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MOBILITY OF TTD1A RETROTRANSPOSON BY STRESS MODULATE RESISTANCE EXPRESSION GENE IN DURUM

WOODROW P., PONTECORVO G., FUGGI A., KAFANTARIS I., ANNUNZIATA M.G., CARILLO P.

Department of Life Science, Second University of Naples "SUN", Via Vivaldi 43, 81100 Caserta (Italy)

Salt stress, light stress, Triticum durum, retrotrasposon

Long terminal repeat retrotransposons are the most abundant mobile elements in the plant genome (Flavel et al. 1992). Stress modulation of retrotransposons may play a role in generating host genetic plasticity in response to environmental stress. Their success depends on the ability of their promoters to respond to different signaling pathways that regulate plant adaptation to biotic and abiotic stresses. In fact, their promoter elements are similar to those of plant defence genes and may bind similar defense-induced transcription factors. In this work, we have isolated a new Ty1-copia-like retrotransposon, named Ttd1a from the *Triticum durum* L. genome. To get insight into stress activation pathways in Ttd1a, we investigated the effect of salt and light stresses by RT-PCR and S-SAP profiling (Woodrow et al. 2010). We screened for Ttd1a insertion polymorphisms in plants grown under stress and showed that one new insertion was located near the resistance gene. Our analysis showed that the activation and mobilization of Ttd1a was controlled by salt and light stresses, which strengthened the hypothesis that stress mobilization of this element might play a role in the defence response to environmental stresses. Finally, using a retard mobility assay in *Triticum durum* L. crude extracts, we showed that the CAAT motif present in the Ttd1a retrotransposon promoter, is involved in DNA–protein binding under salt and light stresses and therefore in the regulation of Ttd1a activity (Woodrow et al. 2011). Data presented in this paper suggest that nuclear proteins can interact with the CAAT motif either directly or indirectly and enhance Ttd1a by a specific ligand-dependent activation under stress.

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