

Microscopy based PhD project available to investigate interaction of the protozoan parasite, *Cryptosporidium*, with biofilm communities

The environment plays a major role in the transmission of *Cryptosporidium*, both as a vehicle and as a reservoir of infective stages. The major vehicle in the transmission of *Cryptosporidium* is water, yet very little is known of the impact of aquatic biofilms in enhancing such transmission. Biofilms are a poorly understood and recently recognised environmental reservoir of deposited infective stages of *Cryptosporidium*. Infective stages can be released back to the water by detachment or biofilm sloughing, or biofilms could impede transmission by acting as a trap for *Cryptosporidium* oocysts and an environment for their subsequent destruction. However, interactions between *Cryptosporidium* and biofilms have yet to be specifically examined. A better understanding is required of how long oocysts can survive in biofilms, the factors that contribute to oocyst inactivation or their survival within biofilms, excystation and subsequent development and proliferation. This ARC Discovery funded research project is a collaboration between Murdoch University, SA Water and the University of Western Australia.

One aspect of this project will focus on microscopical imaging and analysis of survival of *Cryptosporidium* in both water and biofilm environments. Specifically, the PhD student will look to investigate:

- **predation of *Cryptosporidium* life stages within water and biofilm environments**
- **morphological aspects of *Cryptosporidium* capture and ingestion**
- **the ability of *Cryptosporidium* life stages to survive and proliferate within water and biofilm environments**
- **effect of biofilm structure and associated communities on the above**

This project will largely involve the use of state-of-the-art imaging and analytical facilities located with the [Centre for Microscopy, Characterisation and Analysis](#) at The University of Western Australia. As such, students should have an interest in biological microscopy, parasitology, microbiology, and/or biofilms. Interested students should contact Dr Peta Clode (peta.clode@uwa.edu.au) or Prof. Andrew Thompson (A.Thompson@murdoch.edu.au) for further information.

Students must be eligible to enrol as a PhD candidate at [The University of Western Australia](#). International students will be expected to apply for an International Postgraduate Research Scholarship (IPRS), while Australian students will be expected to apply for a partner scholarship or an Australian/University Postgraduate Award (APA/UPA) scholarship through the [University of Western Australia Scholarships Office](#).



Australian Government
Australian Research Council



Centre for Microscopy,
Characterisation & Analysis

