

AN INTEGRATIVE ANALYSIS OF LIGHT RESPONSES IN *PHAEODACTYLUM TRICORNUTUM*

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Light-associated processes are among the most fundamental to photosynthetic algae. Microalgae such as diatoms experience large, rapid and unpredictable fluctuations in light intensity and spectral quality. The molecular mechanisms behind sensing and responding to these environmental changes and how they are connected to the observed physiological responses are still poorly known.

We have, through a series of experiments, investigated different aspects of the light response in *Phaeodactylum tricornutum*. Transcriptional profiling using full-genome microarrays, metabolic analyses, and variable fluorescence technique were used to generate an integrative view of the molecular and physiological responses through several time series measurements.

1. Low light acclimated cultures were transferred to high light conditions
2. Dark-grown (48h) cultures were re-exposed to light
3. A diel time series was made over a complete day-night cycle

Results from the individual experiments are presented. We will also combine the three datasets in order to reveal more complex connections underlying responses to light.