

PROSYSTEMIN OVER-EXPRESSION IN DIFFERENT TOMATO GENETIC BACKGROUNDS

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Prosystemin is the precursor of the 18 aminoacid systemin polypeptide released, as systemic signal, in response to the damage produced by phytophagous insects or mechanical wounding. Systemin is the primary signal for the signaling cascade that is released at wound site and, in cooperation with Jasmonic Acid (JA), transmits the defence signal distantly along the infested plant. The polypeptide activates a lipid-based signal transduction pathway in which the 18:3 fatty acid, linolenic acid, released from plant membranes, is converted to the oxylipin signaling molecule JA. Besides regulating the activation of over 20 defensive gene, systemin interplays with other pathways such as salt stress related participating to the cross-tolerance response. It has been recently shown that prosystemin over-expression is associated with an increased level of indirect defence through the transcriptional activation of genes involved in the production of volatile compounds and that the modifications in gene expression associate with an alteration of the volatile blend produced by transgenic plants (Corrado *et al*, *J. Chem. Ecol* 2007; 33: 669). The combination of increased levels of direct and indirect defences represent an interesting approach for tomato defence against herbivores.

In order to study example of defence gene combination, we produced tomato lines over-expressing prosystemin, in different genetic backgrounds including other resistance genes. These lines should reveal a better performance in the defence responses induced by herbivores infestations.