

# **Stress induced expression in wheat of the *Arabidopsis thaliana* DREB1A Gene**

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### **Abstract**

One of the major environmental factors limiting plant productivity is the lack of water. This is especially true for the major cereals, maize, rice and wheat which demonstrate a range of susceptibility to moisture deficit. Although conventional breeding and marker-assisted selection are being used to develop varieties more tolerant to water stress, these methods are time and resource consuming and germplasm dependent. Genetic engineering is attractive because of its potential to improve abiotic stress tolerance more rapidly. Transcription factors have been shown to produce multiple phenotypic alterations, many of which are involved in stress responses. DREB1A, a transcription factor that recognizes dehydration response elements, has been shown in *Arabidopsis thaliana* to play a crucial role in promoting the expression of drought-tolerance genes. In our efforts to enhance drought tolerance in wheat, the *A. thaliana* DREB1A gene was placed under control of a stress inducible promoter from the rd29A gene and transferred via biolistic transformation into bread wheat. Plants containing the DREB1A gene demonstrated substantial resistance to water stress in comparison to checks under experimental greenhouse conditions manifested by a 10-day delay in wilting when water was withheld.