A Putative Telomerase Reverse Transcriptase Ortholog from Alfalfa. (C07-gana124620-Poster)

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Abstract:

The ends of eukaryotic chromosomes contain specialized structures known as telomeres that are responsible for maintaining the chromosome integrity. Telomeres contain telomeric DNA synthesized by telomerase. Telomerase consists of telomerase reverse transcriptase (TERT) associated with an RNA molecule that provides the template for TERT to reverse transcribe to specific repeated G-rich core element present at the ends of chromosomes. Little is known about telomerase in alfalfa (Medicago sativa L.), although it has been characterized in Arabidopsis and rice. Because of the conserved role of TERT in virtually all eukaryotic systems in which it has been characterized, we hypothesized that TERT sequences also would be conserved in alfalfa. We tested this hypothesis by performing multiple sequence alignments of TERT amino acid sequences from the two plant species. We synthesized degenerate primers to conserved domains and utilized these primers in RT-PCR with total RNA derived from alfalfa cell cultures and root tissues. We obtained and cloned a 1-kb PCR product from both tissue types. The results of sequence analysis to confirm the identity of the putative TERT PCR product, and the expression of TERT in relation to cold and defoliation stress in alfalfa will be discussed

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