TRANSCRIPTIONAL RESPONSE OF THE AQUATIC FUNGUS *BLASTOCLADIELLA EMERSONII* TO HYPOXIA AND TRANSIENT ANOXIA

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The presence of oxygen is essential for survival of aerobic eukaryotic cells. However, it is known that some organisms have the ability to tolerate anoxic conditions for longer periods than others, but the molecular basis for this adaptation is not fully understood. Using cDNA microarray analysis we show that changes in oxygen availability have important effects on gene expression in the chytridiomycete *Blastocladiella emersonii* that seems to be adapted to low aerated environments. Expression levels of 244 (6,53%) out of 3,735 genes examined changed significantly in response to hypoxia, anoxia and re-oxygenation. Besides modulating the expression of many genes with no previously assigned function, the fungus responds to oxygen deprivation by readjusting the transcription of genes required for energy production and consumption and genes involved in protective mechanisms and signaling pathways. It was also noticed that transient anoxia causes induction of certain genes for glycolytic enzymes and repression of two genes for TCA-cycle enzymes, supporting the probable maintenance of ATP levels by increasing anaerobic glycolysis.

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