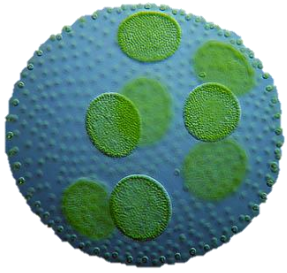
NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

SEMINAR

Mon, 22 April 2013 | 3pm | DBS Conference Room 1

Hosted by Professor Ding Jeak Ling

Algal Omics: shining light into underexplored corners of biology



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The evolution of oxygenic photosynthesis – the conversion of solar energy to chemical energy, with the emission of O2 as a side product - was a planet-changing event. Improved harnessing of the chemical energy produced by photosynthesis could help reduce the current planet-changing effects of CO2 emissions. In principle, algae have substantial advantages over plants for sustainable biofuel production, but there are some formidable technical problems to be overcome, among them the ability to select or engineer strains that are able to grow inexpensively under diverse conditions, produce desired molecules at high levels, be resistant to pathogens, competitors and predators, and be readily harvested and processed. Solving these requires a deeper understanding of algal biology. In this talk I will give a survey of the projects my lab is engaged in that are of interest from both a basic science perspective and for their potential to lay a firmer foundation for algal biotechnology. In particular I will discuss (i) a comparative transcriptomic/metabolomic analysis of triacylglyceride synthesis across two species and two induction conditions (ii) a de novo transcriptome analysis 185 algal species, focusing on predicted attributes that are relevant to the selection of organisms for further study, and (iii) riboswitch-mediated gene regulation.

Artwork by Ann Nee, DBS, NUS