F208 Isolation and Characterization of Two cDNAs encoding an Actin Depolymerizing Factor from *Petunia hybrida*

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Actin-depolymerizing factor (ADF) is one of the small actin-binding proteins which regulate actin dynamics in cells. We have been isolated two cDNA clones, designated as *PhADF1* (*Petunia hybrida* Actin Depolymerizing Factor 1) and *PhADF2,* encoding an ADF from cDNA library constructed from petal protoplast cultures of *Petunia hybrida*. *PhADF1* encodes a polypeptide of 139 amino acids with a calculated molecular mass of 16.04 kDa and a pI of 5.69. *PhADF2* encodes a polypeptide of 143 amino acids with a calculated molecular mass of 16.51 kDa and a pI of 5.48. The sequence comparisons revealed that the proteins have two conserved domains known to play a pivotal role in actin-depolymerizing activity of vertebrate ADF class. Gene tree represents an early divergence of plant and vertebrate classes of ADF. Genomic Southern blot analyses revealed that *PhADF* gene is composed of small multigene family in petunia genome. Northern blot analyses indicated that *PhADF* transcripts are accumulated in all plant tissues examined. To evaluate the biochemical characteristics of the PhADF proteins, we have expressed *PhADF1* in *E. coli* strain BL21. Recombinant PhADF1 had the ability to bind and depolymerize filamentous actin (F-actin) at pH7.0. These data suggest that PhADF proteins are included in the ADF family and may serve to remodel the cytoplasmic architecture of plant cells.

F209 Partial cloning and characterization of cytokinin-induced genes from Maize(*Zea may* L.)

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Cytokinins are important growth hormones that control the proliferation and differentiation of plant. Rapid changes in gene expression were studied during incubation of maize cotyledons with cytokinin in darkness. cDNA fragments for mRNA whose levels increased in 4h of treatment with N^6-benzyladenine(BA) were synthesized by differential display RT-PCR and these cDNA fragments were inserted into pCR2.1-TOPO. One of them is named CI8and its size was about 200 bp. CI8 hybridized with 3.1-3.2Kb mRNA by northern blot analysis. The amount of CI8 mRNA was increased 1.5 fold in BA-treated maize cotyledons compared with control. Treatment of the cotyledons with BA was shown to modulate CI8 mRNA levels in a dose- and time- dependent manner. These result suggest that a gene including CI8 is in part controlled at transcriptional level by cytokinin.