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Cloning of *gro* (Growth Response) genes which are induced, during breaking of quiescence in root buds of leafy spurge

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Under normal growing conditions, root buds of leafy spurge are maintained in a quiescent state by an unknown molecular mechanism. However, if the leafy portion of the plant is destroyed or removed, the root bud will break quiescence, and grow as shoots. This is a major problem in controlling this noxious weed since the root buds are much more resistant to herbicides than the leafy portion of the plant. In order to learn more about the mechanisms and signal transduction pathways involved in maintaining and breaking of quiescence in root buds of leafy spurge, we utilized differential display technology to identify and then clone two genes that are specifically induced in root buds after mechanical removal of the stem. Work is currently underway to identify the proteins that are encoded by these genes, and to identify and isolate the *cis* acting elements that are responsible for the induction of these genes during the breaking of quiescence. Work is also underway to determine the tissue specificity and other environmental factors that play a role in the regulation of these genes.