

Differential Gene Expression of an Antarctic *Chlorella* in Response to Temperature Stress

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Changes in gene expression occur during the acclimation and adaptation of Antarctic algae to environmental changes. The objective of the present study was to isolate and identify genes involved in the adaptation of an Antarctic *Chlorella* to temperature stress. In this study, the Antarctic chlorophyte *Chlorella* UMACC 234 was grown at three different temperatures, namely 4°C (ambient/cold stress), 20°C (optimum) and 30°C (heat stress) on a 12: 12 h light-dark cycle for 10 days. The RNA from *Chlorella* UMACC 234 was extracted and converted to cDNA by reverse-transcription. Differentially expressed genes in response to temperature stress were isolated and identified using the GeneFishing™ DEG Kit (Seegene), with 20 arbitrary annealing control primers (ACP). Some primers, for example ACP 6, ACP 9 and ACP 17 were useful in "fishing out" the genes which were over-expressed under low and high temperature stress. The bands of interest were excised from the agarose gel and purified by gel extraction kit. The purified fragments were cloned. The identities of cloned genes were analyzed by DNA sequencing and BLAST searching. Northern Blot and real time PCR analysis of selected genes are in progress.