



## Genome-wide analysis of TCP family in tobacco

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Genet. Mol. Res. 15 (2): gmr.15027728

Received September 25, 2015

Accepted January 18, 2016

Published May 23, 2016

DOI <http://dx.doi.org/10.4238/gmr.15027728>

**ABSTRACT.** The TCP family is a transcription factor family, members of which are extensively involved in plant growth and development as well as in signal transduction in the response against many physiological and biochemical stimuli. In the present study, 61 *TCP* genes were identified in tobacco (*Nicotiana tabacum*) genome. Bioinformatic methods were employed for predicting and analyzing the gene structure, gene expression, phylogenetic analysis, and conserved domains of TCP proteins in tobacco. The 61 *NtTCP* genes were divided into three diverse groups, based on the division of *TCP* genes in tomato and *Arabidopsis*, and the results of the conserved domain and sequence analyses further confirmed the classification of the *NtTCP* genes. The expression pattern of *NtTCP* also demonstrated that majority of these genes play important roles in all the tissues, while some special genes exercise their functions only in specific tissues. In brief, the comprehensive and thorough study of the TCP family in other plants

provides sufficient resources for studying the structure and functions of TCPs in tobacco.

**Key words:** Tobacco; TCP transcription factor; Phylogenetic analysis; Gene expression pattern analysis