

***KNOPE1*, A CLASS 1 *KNOTTED-LIKE* GENE OF PEACH, PLAYS A ROLE IN STEM DEVELOPMENT**

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The reservoirs of meristematic cells of the shoot apical meristem and the cambium have to be guaranteed to support indeterminate growth and require the expression of class 1 *KNOX* genes. The arabidopsis class1 *BREVIPEDICELLUS* (*BP*) regulates internode development and wood formation by direct interaction with promoters from genes acting in the lignin synthesis. In the past, we characterised peach *KNOPE1*, a *BP*-like gene, which was located onto linkage group 1 of the *Prunus* reference genetic map, in association with a quantitative trait locus controlling the internode length. Hence, we addressed *KNOPE1* role in caulis development. In stem portions sited 0.2 mm below the SAM, the *KNOPE1* message featured in the cortex and marked the borders of petiole bundles, recalling *BP* behaviour. In internodes at 4 mm below the apex, it mainly localised to the phloem and intra fascicular cambium. In 5 month old shoots, the *KNOPE1* transcript abundance decreased from top to basal stem portions, while key lignin biosynthesis genes increased the expression, suggesting that *KNOPE1* activity and lignin deposition were inversely correlated. Arabidopsis lines overexpressing *KNOPE1* exhibited decreased lignin content in the stem, together with typical modifications of leaf margins and vascular system, similarly to those overexpressing *BP*. These results strongly suggest that *KNOPE1* has a role in regulating internode length and stem maturation in peach. In addition, *KNOPE1* protein was demonstrated to bind to the TGACAGG/CT sequence recognised by the major class1 *KNOX*. The arabidopsis *COMT1* and *CCoAOMT* genes encode crucial lignin methyl-transferases, whose promoters contain such motif. Consequently, we set up binding experiments between *KNOPE1* and these promoters, and results will be presented.