NEW INSIGHTS INTO THE TRANSCRIPTIONAL REGULATION OF THE MITOCHONDRIAL \textit{ATRXO1} AND ITS ROLE UNDER SALINITY

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Thioredoxins (Trxs) are ubiquitous small proteins involved in the regulation of target proteins in different cell compartments through reduction of disulfide bonds. Among them, mitochondrial PsTrxo1 has been described to have a response in plants grown under salinity, where increased levels of reactive oxygen and nitrogen species (ROS/NOS) have been reported. However, there is scarce information on its role in this situation and its gene regulation. In this work, the transcriptional regulation of the mitochondrial AtTrxo1 gene has been studied by producing several AtTrxo1::GUS transgenic Arabidopsis plants containing conserved domains chosen comparing orthologous Trxo1 promoters in Brassicaceae. Three motifs were found as possible positive regulators and one as negative of AtTrxo1 expression. Using an arrayed yeast library from \textit{A. thaliana}, a set of transcription factors were shown as prey of AtTrxo1 promoter, and among them, we underlined AZF2, strongly related with abiotic stress. We have also studied the response of KO AtTrxo1 plants and seeds to salt stress, in order to gain insight on its functional role under germination and stress. Results indicated that the lack of AtTrxo1 produced a few phenotypic changes and influenced the time to 50\% germination under salinity, without affecting the final germination percentage. Results are discussed in relation to AtTrxo1 expression pattern and its transcriptional regulation.

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