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The KnownLeaf literature curation system captures knowledge about Arabidopsis leaf growth and development and facilitates integrated data mining

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Phenotype examples

1. The rot3-2 allele causes enlarged leaf blades

2. The rot3-2 allele causes ... short petioles

3. 35S-ICK1 plants ... there was a range of changes in leaf shape

4. double mutants between se and as1 ... showed dramatic lobing of leaves

5. 35S::KNAT1 leaves are ... folded upwards

6. The serrate (se) mutant (Fig. 1B) showed strong serration of the leaves

7. Fresh weight ... of exo shoots were diminished in comparison to the wild-type

8. Transgenic 35S-ICK1 plants were smaller than control plants

9. The complexity of venation in as2-1 cotyledons was lower than that in the wild type

10. Epidermal leaf cells of 3-week-old gpa1 mutants are significantly larger

11. kan1 kan2 plants ... Leaves are ... dark green

12. treatment with GA3 increased ... the length of wild-type leaf blades by 17%

13. swp leaves ... some of the mesophyll cells contained larger nuclei

14. AS1>>KAN2 plants, the leaves that developed were radialized

15. AS1>>KAN2 plants, the leaves that developed were ... abaxialized

16. smp2-1 homozygous plants ... looked wild-type

17. fil-8 yab3-2 ant-4 ... decreased leaf area

18. Atofp1-1D mutants mainly have defects in cell elongation

19. the leaf index (the ratio of the leaf length to the leaf width) was increased from 2.3¬± 0.2 in control plants to 2.7¬± 0.2 ... in transgenic 35S:MIR396a ... plants

20. 35S::ANT leaves had slightly higher rates of cell proliferation than wild-type at Day 0

Gene expression examples

1. ROT3P::GUS ... we observed ... in leaves (GUS staining)
2. FIL ... No signal is detected in differentiated leaves (in situ hybridization, WT background)
3. In differentiating leaves FIL mRNA can be detected in the abaxial epidermis (in situ hybridization, WT background)
4. ANT mRNA accumulated in leaf (RNA level_, WT background)
5. LEP expression was significantly increased in let compared to wild type (Northern blot)
6. mRNA of REV ... restricted to the adaxial domain as developing primordia (in situ hybridization WT background)
7. prolonged expression of CycD3;1 also was detected in 35S-ARGOS leaves (RT-PCR)
8. In kan1 kan2 double mutants, AS2 transcripts were detected at wild-type levels (RT-PCR)
9. AS2 transcripts were detected in rosette leaves, where they were more abundant in the petiole than in the blade (RT-PCR, WT background)
10. 1-h BR treatments resulted in increased EXO transcript levels in ... wild-type ... plants (microarray on shoot)
11. In young seedlings, however, the expression of ROT4 was clearly detected in shoots (RT-PCR, WT background)
12. ATAF2 ... In mature leaves, strong expression was observed in the hydathodes (GUS staining, WT background)
13. KNAT1 was ectopically expressed in as1 leaves (RT-PCR)
14. The level of FIL transcripts increased in as2-1 (RT-PCR on shoot apex)
15. level of HLS1 protein was increased in response to ethylene treatment (Western blot on seedlings, WT background)

Feature examples

1. AtCPL2 contains one dsRNA-binding domain
2. SWP protein ... two putative nuclear localization signals
3. BOP1 protein ... ankyrin repeat domain is located in the C-terminal region from residues 242 to 368
4. ARF2 has one tasiR-ARF recognition site
5. One class-II TCP box was also found in the AtCDT1b promoter
6. indicating that the R358K mutation in DA1 is responsible for increased seed and organ size

Genetic interaction examples

1. se quantitatively and qualitatively enhanced the lobing of ... as2 leaves
2. as1 can rescue the stm phenotype in ... vegetative meristems
3. hyl1 ... appeared to suppress the as2 phenotypes
4. The two kanadi mutants display a strong synergistic interaction: while kan2 has no visible aberrant phenotype on its own, it has a dramatic effect in kan1 background, even when heterozygous
5. If TTL functions as a negative regulator in BR-mediated cell growth, its overexpression could suppress the BRI1-overexpressing phenotype. Indeed, the resulting F2 transgenic plants homozygous for both transgenes displayed wider and shorter rosette leaves than the BRI1-overexpressing transgenic plants

Protein-protein interaction examples

1. molecular interaction of AN and ZWI ... using the ... yeast two-hybrid system
2. AN was able to form dimers in yeast cells
3. BIN2 phosphorylation of BES1 reduced BES1 binding to the promoter of SAUR-15

4. To investigate NINJA function in JA signalling, we set up a new TAP experiment with NINJA as bait. NINJA was present in a complex with ... the group-II TIFY proteins ... PPD2

DNA-protein interaction examples

1. ARF2 could bind to the SAUR-15 promoter, and preincubation with BIN2 greatly reduced DNA binding activity

2. Using double-stranded oligonucleotides covering the potential TCP binding sites in the context of the LOX2 promoter, we performed EMSAs. The in vitro studies confirmed that TCP4 can bind strongly to at least two of the consensus motifs

3. We expressed the GST fused with the DNA-binding domain in N-terminus (ARF2-N1-470) in Escherichia coli and purified the fused protein with the help of the GST tag ... ARF2 N-terminal DNA binding domain binds to AuxREs in the promoter of HB33

4. Using surface plasmon resonance (SPR), we found that RHL1 binds to DNA in a concentration- and salt- dependent manner

Process examples

1. RHL2 ... involved during endocycles

2. These results indicate that ATHB16 affects rosette leaf growth

3. KCS1 protein is involved in wax biosynthesis

4. THE1 ... is a ... receptor kinase

5. KNAT7 ... role in secondary wall formation

Regulation of gene expression examples

1. In stem cells STM negatively regulates AS1

2. role for AS1 ... in keeping KNAT1 off in leaves post-initiation

3. TCP4 ... positively regulate LOX2 promoter activity

4. ARF4 transcripts are subjected to negative regulation by cleavage and is consistent with potential regulation of these mRNAs by tasiR-ARF

Regulation of process examples

1. KLU gene is ... promoting growth
2. KAN promotes abaxial identity
3. AtTOR activity is needed to restrain senescence and nutrient recycling
4. HERK1 ... promoting cell elongation during vegetative growth

Regulation of phenotype examples

1. PHABULOSA ... influence leaf shape