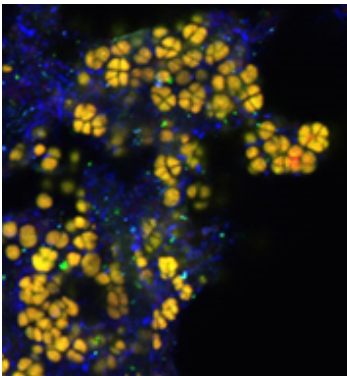


## Current PhD positions available

The Tyson lab is now recruiting motivated individuals for PhD positions in the field of microbial ecology. Professor Tyson and his team are actively involved in the development of novel culture-independent molecular approaches and bioinformatic tools, and their application to answer important questions about microbial communities across a range of ecosystems. The team is made up of researchers with diverse expertise within microbial ecology and genomics, providing an intellectually robust and collaborative environment. The group is a part of the Queensland University of Technology (QUT) and is located at the Translational Research Institute (TRI) in Woolloongabba, Brisbane. As part of the team the successful student will have access to state-of-the-art computing, laboratory facilities and expertise.

Candidates will receive a tax-exempt living allowance of \$28,597 per annum with an additional top-up of up to \$5,000 per annum will considered for outstanding applicants. In addition to the living allowance stipend, the successful applicant will receive student allocation funding of up to \$8,000 towards ancillary project costs such as conference travel. International students will receive a full tuition fee sponsorship. To apply, please send your cover letter, CV and academic transcript to Dr Simon McIlroy ([simon.mcilroy@qut.edu.au](mailto:simon.mcilroy@qut.edu.au)).



**Adaptive evolution of anaerobic methanotrophic (ANME) archaea mediating methane oxidation in freshwater environments:** The as-yet-uncultured archaeal lineage *Methanoperedenaceae* are anaerobic methanotrophs with a key role in mitigating the atmospheric release of methane in freshwater environments. The metabolic diversity of these microorganisms directly links methane with several key biochemical cycles and suggests a remarkable ability of these microorganisms to adapt to diverse environmental conditions. The overall aim of this PhD project will be to uncover the metabolic diversity of the *Methanoperedenaceae* and to understand the evolutionary mechanisms responsible for these adaptations. The project will utilise cutting-edge meta-omic and single cell visualisation

techniques.

### **Strain-level characterisation and visualisation of microbial communities associated with Inflammatory Bowel Disease:**

Inflammatory Bowel Disease (IBD) is a chronic, relapsing disorder driven by complex interactions between environmental, microbial and immune-mediated factors. Australia has one of the highest incidence rates of IBD in the world, and despite available treatments, there is no effective clinical solution for achieving long-term remission. An unfavourable shift in gut microbiome composition, known as dysbiosis, is now considered a key feature of IBD, however it is unclear how specific microorganisms and their interactions with host cells contribute to disease onset and progression. The overall aim of this project will be to perform strain-level characterisation of microbial communities in epithelial mucosa biopsy samples from individuals with IBD and non-IBD controls; and to visualise the spatial arrangement and distribution of these microorganisms *in situ*.

