HIGH-THROUGHPUT SCREENING OF CYTOCHROME C NOVEL PARTNERS IN CHLAMYDOMONAS REINDHARTII

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Cytochrome c (Cc) has been described in mammals as a bifunctional protein, thus playing a double role in cell respiration as an electron carrier and in apoptosis as a triggering agent of the caspase-dependent apoptotic route [1]. In plants and green algae, the role of Cc in response to oxidative stress, or programmed cell death (PCD), is still unknown [2,3]. To identify novel targets of Cc in photosynthetic organisms, we have chosen the unicellular and flagellated alga *Chlamydomonas reindhartii* as a simple model system. We have designed a proteomic approach starting with an affinity chromatography step, in which *Chlamydomonas* Cc is covalently bound to thiol-Sepharose 4B [4]. First, the protein extracts from the algal cell cultures grown under normal or oxidative stress conditions were loaded into the affinity column. Further, the proteins purified by such affinity chromatography were analyzed by the Linear Trap Quadrupole (LTQ) technique so as to identify novel proteins interacting with Cc. Currently, the physiological relevance of such potential Cc targets are being confirmed in vivo by using the bimolecular fluorescence complementation assay (BiFC) [5,6].