Late submissions

PIX03

THE INVOLVEMENT OF TWO PLASTIDIAL *ARABIDOPSIS THALIANA* ABC1 KINASES IN IRON DISTRIBUTION AND OXIDATIVE STRESS RESPONSE.

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Keywords: Abc1 kinases, chloroplast, iron, oxidative stress.

The Abc1 protein kinases are a large family of proteins involved in respiration in bacteria and mitochondria, even though, knowledge about their putative functions in chloroplasts is still limited. We carried out a functional characterization of AtSIA1, a chloroplast *Arabidopsis thaliana* Abc1-like protein, focusing on its potential redundancy with its homolog AtOSA1: *A. thaliana* knock-out mutant lines for AtSIA1 and AtOSA1 were considered and the double mutant was created. A reduction in content of plastidial iron and in the abundance of components of the Cytb_6f complex were observed in mutants, suggesting that both AtSIA1 and AtOSA1 affect iron distribution within the chloroplast. Moreover, mutant plants accumulate more ferritin and superoxide than wild type plants, and their enhanced sensitivity to oxidative stress was supported by the upregulation of the antioxidant networks. Mutants produce altered levels of prenylquinones, but only *atsia1* plants develop larger plastoglobules, containing higher levels of VTE1. Taken together, these data suggest that AtSIA1 and AtOSA1 may act as protein kinases in signaling pathways that influence plastidial responses to oxidative stress.

PIX04

DIVERSE CIS-REGULATION OF A VACUOLAR METAL TRANSPORTER IN *ARABIDOPSIS THALIANA* AND *ARABIDOPSIS HALLERI*.

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Keywords: metal hyperaccumulation, VMT, expression, promoter, GUS.

The vacuolar metal transporter VMT is involved in metal hyperaccumulation. *VMT* is expressed at higher levels in metal hyperaccumulators *Arabidopsis halleri* and *Noccaea caerulescens* than in non-accumulator species, such as *Arabidopsis thaliana*. To gather information about the different transcriptional *cis*-regulation of *VMT*, we performed an *in silico* comparison of promoter sequences amplified from a variety of Brassicaceae species, including both hyper- and non-accumulators, and three putative motifs were identified and chosen for further *in vivo* analysis. Three different sequences corresponding to the *VMT* promoter were amplified in *A. halleri*. Truncated forms were generated isolating the core sequence and deleting two of the motifs, while site-directed mutagenesis was performed on the third motif. The cloned sequences were fused to the *GUS* reporter gene and the obtained constructs were used for *A. thaliana* transformation (*AtVMT* promoter was used as control). Promoters of both *A. thaliana* and *A. halleri VMT* are active in roots, guard cells and hydathodes, but only *Ah-pVMT* seems to be specific for leaf mesophyll and trichomes.