

Domain analysis of ANGUSTIFOLIA related to leaf width elongation

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The morphology of arabidopsis leaves is regulated by the orientation of cell division and cell elongation. The *ANGUSTIFOLIA* (*AN*) regulates the polar elongation of leaf cells in the leaf-width direction. Our cloning of the *AN* gene revealed that it encodes a homolog of human CtBP(carboxy-terminal binding protein), which is known as a transcriptional corepressor. *ANGUSTIFOLIA* has not only D2-HDH (D-isomer-specific 2-hydroxy acid dehydrogenase) motif which is conserved among CtBPs, but also LxCxE motif, PEST motif, Putative Cell-cycle-specific phosphorylation site and nuclear localization signal. In the present study, we carried out the comparative analysis of AN protein with authentic CtBP/BARS family, focusing on the above-mentioned AN-specific motifs which is not found in CtBPs. In coincident with the lack of consensus catalytic triad for dehydrogenase activity and GXGXXG(17X)D motif for NAD-binding, AN did not show ability of interaction with the C-terminal region of E1a. Although AN has LXCXE motif that is known to be responsible for the interaction with Rb protein, AN did not interact with Rb in yeast two-hybrid system and transgenic *an* lines harboring Rb-binding-motif-mutated *AN* gene could recover *an* phenotype such as that of wild type. Moreover Cell-cycle-specific phosphorylation site- and NLS-mutated *AN* gene also did not lose the function on leaf-width regulation. Getting together with our datum, we will discuss the possible function of *AN* gene on regulating leaf morphology.