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***kidari1-1*, a dominant mutation in *Arabidopsis*, confers hyper-auxin phenotypes**

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Objectives

Auxin is well studied plant hormone involved in many aspects of plant growth and development. Here we report a fertile *Arabidopsis* mutant, *kidari1-1* (*kidari* means 'big guy' in Korean), which has an auxin overproduction phenotype.

Materials and Methods

Plant-*Arabidopsis thaliana* plants (ecotype C24); Tagging vector-pSK1015 (provided by Prof. Detlef Weigel). The *kidari1-1* mutant was isolated by activation tagging mutagenesis.

Results and Discussion

The genomic DNA adjacent to the left border of the T-DNA insertion was cloned by TAIL-PCR. The CaMV 35S enhancer was inserted 11Kb downstream of the coding region of a flavin monooxygenase-like protein, which is among the *yucca*-like gene family. The transcript of this ORF was 9 fold increased in *kidari1-1* plants. Genetic analysis indicated it to be a single locus, dominant mutation. *kidari1-1* has typical auxin overproduction phenotypic alterations like epinastic cotyledons, increased apical dominance and curled mature leaves. Unlike other auxin overproduction mutants, *kidari1-1* does not have short or hairy root phenotypes. In addition, *kidari1-1* is very large and produces strong apically dominant inflorescences of 1 meter or longer. This mutant also displays delayed senescence and is able to survive for up to 5months longer than wild type. By using microarray analysis, we found that expression of IAA-inducible genes, including *IAA/AUX*, *SAUR*, and *GH3* in *kidari1-1* is several-fold higher than that in wild type. Cotyledon explants of *kidari1-1* seedlings can develop numerous roots on auxin free media, whereas explants of wild-type cotyledon can not. When incubated on cytokinin-containing media, explants of *kidari1-1* cotyledons can propagate into callus and shoots. Results from tryptophan analog feeding experiments indicated that *KIDARI* involves in the tryptophan-dependent auxin biosynthesis.

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