

論文の内容の要旨

Studies on stable establishment of leaf identity during embryogenesis in Arabidopsis

(胚発生過程における葉のアイデンティティー確立に関する研究)

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In seed plants, two different meristems (the shoot apical and root apical meristems) form at the apical and basal poles of the embryonic axis, and leaves form at the flanks of the shoot apical meristem. *ANGUSTIFOLIA3/GRF INTERACTING FACTOR1 (AN3/GIF1)* encodes a putative transcriptional co-activator involved in various aspects of shoot development, including the maintenance of shoot apical meristems, cell proliferation and expansion in leaf primordia, and adaxial/abaxial patterning of leaves. Here, I report a novel function of AN3 involved in developmental fate establishment. I characterised an *an3*-like mutant that was found to be an allele of *hanabataranu (han)* named *han-30* and examined its genetic interactions with *an3*. *an3 han* double mutants exhibited severe defects in cotyledon development such that ectopic roots were formed at the apical region of the embryo, as confirmed by *pWOX5::GFP* expression. Additionally, *gif2* enhanced the ectopic root phenotype of *an3 han*.

Although the auxin accumulation pattern of the embryo was correct in *an3 han-30* based on *DR5rev::GFP* expression at the globular stage, expression of the *PLETHORA1 (PLT1)*, a master regulator of root development, expanded from the basal embryonic region to the apical region during the same developmental stage. Furthermore, the *plt1* mutation suppressed ectopic root formation in *an3 han*. These data suggest that establishing cotyledon identity requires both *AN3* and *HAN* to repress ectopic root formation by repressing *PLT1* expression.