STUDY OF AN ARABIDOPSIS ABC1-LIKE GENE

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ABC1domain, cadmium

In previous work cDNA-AFLP technique was employed for the identification of genes modulated by cadmium. The *Arabidopsis* At3g07700, classified as a putative Abc1-like was selected, among the genes modulated by cadmium, for further investigation. It has an open reading frame of 695 amino acids and the protein sequence shows similarity to ABC1 protein family (activity of bc 1 complex) and with ABC transporters (*ATP-binding cassette*). The amino acids sequence contains an ABC1 domain and two transmembrane regions. In wild-type plant this Abc1-like gene is induced immediately after cadmium, nickel and selenium exposure. Its expression is not modulated by other abiotic stresses and hormonal treatments (ABA and IAA). Promoter study using the GUS gene as a marker showed GUS activity in cotyledons, leaf hydathodes and tricomes, and roots. In flowers GUS staining was observed in sepals and anthers. We identified mutant line (SALK_020431) harbored a T-DNA in the coding region and transcript analysis indicated a complete loss of the gene function. Under standard growth conditions, mutant plants showed normal phenotype, however when plants were grown *in vitro*, seedlings of mutant plants presented roots longer than wild-type. In addition, seed germination and stomatal response to light were different in mutant and wild-type. Over-expression of At3g07700 and mutant complementation are under investigation.