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| **Research Theme: Computational Biology; Functional Genomics** |
| **PhD Research Project Title:**  **Chemical ecology of antibiotics in marine trophic interactions** |
| **Scholarship category (Please indicate the source of funding for this project):**  **SBS Research Student Scholarship (for SBS faculty only)** |
| **Principal Investigator/Supervisor: A/Prof Rebecca CASE** |
| **Co-supervisor/ Collaborator(s) (if any):** |
| **Project Description**  **a) Background:**  Macro and micro algae are essential in marine ecosystems as primary producers and habitat forming species. Algae are known to communicate with bacterial and eukaryote microbes through a sophisticated lexicon of biologically produced chemicals, or bioactives. This PhD project is interested in both the discovery and determining the biological activity of bioactive molecules which play a role in trophic interactions that impact the microbial loop.  **b) Proposed work:**   * Manipulative aquarium experiments on phytoplankton, zooplankton and bacteria at St John Island National Marine Laboratory * Use of bioactive deficient mutants (collaboration with JGI) in manipulative experiments to explore the effect of antibiotics on species-species interactions * Transcriptomics * PAM fluorometry (PSII function) * Various microscopy techniques to characterized the cell growth, differentiation and cell death processes   **c) Preferred skills: computation work on data analysis would be a big plus, but not indispensable**   * confident swimmer (opportunity to learn SCUBA diving but not required) * Undergraduate degree in biology or environmental sciences or marine sciences * Experience in one or more of the following: cell biology, molecular biology, bioinformatics, -omics |
| **Supervisor contact:**  **If you have questions regarding this project, please email the Principal Investigator:**  rj.case@ntu.edu.sg |
| **SBS contact and how to apply:**  Associate Chair-Biological Sciences (Graduate Studies) : [AC-SBS-GS@ntu.edu.sg](mailto:AC-SBS-GS@ntu.edu.sg)  Please apply at the following:  **Application portal:** <https://venus.wis.ntu.edu.sg/GOAL/OnlineApplicationModule/frmOnlineApplication.ASPX> |