Supplemental files

Table S1 List of the primers for qRT-PCR analysis of the genes.

Gene	Primers
AtLBD29	5'gctaggcttcaagatcccatc3' 5'tgtgctgcttgttgctttaga3'
AtLBD16	5'tgaccctgtttatggatgtgtc3' 5'tgattgcaagaaagccacct3'
AtIAA14	5'GCAGAGGAGGCAATGAGTAGTG3' 5'GAGCATCCAGTCACCATCTTTG3'
AtCYP79B2	5'CACGATGATGCTCGCGAGACT3' 5'TCACTTCACCGTCGGGTAGAGA3'
AtASA1	5'ATGTCTTCCTCTATGAACGTAGC3' 5'ACAGCGGTAAATTGGTATAAGG3'
AtPAT1	5'ATGGTTATTGCGGTGGCGAC3' 5'ATCGTCGCCGACTCAATGTC3'
AtAMI1	5'CGGACTTACTCCAATGGCTCAG3' 5'GCTGCTGCAGGAGAACGCAACC3'
AtSUR1	5'GACCACCAAGGTGTTACAATCC3' 5'ATTATTGTGGCAGGGTCAGG3'
AtTAA1	5'CTCCAAGATCACAGGCCACGCTGGG3' 5'GACTCCTTAGACACACCAATCGAGTTC3'
AtYUC2	5'GGTGACACGGATCGGTTAGGGT3' 5'TGCCGAATAATGCATTACCCGT3'
AtYUC3	5'CTTGAGATTGATTCCGTTATTC3 5'GGAGAAGAAGTCGTTGTC3'
AtYUC9	5'ATCTTGCTAACCACAATG3' 5'CCACTTCATCATCATCAC3
AtAAO1	5'TGCCTGTTCCAGCAACAATG3'

	5’ TAAGCAGAACACCGCCATTG 3’
AtAAO3	5’GGAGTCAGCGAGGTGGAAGT3’ 5’TGCTCCTTCGGTCTGTCCTAA3’
AtRBOHD	5’ATTACAAGCACCAAACCAG3’ 5’TTCTCCGACCATCTCACTA3’
AtRBOHF	5’TCACAAATCAACGACGAGAGTT3’ 5’CCCATCTTCATTCTTGTCCA3’

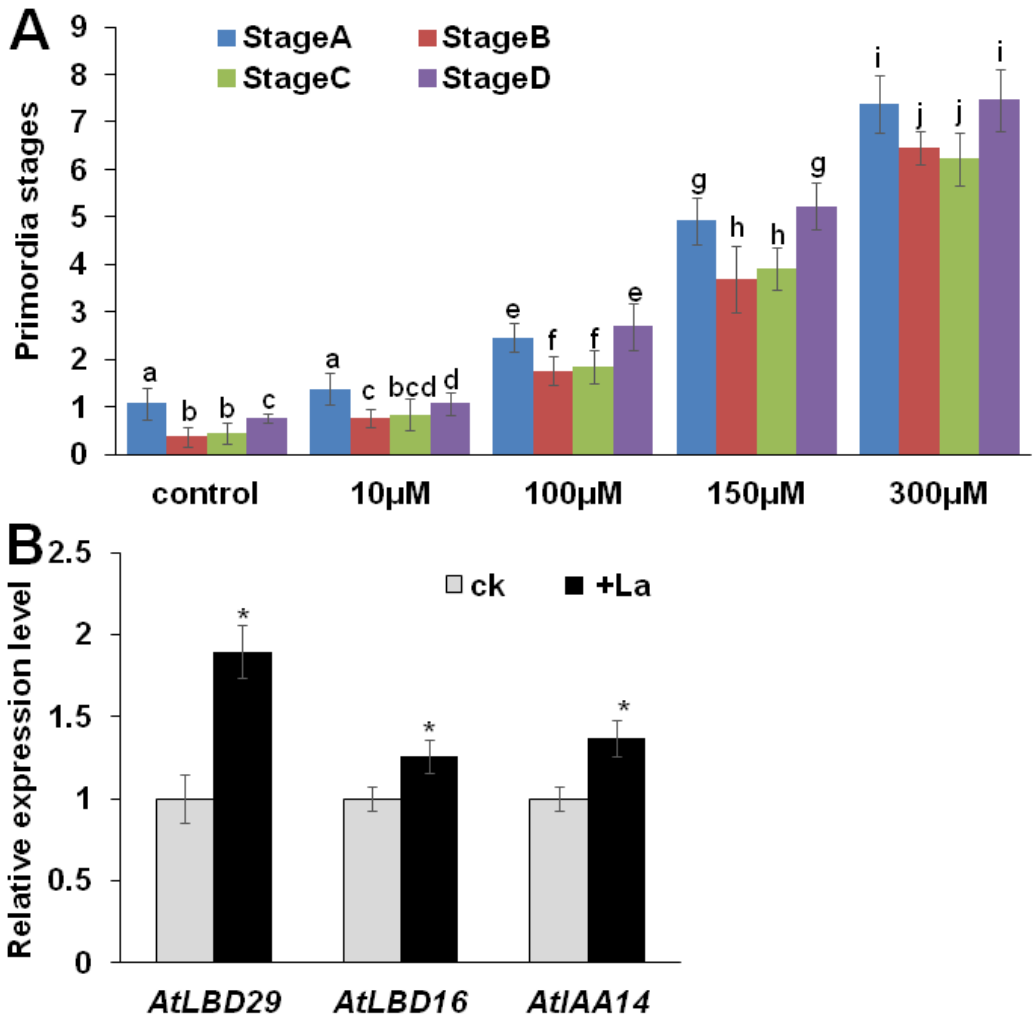

Fig. S1. Effect of La on LR development. (A) Five-day-old *DR5:GUS* seedlings grown in 1/2 MS medium were treated with 150 μM $La(NO_3)_3$ for 5 d, the lateral root primordia (LRP) initiation was measured. The four developmental stages of LRP were classified as follows: up to three cell layers (stage A); more than three cell layers but not emerged (stage B); emerged lateral roots (LRs) <0.5 mm in length (stage C); and emerged LRs >0.5 mm in length (stage D) (Zhang *et al.*,, 1999). Only mature LRs (>0.5 mm) were recorded as LRs. (B) Quantitative RT-PCR analysis of *AtLBD29*, *AtLBD16*, and *AtIAA14* expression in the roots of five-day-old *col-0* seedlings treated with or without 150 μM $La(NO_3)_3$ for 2 d. The expression levels of the indicated genes in the untreated roots were set to 1. The error bars represent the SEM.
*p-value<0.01.

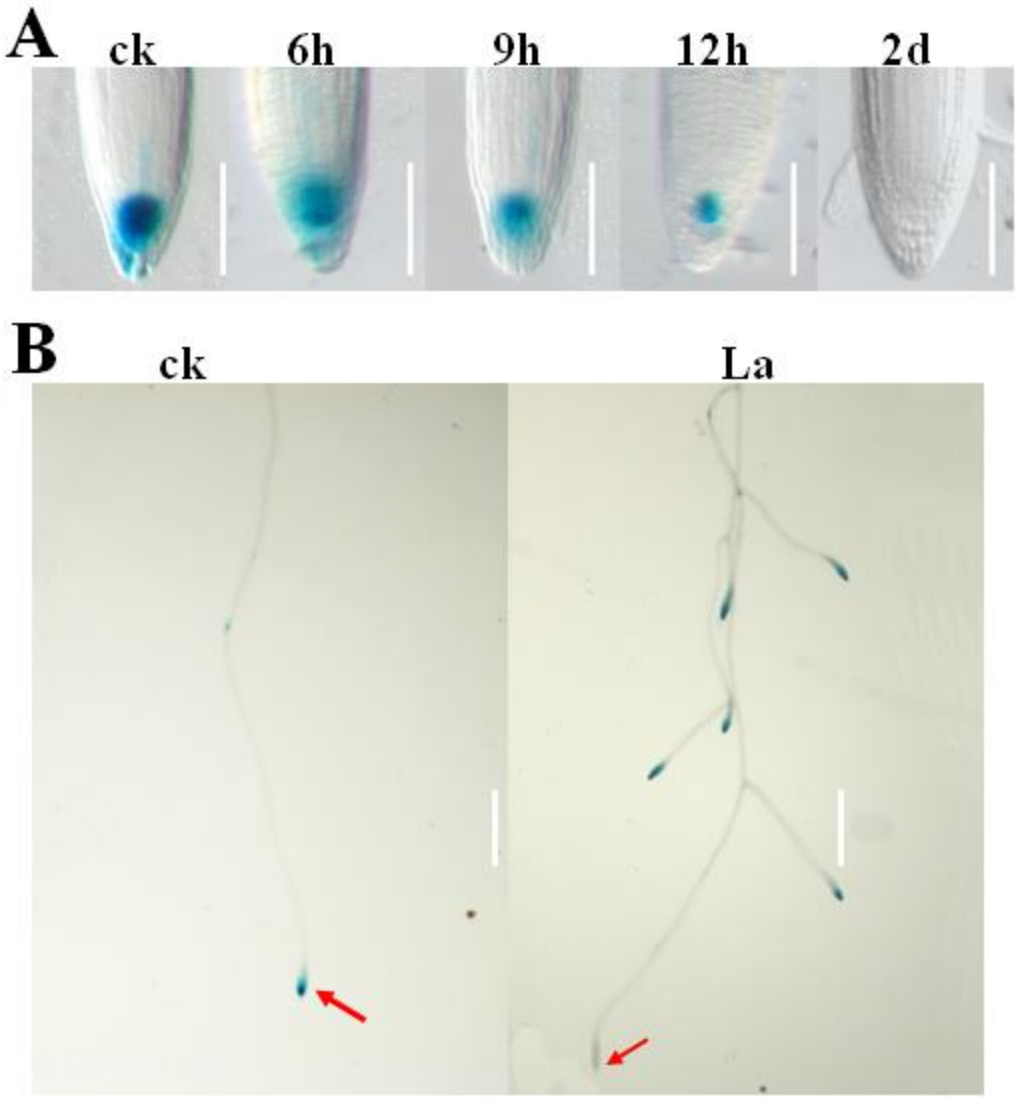

Fig. S2. (A) Image of GUS staining of the root tips of primary roots of 5-day-old *DR5::GUS* seedlings exposed to 150 μM $La(NO_3)_3$ for periods of up to 2 d. Bar, 100 μm. (B) Images of GUS staining of the lateral roots and primary roots. Bar, 1 mm.

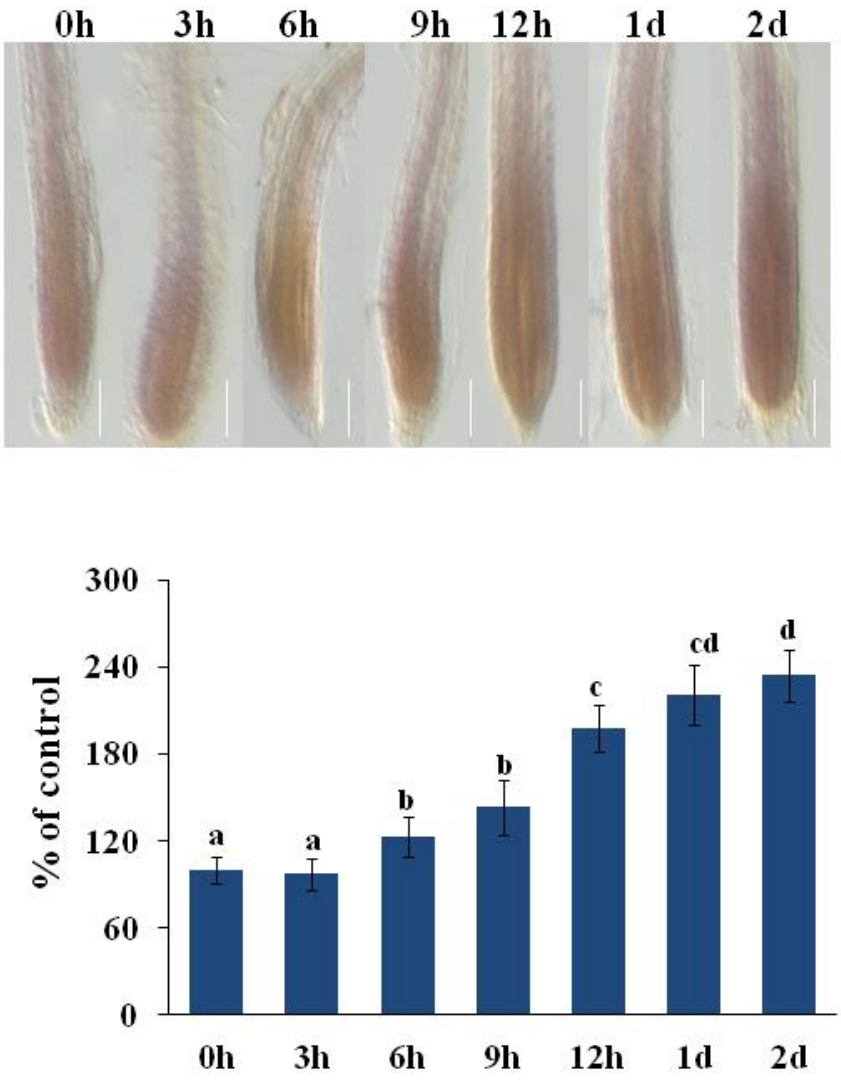

Fig. S3. Detection of ROS production in the roots of 5-day-old wild-type seedlings exposed to 150 μM $La(NO_3)_3$ for periods of up to 2 d using DAB staining. The error bars represent the SEM. Different letters indicate significantly different values ($P < 0.05$ by Tukey's test). Bar, 100 μm.

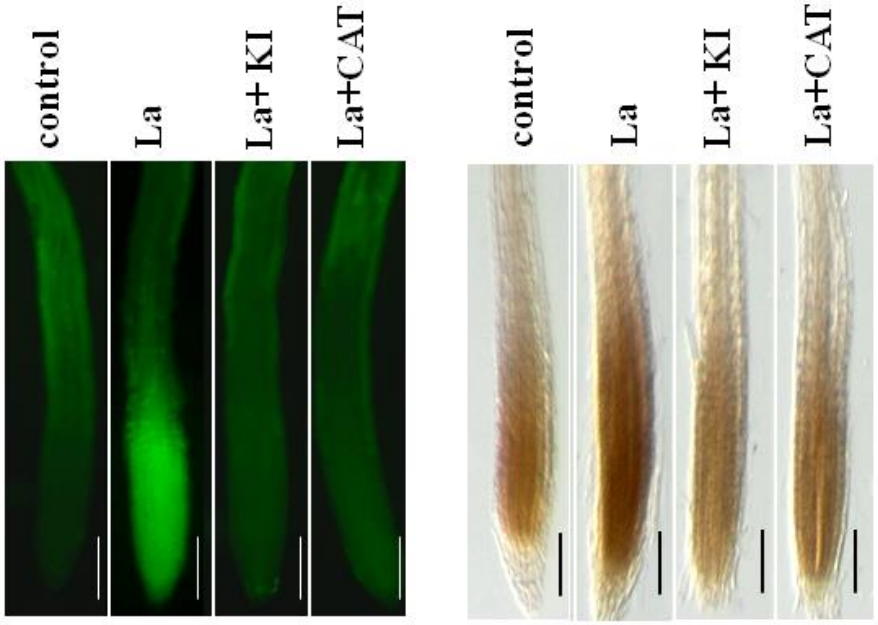

Fig. S4. Detection of ROS production in the roots of 5-day-old wild-type seedlings exposed to 150 μM $La(NO_3)_3$ for 6 h in the presence or absence of 1 mM KI or 0.2 mM CAT using the ROS-specific fluorescent probe DCFH-DA (left) and DAB staining (right). Bar, 100 μm.

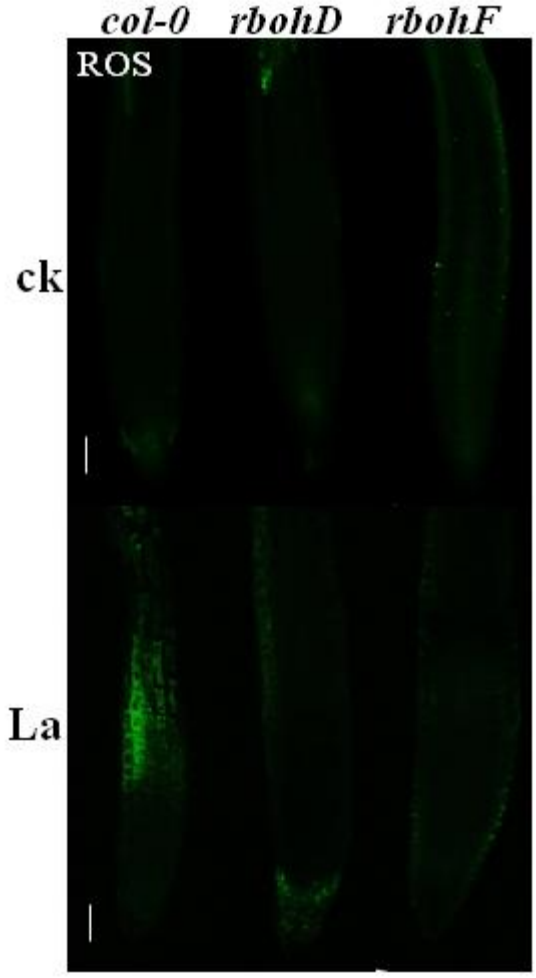

Fig. S5. Detection of ROS in the roots of 5-day-old *col-0*, *rbohD*, and *rbohF* seedlings treated with or without 150 μM $La(NO_3)_3$ for 12 h using the H_2O_2-specific fluorescent probe DCFH-DA. Bar, 50 μm.

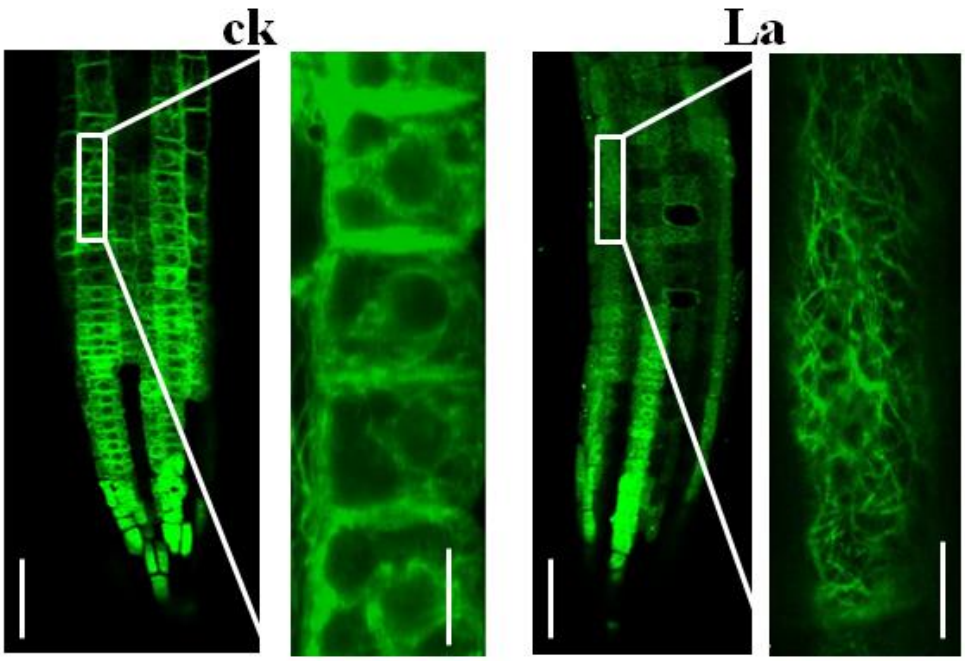

Fig. S6. GFP fluorescence in the roots of 5-day-old *ABD2::ABD2-GFP* seedlings exposed to 150 μM $La(NO_3)_3$ for 1 d.