

Sequence-specific binding property of *Arabidopsis thaliana* telomeric DNA binding protein 1(AtTBP1)

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In eukaryotic organisms, the telomere is a well-conserved structure that consists of telomeric repeats and specifically associated proteins. The telomere is essential for the maintenance of chromosome integrity and for protection from end-to-end fusion and exonucleolytic degradation. We have identified an *Arabidopsis thaliana* cDNA, designated as *AtTBP1*, encoding a protein with a predicted size of 70.6 kDa that specifically binds to the plant telomeric repeat sequence TTTAGGG. *AtTBP1* is present as a single copy gene in *Arabidopsis* genome and is expressed ubiquitously in various organs. AtTBP1 has a single Myb telomeric DNA binding domain at the C-terminus and extensive homology with other known telomere binding proteins. The isolated C-terminus of AtTBP1 is capable of sequence-specific DNA binding to plant duplex telomeric DNA. Two-telomere repeats are minimum length for binding the isolated C-terminus of AtTBP1. *Arabidopsis thaliana* telomere-associated sequences (TAS) are not able to compete with telomeric repeats in binding to AtTBP1. Experiments with GFP-AtTBP1 in onion epidermal cells reveal that AtTBP1 is a nuclear protein with a functional nuclear localization signal. These results suggest that AtTBP1 may play important roles in plant telomere function *in vivo*.