

MONITORING MESSAGE LOCALISATION OF *KNOPE3L*, A CLASS II *KNOTTED*-LIKE GENE, DURING STEM, LEAF AND DRUPE DEVELOPMENT OF PEACH (*PRUNUS PERSICA* L. BATSCH)

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The *knotted-like* homeobox (*KNOX*) genes encode transcription factors which play a role in the regulation of plant development. They have been divided into two classes: the class I *KNOX* genes control meristem identity; whereas the class II messages (*KNOX II*) are more ubiquitous, and their function is poorly investigated in crop species for an exiguous number has been characterised so far. However, *KNOX II* are thought to be involved in shoot vigour, fruit architecture and fibre content in conifers: these traits are also important in tree fruit production and their control is crucial in breeding programmes.

Two full length cDNAs, *KNOPE3L* and *KNOPE3S*, were cloned from peach fruit and the deduced products were 98% and 83% identical to arabidopsis KNAT3 and KNAT4, respectively.

KNOPE3L harboured 5 introns which maintained conserved positions as compared to other plant *KNOX II* members. Southern analyses suggested that each gene is represented by a single copy in the peach genome. *KNOPE3L* was located on the linkage group 1 of *Prunus* map by following the segregation of a PCR-RFLP marker in a F2 population of almond (cv. Texas) X peach (cv. Earlygold).

Message localisation was monitored in herbaceous stems performing sections located under the shoot apical meristem and proceeding for 5 internodes downstream. *KNOPE3L* transcript was spread thoroughly, with peak signal in vascular bundles, and was absent in the epidermis. In sections of stem secondary structure, *KNOPE3L* message was just phloem-associated. The latter pattern was also observed in leaf petioles. In leaves, the message was absent in the epidermis, but signalled in all the other cell layers. However, in leaves at very early developmental stages the transcript was less abundant than in those at later stages. Finally, an intense signal constantly occurred in bundles of drupes at various stages but not detected in cells of pericarp, mesocarp and endocarp.