: *Cryptosporidium*, norovirus and adenovirus are among the major causes of gastroenteritis in Australia, which is estimated to cost Australia more than AUD\$1 billion annually. The ever-present threat to public health from these pathogens requires sound characterisation and management of risks, including monitoring of infection sources and validation of control measures. This is, however, particularly problematic due to (1) the lack of commercially available *Cryptosporidium hominis* oocysts (the main species infecting humans in Australia) as controls for disinfection studies and monitoring techniques, and (2) lack of fast and reliable viability assays for these three enteric pathogens.

We are seeking a highly motivated PhD candidate to work as part of a team on an ARC Linkage project (ARC LP170100096) entitled “*Development and validation of rapid detection and viability assays for Cryptosporidium, Norovirus, and Adenovirus using a novel gut-on-a-chip*”.

The project is in collaboration with Dr Mark O’Dea and Dr. Alireza Zahedi from Murdoch University, Professor Benjamin Thierry from the University of South Australia, Associate Professor Jillian Carr at Flinders University, Dr Paul Monis and Dr Brendon King from South Australian Water, Dr. Andrew Ball from Water NSW, Dr. Duncan Middleton from Seqwater in Queensland and Dr Nicholas Crosbie from Melbourne Water.

Our research team has already developed a miniaturised computer-controlled gut-on-a-chip and has successfully demonstrated that human intestinal cells cultured in our gut-on-a-chip can support infection by *C. parvum*. Using this technology, the PhD candidate will aim to (1) Characterise the optimal conditions to detect, grow and amplify *C. hominis* & *C. parvum* in the gut-on-a-chip, (2) Characterise the optimal conditions to detect and grow norovirus and adenovirus in the gut-on-a-chip, and (3) Validate the gut-on-a-chip as a detection and viability assay for *Cryptosporidium*, norovirus and adenovirus.

Research Environment: Murdoch University (MU) is a research-led university with a reputation for world-class research in Biological Sciences. In the 2015 Excellence in Research for Australia rankings, MU was ranked 5 for Medical Microbiology and 4 or above the standard for Evolutionary Biology, Genetics, Microbiology, Zoology and Environmental Science & Management. The candidate will work in the Vector and Waterborne Pathogens Research Group (VWBPRG) at MU, which is an internationally-recognised research group with a diverse research culture.

About you:

1. The successful candidate will have completed a Masters by research degree or a high level (H1) Honours degree (or equivalent) in the last 5 years that includes training in either Molecular biology, Biotechnology, Microbiology or Water Science.
2. Previous laboratory experience in cell culture and molecular epidemiology and/or molecular biology is desirable.
3. Demonstrated ability to work under broad direction, exercise initiative in undertaking responsibilities and work effectively as a team member.
4. Well-developed interpersonal skills and the ability to work effectively as a member of an interdisciplinary and collegial team.
5. Demonstrated high levels of written and oral communication skills in English

Scholarship:

A Full Time Scholarship will carry a stipend of \$27,082 per year with annual increments and with the potential to apply for 6 months extension.

How to apply:

To apply, interested candidates are invited to send their Curriculum Vitae, a 1-2 page outline of: their research skills, and a summary of their goals for a PhD, along with the names and contact information of three referees to Professor Una Ryan at Una.Ryan@murdoch.edu.au.

Deadline: April 12th 2019 but the position will be filled as soon as possible.

