

## Cloning and Functional Analysis of Stress Inducible Genes from Soybean

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Low temperature is a major environmental factor that greatly influences plant growth, development, and crop yield. To acclimate cold and acquire freezing tolerance, changes in gene expression and de novo protein synthesis are required during cold acclimation. Specific signal transduction pathways are involved in cold acclimation and activation of many cold-regulated (COR) genes.

Wounding is a serious stress in plants. Plants quickly respond to wound stress for the survival by activating numerous defense-related genes. In response of wounding, plants synthesize and accumulate proteinase inhibitors in wounded and unwounded leaves. In addition, various kinds of wound-responsive genes have been reported. Several kinds of signal agents are known to be involved in wound signaling.

Two thousand colonies obtained from SSH were screened by colony hybridization. Two hundreds positive clones were selected through sequence analyses and database search. Their functions were analyzed using Northern blotting in various conditions.

The purpose of this research was :

1. Cloning of differentially expressed cDNAs on various condition in soybean using SSH.
2. Identification of gene function and characterization via analyses of cloned cDNA sequences, homology search, protein analysis and simulation, Southern and Northern blotting, and in situ hybridization.
3. Obtainments of full gene sequences with new functional compounds or agronomically important function.