Figure EV1. Functional significance of BAK1 and related SERK family members in PEPR signaling.

A qRT–PCR analysis of PEPR1 in 10-day-old Arabidopsis wild-type (WT) seedlings and those expressing PEPR1-FLAG under the cauliflower mosaic virus 35S promoter in the pepr1 pepr2 background (PEPR1-FLAG pepr1 pepr2) (left). Immunoblot analysis of Pep2-induced MAPK activation in Arabidopsis pepr1 pepr2 plants (right). Equal loading was verified with Ponceau S staining (bottom). Data are averages (±SD) of three biological replicates.

B PEPR1-FLAG associates with BAK1 in Arabidopsis following Pep2 application for the indicated times. IB and IP denote immunoblotting and immunoprecipitation with the indicated antibodies, respectively.

C Immunoblot analysis with anti-phosphorylated p44/p42 MAPK antibody in 10-day-old seedlings exposed to 0.5 μM Pep2 or flg22 for the indicated times. Equal loading was verified with Ponceau S staining.
Figure EV2. Pep-induced root growth inhibition in serk mutant plants.
A bak1-4 plants are more sensitive to Pep2 than WT plants in root growth inhibition, in a manner dependent on PEPRs.
B Complementation of the Pep hypersensitive phenotype of bak1-4 plants by the introduction of a genomic BAK1 DNA clone. *P < 0.01 in two-tailed tests compared to the differences (± Pep2) from the corresponding values of bak1-4 plants. Log2 values of two independent experiments were combined for statistical analysis.
C Of the SERK genes tested, single BAK1 disruption has the largest effect in increasing Pep sensitivity. *P < 0.01 in two-tailed tests compared to the differences (± Pep2) from the corresponding values of bak1-4 plants. Log2 values were used for statistical analysis.
D Pep2-induced root growth inhibition in the presence of br1-301. *P < 0.01 in two-tailed tests compared to the differences (± Pep2) from the corresponding values of br1-301 plants. Log2 values of two independent experiments (n ≥ 15 each) were combined for statistical analysis.
E Pep2-induced root growth inhibition of serk1-3 bak1-3 plants in the presence or absence of a constitutive BR activator, BES1D-GFP. *P < 0.01 in two-tailed tests compared to the differences (± Pep2) from the corresponding values of WT plants. Log2 values were used for statistical analysis.
F Simultaneous BKK1 disruption enhances Pep2 induction of PR1 and NHL10 in bak1-knockout plants. qRT–PCR analysis of defense-related genes in 10-day-old seedlings exposed to 0.5 μM Pep2 for 10 h. Results are averages ± SD. *P < 0.01 in two-tailed tests. Relative cycle threshold (Ct) values of two independent experiments with three biological replicates each were combined for statistical analysis.
Data information: (A–E) Root length of 9-day-old seedlings was determined following 100 nM Pep2 application for 7 days. Results are averages ± SD (n ≥ 15).
Figure EV3. Pep-induced cell death in bAK1 mutant plants.

A  Evans blue staining for dead cells in primary root tips treated with flg22 at 100 nM.
B–D Pep2-induced root growth inhibition after treatment with Pep2 at 100 nM. (B) WT and lsd1c plants were indistinguishable in Pep2-induced root growth inhibition. (C) Characterization of bAK1-3 eds1-2 plants. (D) Characterization of bAK1-4 eds1-2 plants. Trypan blue staining for dead cells in cotyledons (left).
E  Pep2-induced root growth inhibition was sensitized in bAK1-null alleles.
F  Pep2-induced root growth inhibition was suppressed in bAK1 alleles with point substitutions in the kinase domain.

Data information: Results are averages ± SD (n ≥ 15). Root length of 9-day-old seedlings was determined following 100 nM Pep2 application for 7 days. *P < 0.01 in two-tailed tests compared to the differences (± Pep2) from the corresponding values of Aeq cyt (A) or Aeq vmd (B) plants. n.s. denotes non-significant differences (P > 0.05 in two-tailed tests). Two independent experiments were combined for statistical analysis.
Figure EV4. **PEPR1-FLAG plants in the presence or absence of BAK1.**

A. qRT–PCR analysis of defense-related genes in 10-day-old PEPR1-FLAG pepr1 pepr2 and PEPR1-FLAG bak1-4 seedlings (as described in Fig EV1A) exposed to 0.5 μM Pep2 for 10 h. Data are averages (± SD) of three biological replicates. *P < 0.01 in two-tailed tests compared to the corresponding WT values.

B. Immunoblot analysis of PEPR1-FLAG and BAK1 in 10-day-old seedlings. Equal loading was verified with Ponceau S staining (bottom). The numerals below the immunoblot represent relative band intensities for the PEPR1-FLAG signal with the value for PEPR1-FLAG plants set as 1.0.

C. qRT–PCR analysis of PEPR1 expression following 1 μM Pep1 application for the indicated times in PEPR1-FLAG pepr1 pepr2 plants. Data are averages (±SD) of three biological replicates.

Figure EV5. **Role for BAK1 in the activation of the PEPR pathway in response to bacterial challenge and MAMPs.**

A. qRT–PCR analysis of PROPEPs in 4-week-old plants after syringe-infiltrated *Pst* DC3000 challenge.

B. qRT–PCR analysis of PROPEP2 and PROPEP3 expression in 4-week-old plants following 1 μM *flg22* application for the indicated times. *P < 0.05 in two-tailed tests compared to the corresponding WT values. Relative C<sub>t</sub> values of three independent experiments were combined for statistical analysis.

C. qRT–PCR analysis of PROPEP2/PROPEP3 expression in 4-week-old plant leaves 2 h after syringe infiltration with *Pst ΔhrcC* at 10<sup>7</sup> cfu/ml. *P < 0.05 in two-tailed tests compared to the corresponding WT values. Relative C<sub>t</sub> values of two independent experiments with three biological replicates were combined for statistical analysis.

D. qRT–PCR analysis of PROPEP2/PROPEP3 expression in 4-week-old plant leaves 24 h after syringe infiltration with *Pst DC3000* at 10<sup>7</sup> cfu/ml. n.s. denotes non-significant differences (P > 0.05 in two-tailed tests).

E. Immunoblot analysis of FLS2 in the rosette leaves of 4-week-old plants. Equal loading was verified with Ponceau S staining (bottom).

F, G. qRT–PCR analysis of PR1 in 4-week-old plants exposed to 1 μM *elf18* or challenged with *Pst ΔhrcC* for 24 h. Data are averages (± SD) of three biological replicates. *P < 0.05 in two-tailed tests compared to the corresponding WT values. Relative C<sub>t</sub> values of two independent experiments with three biological replicates were combined for statistical analysis.

H. Seedlings were exposed to suspensions of *Pst* DC3000 and *Pst* DC3000 *AvrRpm1* at 10<sup>8</sup> cfu/ml for 20 min and then washed twice before further plant culturing in fresh sterilized water. Seedlings harvested at the indicated times were subjected to immunoblot analysis with anti-BAK1 antibodies. Equal loading was verified with Ponceau S staining (bottom).

Data information: In (A–D), data are averages (±SD) of three biological replicates.
Figure EV5.