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Characterization of an unknown gene cloned during fruit developing process in melon

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Objectives

We cloned a gene expressed in the process of fruit enlargement in melon. We have tried to characterize the function of that gene using various molecular tools.

Materials and Methods

1. Material

Plant *Arabidopsis thaliana, Cucumis melo* cv. Reticulatus.

2. Methods

-clone a gene by the suppression subtractive hybridization.

-study gene expression of the gene using RT-PCR

-construct sense, anti-sense transgenics and characterize phenotypes of transgenics

-construct GFP fusion protein and transfect into onion epidermal cells.

Results and Discussion

A gene was cloned in melon fruit developing process. This gene was named as dlp (downward leaf rolling protein) based on its leaf rolling phenotype in sense transgenics. It existed as a single gene in melon as well as in Arabidopsis. Its expression increased during fruit enlarging process. The deduced polypeptide has the sterile alpha motif (SAM) domain which is a putative protein interaction domain existing in signaling-related and/or nuclear proteins. The dlp protein was localized near cell membrane or cell wall regions despite no existence of signal peptide. Its over-expression in Arabidopsis caused downward leaf rolling. However, anti-sense transgenics did not show any visible phenotype. The dlp protein was interacting with another unknown protein, which is so far the only protein interacting with dlp. By supposing dlp is a putative signaling related protein near membrane, we are analyzing the response of its gene expression to various hormones or stresses using transgenics and mutant.

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