

DOWN- OR OVER-EXPRESSION OF A RCC1-LIKE GENE (LOCUS *At5g63860*) MODIFIES *ARABIDOPSIS* PLANT ARCHITECTURE

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At5g63860 is a single copy gene in *A. thaliana* genome, previously identified by a complementation analysis of the osmotic unstable *mpk/ppz1* yeast mutant.

It encodes a 440 aa protein, containing seven putative beta-propeller domains, conserved in several proteins with very different biological functions, ranging from signal transduction, transcription regulation, to apoptosis and cell cycle regulation.

Except for the involvement in UVB response (Brown *et al.*, 2006- PNAS 102: 18225-18230), the function of this gene is far to be completely uncovered. It was previously demonstrated, by a gain and loss approach, that the gene might act as a negative regulator of *Arabidopsis* plant growth. Western blotting analysis revealed a direct correlation between plant vegetative growth and the threshold protein levels.

To further characterize the *At5g63860 locus*, its cDNA was fused to *YFP* in the binary vector pBin19 under the control of the CaMV35S promoter and introduced in *Arabidopsis* plants via *A. tumefaciens*. Confocal microscopic analysis of transgenic lines expressing the fusion protein revealed that the protein AT5G63860 is localized in the root apex and in the plasma membrane.

To test if the gene product encoded by the *At5g63860 locus* were somehow involved in the cell cycle, the expression of *At5g63860* gene was monitored in the *Arabidopsis* cellular line MM2d treated with specific chemical inhibitors of late G1, G1/S, G2/M cellular phases. Additional data on the putative role of this unknown protein were obtained by treating the cells with several external stimuli (ABA, NaCl, ACC, BAP, GA₃, H₂O₂, myoinositol, glucose, PEG, starvation, etc).

The data will be discussed altogether to establish a casual relationship between the gene product of the *At5g63860 locus*, its cellular localization and vegetative growth and reproductive differentiation.