Cloning of Defense Related Gene ARID/ BRIGHT Against Fusarium Wilt in Chickpea

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ABSTRACT

The regulation of gene expression in response to internal and environmental cues occurs at many levels in the plant and animal cell. Myriad transcription factors, particularly those which function *in trans*, control the efficiency with which the transcription apparatus is assembled and the rate at which transcripts are produced from a genetic locus. Transcription factors (TFs) are conventionally defined by their ability to bind specific DNA sequences and regulate transcription. The ARID (AT-rich interaction domain) is a billion year old DNA-binding domain that has been identified in all sequenced higher eukaryotic genomes. The ARID consensus sequence spans about 100 amino acid residues, and structural studies identify the major groove contact site as a modified helix-turn-helix motif. In green plants 187 ARID genes are identified out of which 13 are present in Arabidopsis and 21 in Rice, one each in Lotus and Medicago etc. ARID containing genes are also present in vitis, ricinus, glycine, maize, sorghum, populous and barley. In the present study, the transcript profiling during *Fusarium* wilt in chickpea led to the identification of an ARID transcription factor. The gene was found to be differentially expressed and it was of great interest to clone the gene and study its role in immune response. Here we present the expression study of the *CaAB* transcription factor in response to *Fusarium*. We also demonstrate its tissue specific expression, copy number and subcellular localization.

Key words: *ARID/BRIGHT, Fusarium wilt and Chickpea*