

## Mitochondria in green microalgae: genome manipulation, respiratory chain analysis and retrograde signaling

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The green microalga *Chlamydomonas reinhardtii* is a model of choice for mitochondrial research, being the only green organism where mitochondrial genome can be efficiently transformed, and where many mitochondrial mutants are available. Mitochondrial genome transformation has enabled to investigate mitochondrial translation efficiency and the role of mitochondria-encoded subunits of the respiratory complex I. In addition, as respiration and photosynthesis are linked by common metabolites, interactions occurring between these two processes have been exploited to screen for complex I deficiencies in a chloroplast-deficient background. This has recently allowed the isolation of a complex I assembly mutant defective in *NDUFAF3*. A *NDUFAF3*-FLAG cell line is currently analyzed to identify the subcomplexes associated to this assembly factor. At last, we will present our results concerning the expression of redox probes in mitochondria with the aim to study how the mitochondrial retrograde signaling is perturbed in a respiratory deficient background compared to a control strain.