Purpose
This scholarship will contribute toward an innovative biotechnological research programme supported by the MBIE Endeavour Fund. The research will be primarily laboratory-based, with a limited and optional field component. The focus for the research will be to characterise the bacterial communities associated with native and non-native marine invertebrates (likely ascidians) that have undergone experimentation using a “Genotype by Environment” ecological challenge approach. Since epibiotic and/or endosymbiotic bacteria are known to have key roles in mediating the allelochemical responses (i.e., bioactives) of many marine invertebrates, this work is expected to identify specific bacteria correlated with effective allelochemical defence or offence by the host marine invertebrate species. The results will identify targets for metagenomic sequencing, which in turn can reveal bacterial metabolic genes or pathways responsible for the synthesis of effective bioactives, providing foundational information for further characterisation and larger-scale production of said bioactives.

This scholarship is available for a highly motivated MSc Research candidate to carry out research on bacterial communities associated with marine invertebrates that have been identified as potential producers of potent (as measured through ecological success) bioactives. The successful applicant will work with Dr Charles Lee and Prof. Chris Battershill at the School of Science, University of Waikato in conjunction with collaborators from Murdoch University, National Cancer Institute (USA), and the Bay of Plenty Regional Council. The main techniques employed for this work will be 16S rRNA gene PCR amplicon sequencing (AKA bacterial metabarcoding) and shotgun metagenomic sequencing, so a background in microbiology and genetics is required.

Eligibility Criteria
Level: Masters
Enrolment Status: Must have been accepted for or have enrolled full-time in a Master of Science (Research) programme at the University of Waikato.
Start Date: A Semester 2020
Value/Tenure: $15,000, which will be applied directly to the tuition fees for the 120-point thesis paper, with the balance paid out as a stipend over the year of thesis research (maximum 1 year).

Application Documents Required
- A cover letter outlining your interest in the research topic (maximum one A4 page)
- A CV (maximum three A4 pages in length)
- Academic transcripts from previous study undertaken

Selection Process
All ‘Expressions of Interest’ will be considered and shortlisted candidates will be invited to discuss their suitability and interest in the research topic further with the selection panel.