

Nature of Abscisic Acid Response Complexes (ABRC) Involved in Transcriptional Regulation of C1 and Cat2 Genes During Maize Embryo Development.

Bai, Dong-Gyu

Department of Biology, Chonnam National University, kwangju 500-757

Abscisic acid (ABA) has been known to exert some of its effect by altering the transcription level of genes. ABA-regulated gene expression is likely mediated by more than one pathway. For instance, acidic transcriptional activator, VP1, enhances the expression of many ABA-inducible genes, such as wheat Em and maize C1 gene. However, it is not required for the maize Catalase 1 (Cat1) and Rab 28 gene expression. Using gel mobility shift assay and in vitro transcription assay, We have investigated the nature of ABA response complexes (ABRC), which have resulted from the interactions between nuclear transcription factors and ABA response elements (ABREs) in the maize C1 and Cat2 promoters. Differential regulation of the C1 and Cat2 genes has been mediated by ABRCs composed of the different transcription factors and different ABRE and flanking sequences; ABA induction of C1 gene expression, but ABA suppression of Cat2 expression during maize embryo development. Interestingly, ABA has enhanced the specific binding affinity of nuclear proteins to cis-acting elements, probably through protein-protein interaction.