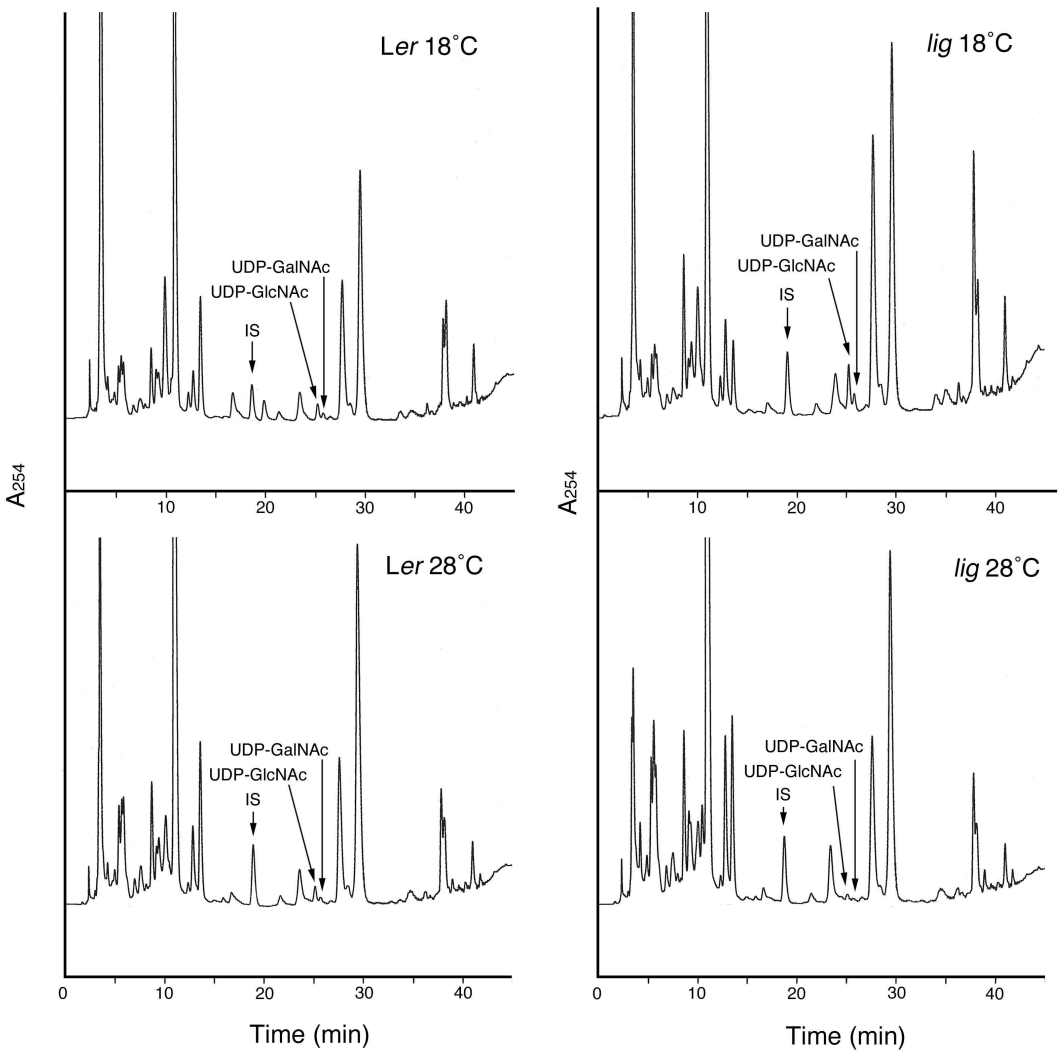
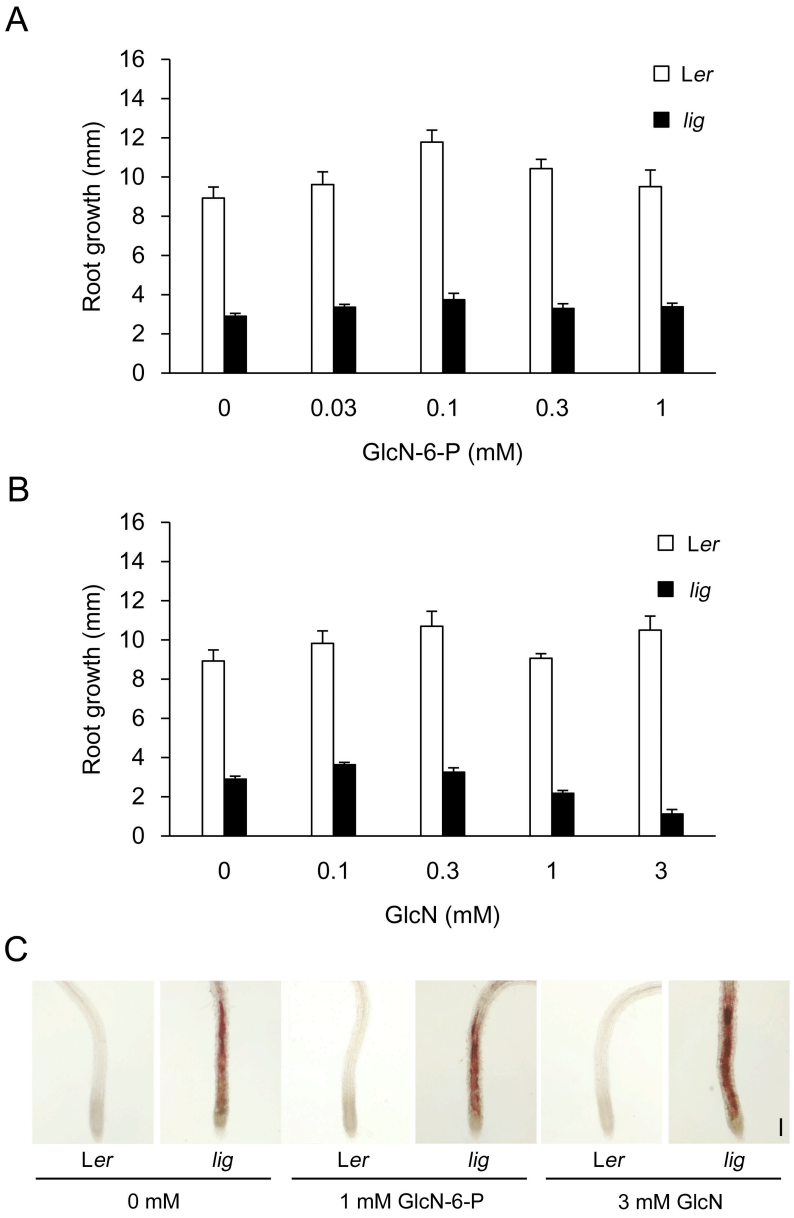


Supplemental Figure 1. Anion Exchange HPLC Elution Profiles for UDP-GlcNAc and UDP-GalNAc Analyses in the *lig* Mutant and Wild-type Seedlings.

Nucleotide sugars were extracted from the roots of seedlings of the wild type (L*er*) and *lig* mutant grown for 5 d at 18°C and then for 3 d at 18°C or 28°C. The eluate was monitored at 254 nm. Arrows indicate cytidine-5'-monophospho-*N*-acetyl-D-neuraminic acid as an internal standard (IS), UDP-GlcNAc, and UDP-GalNAc.

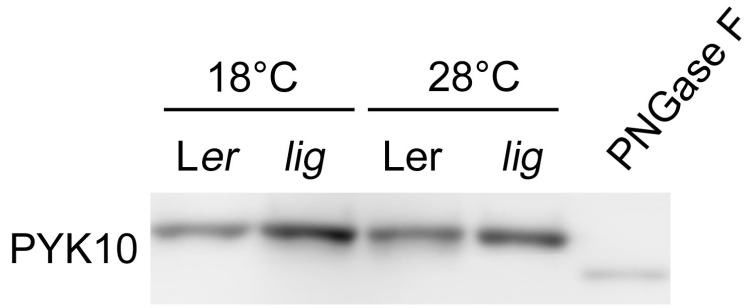


Supplemental Figure 2. Effects of Treatment with Nonacetylated Glucosamine or Glucosamine-6-Phosphate on Root Growth and Ectopic Lignin Deposition in the *lig* Mutant.

Seedlings were cultured on GMA containing various concentrations of glucosamine-6-phosphate (GlcN-6-P) or glucosamine (GlcN) for 3 d at 28°C after 5 d of culture at 18°C.

(A) (B) Growth of primary roots during 3 d of culture at 28°C was measured. Vertical bars represent SE values for seven to 16 seedlings.

(C) Primary root tips of the wild-type (L*er*) and *lig* seedlings stained with phloroglucinol-HCl for detection of lignin. Scale bar represents 100 μm.



Supplemental Figure 3. Immunoblot Analysis with the Anti-PYK10 Antibody.

Proteins were extracted from the roots of seedlings of the wild type (L*er*) and *lig* mutant grown for 6 d at 18°C and then for 3 d at 18°C or 28°C. A portion of the protein sample prepared from the wild type (L*er*, 28°C) was incubated in the presence of PNGase F for digestion of *N*-glycans before SDS-PAGE. Each lane contains proteins equivalent to the extract from 2 mg (fresh weight) of root tissues.

Supplemental Table 1. Segregation of the Adventitious Root Phenotype in the Progeny of the Mutant Line Backcrossed with the Wild-Type L*er*.

Plant line	Number of explants that formed adventitious roots normally at 28°C / Total number of explants examined
L*er*	16 / 16
b2337[a]	0 / 12
BC_2-1[b]	22 / 32[c]
BC_2-2[b]	23 / 32[c]
BC_2-3[b]	32 / 32
BC_2-4[b]	25 / 27
BC_2-5[b]	28 / 28
BC_2-6[b]	26 / 32[c]

Hypocotyl explants were cultured on RIM at 28°C to examine the temperature sensitivity of adventitious root formation.

[a] The original line of *lig*.

[b] The b2337 (original *lig*) line was backcrossed two times with the wild-type L*er* and the resultant BC_2 plants were allowed to self-pollinate. Seeds were collected separately from each individual BC_2 plant and subjected to examination of the adventitious rooting phenotype.

[c] Not significantly different from the ratio of three normal to one temperature-sensitive ($P > 0.1$, by X^2 test). In these cases, the parental BC_2 plants were assumed to be heterozygous for a single, recessive mutation responsible for the temperature sensitivity of adventitious root formation.

Supplemental Table 2. Primers Used in RT-PCR Analysis.

Primer Name	Sequence	Cycles
PAL1-F	5'-CACGAGATTGGCGATAGCAG	26
PAL1-R	5'-TCCGTTATCGTAGGCTGCTC	
CCR1-F	5'-TTGTTGAGATTCTGGCTAAGCTA	26
CCR1-R	5'-TGAAGACTTGACTACAAAATCCATC	
CCR2-F	5'-TGTTGAGATTCTGGCCAAATTC	28
CCR2-R	5'-ATAAAACCATTGCTTCCATTATCG	
CAD-C-F	5'-GCACAGGAGCAGATGATG	26
CAD-C-R	5'-CGCCATTAGACCGAAGTG	
CAD-D-F	5'-GGGGACATAGTTGGAGTTGGT	26
CAD-D-R	5'-GCTCCCCGTTATCACTTTCCT	
UBQ-F	5'-TAAAAACTTTCTCTCAATTCTCTCT	24
UBQ-R	5'-CAAGAGTTCTGCCATCCTC	
BIP3-F	5'-AAGGCGAAGAGCAGAAACTG	28
BIP3-R	5'-CCCGTTGGCTCATTGATT	
ACT2-F	5'-TTAACTCCCGCTATGTATGTC	24
ACT2-R	5'-TTCCATTCCCACAAACGAG	