Supplemental Methods

Drug responses

WS and mutant seedlings were grown on vertically oriented 0.8% agar-containing GM plates in a Conviron TC16 growth chamber for 4 days under our standard conditions before being transferred onto vertically oriented 0.8% agar-containing GM plates supplemented with the phytohormones or auxin-transport inhibitors cited in the text, at the indicated concentrations: 6-benzylaminopurine (BA); brassinolide (BL); 1-aminocyclopropane-1-carboxylic acid (ACC); indole-3-acetic acid (IAA); naphthylphthalamic acid (NPA). Phytohormones and auxin-transport inhibitors (Sigma, St. Louis, MO) were prepared as 10mM stock solutions in diluted NaOH/EtOH or water, and added to the pH-buffered medium at the concentrations defined in the text. Plates were incubated vertically under our standard growth conditions for 3 days, with pictures taken every 24 hours. Root lengths were measured using NIH Image J (available online at http://rsb.info.nih.gov/nih-image/), then T-tests were applied to the data where $p<0.05$ was deemed statistically significant.

Chlorophyll quantification

Using a hole-punch, samples were collected from the center-tip section of rosette leaves of similar sizes from 5 individual plants for each genotype (5 trials per genotype). Leaf tissue was frozen in liquid nitrogen, ground, and solubilized in 80% acetone. Chlorophyll content was quantified by measuring the absorbance at 645 and 663 nm; these figures were then used to calculate the amount of chlorophyll present (37, 38).

Transgenic plants

The TOC132 cDNA fused to the CaMV 35S promoter (18) was transformed into *mar2 arg1* plants by the floral dip method (34). T1 seeds were plated onto 1/2 MS containing gentamycin (60 μg/ml). Six of six resistant seedlings resembled *arg1* single mutants. Each transformant was allowed to self-fertilize. Three lines of the resulting T2 seeds demonstrate a 3:1 ratio of *arg1*-like: *mar2 arg1*-like phenotypes, indicative of a single insertion. When plated on gentamycin-containing media, all resistant plants display the *arg1* phenotype (n=143). All phenotypically *mar2 arg1* roots are sensitive to gentamycin (n=29). Individuals homozygous for the transgene were derived from the lines containing a single insertion.