Research Theme: **Computational Biology; Functional Genomics**

PhD Research Project Title:
Apoptotic like - programmed cell death (AL-PCD) in *Emiliania huxleyi*

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:

Apoptosis is thought to be restricted to animals, and multicellular organisms, however, the Case group has recently identified it in the abundant microalga, *E. huxleyi* AL-PCD is a response to bacterial infection. Current research is focused on elucidating the novel cellular and genetic pathways modulating this interaction in both the host and pathogen.

b) Proposed work:

- Transcriptomics
- Manipulative aquarium experiments on using this unique host-pathogen model
- Use of bioactive/pathogen deficient mutants (collaboration with JGI) in manipulative experiments to explore characterise a candidate virulence effector secreted through T4SS
- PAM fluorometry (PSII function)
- Various microscopy and flow cytometry 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

- Undergraduate degree in cell biology, microbiology, genetics or biology
- 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:
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SBS contact and how to apply:

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