Supplemental Data
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Bacterial Effectors Target BAK1 to Disrupt MAMP Receptor-Signaling Complexes and Impede Plant Innate Immunity

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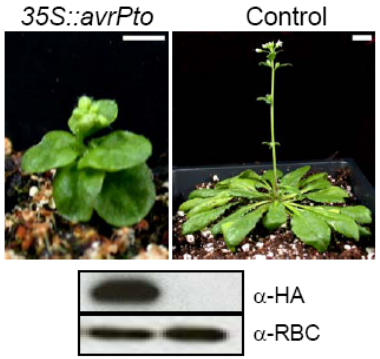

Figure S1. The *avrPto* transgenic plants phenotypically mimic brassinosteroid insensitive mutants. Transgenic *Arabidopsis* plants expressing *35S::avrPto* or a control vector at 6 weeks are shown. Scale bars: 1 cm. The expression of AvrPto (α-HA) and RuBisCO (α-RBC) was detected using specific antibodies and Western blot analysis.

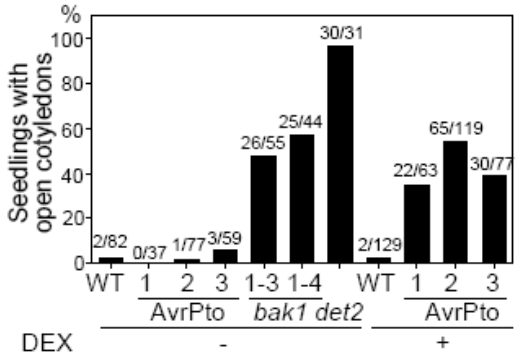

Figure S2. Quantitative analysis of the open-cotyledon phenotype in the DEX-inducible *avrPto* transgenic (1, 2 and 3), *bak1* (1-3 and 1-4), and *det2* mutant seedlings. Seedlings were grown in the dark for seven days with or without 10 μM DEX. The experiments were repeated three times with similar results.

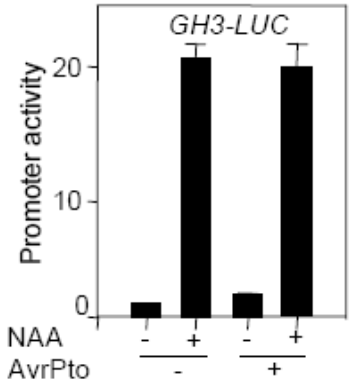

Figure S3. AvrPto does not affect auxin response. Protoplasts were transfected with an auxin-responsive reporter *GH3-LUC* with or without AvrPto, and incubated for 3 hrs before treatment with 1 μM NAA for 3 hrs. The data are shown as means ± standard errors from four independent biological replicates.

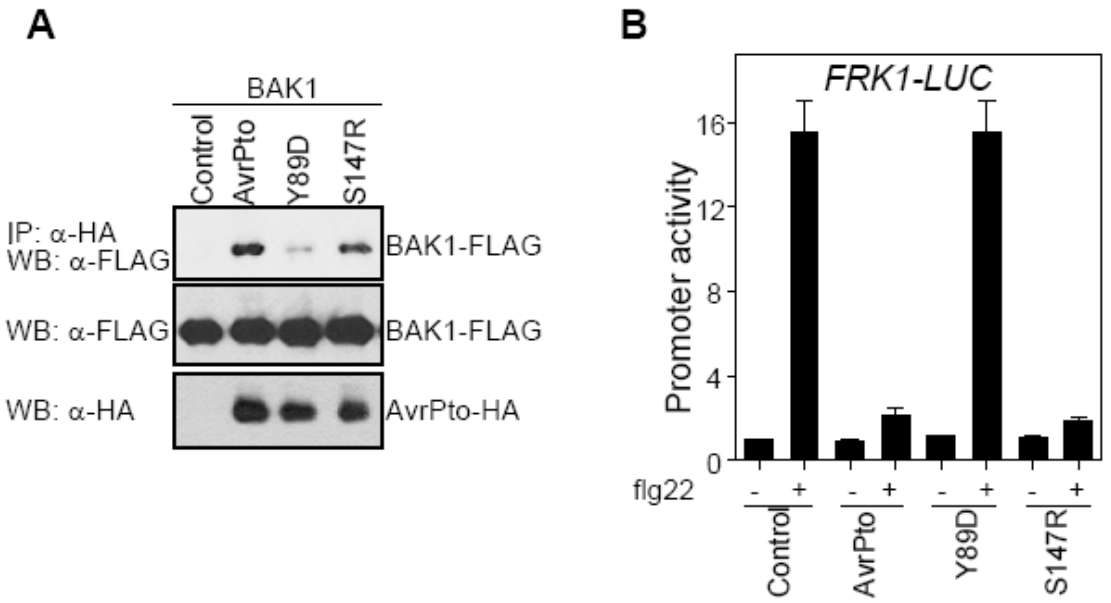

Figure S4. The AvrPtoY89D mutation significantly diminishes its association with BAK1 and disrupts its MAMP suppression activity. (A) AvrPtoY89D, but not S147R, significantly reduces its association with BAK1. The Co-immunoprecipitation (Co-IP) was performed with protoplasts co-expressing BAK1-FLAG and HA-tagged AvrPto or its mutants. The Co-IP was carried out with anti-HA-agarose (IP: α-HA), and the proteins were analyzed using Western blot with an anti-FLAG antibody (WB: α-FLAG). (B) The AvrPtoY89D mutation compromises its MAMP suppression activity. Protoplasts were co-transfected with *FRK1-LUC* and AvrPto or AvrPto mutants. Transfected protoplasts were incubated for 3 hrs to express AvrPto before treatment with 100 nM flg22 for 3 hrs. AvrPtoS147R did not affect its MAMP suppression activity (He et al., 2006). The experiments were repeated three times with similar results.

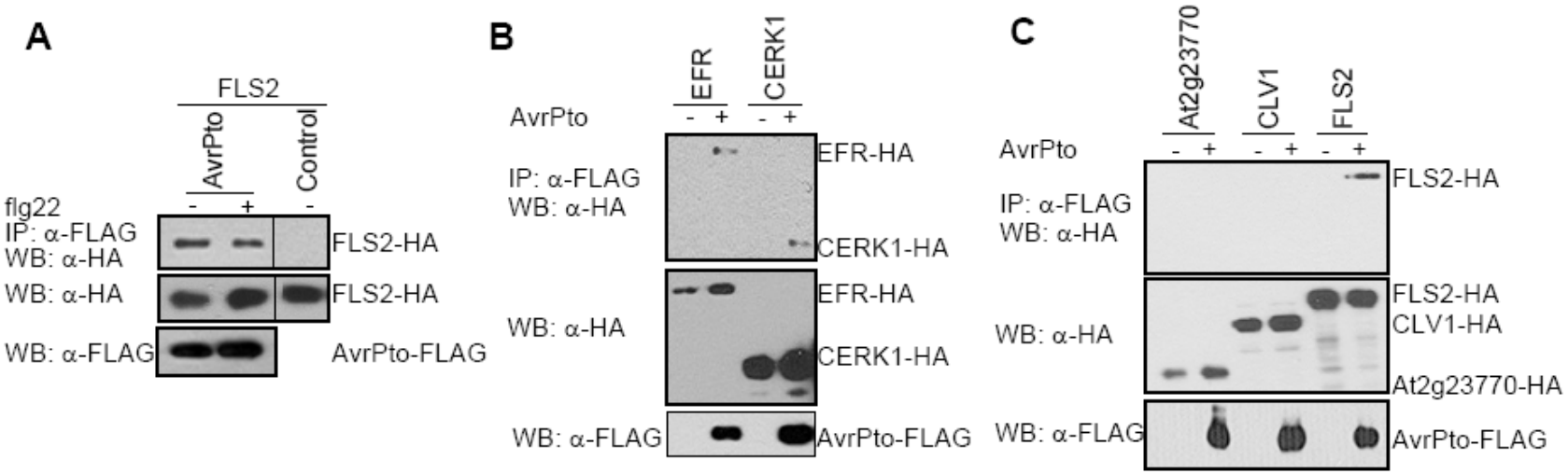

Figure S5. AvrPto associates with some receptor-like kinases. (A) AvrPto associates with FLS2 independent of flg22. Protoplasts were treated with 1uM flg22 for 5 min. The Co-immunoprecipitation (Co-IP) was performed with protoplasts co-expressing AvrPto-FLAG and FLS2-HA. The Co-IP was carried out with anti-FLAG-agarose (IP: α-FLAG), and the proteins were analyzed using Western blot with an anti-HA antibody (WB: α-HA). (B) AvrPto associates with EFR and CERK1. The Co-IP was performed with protoplasts co-expressing AvrPto-FLAG and EFR-HA, or CERK1-HA. (C) AvrPto does not associate with CLV1 or a putative LysM receptor-like kinase At2g23770, a close homolog of CERK1. The Co-IP was performed with protoplasts co-expressing AvrPto-FLAG and At2g23770-HA, CLV1-HA or FLS2-HA. The experiments were repeated three times with similar results.

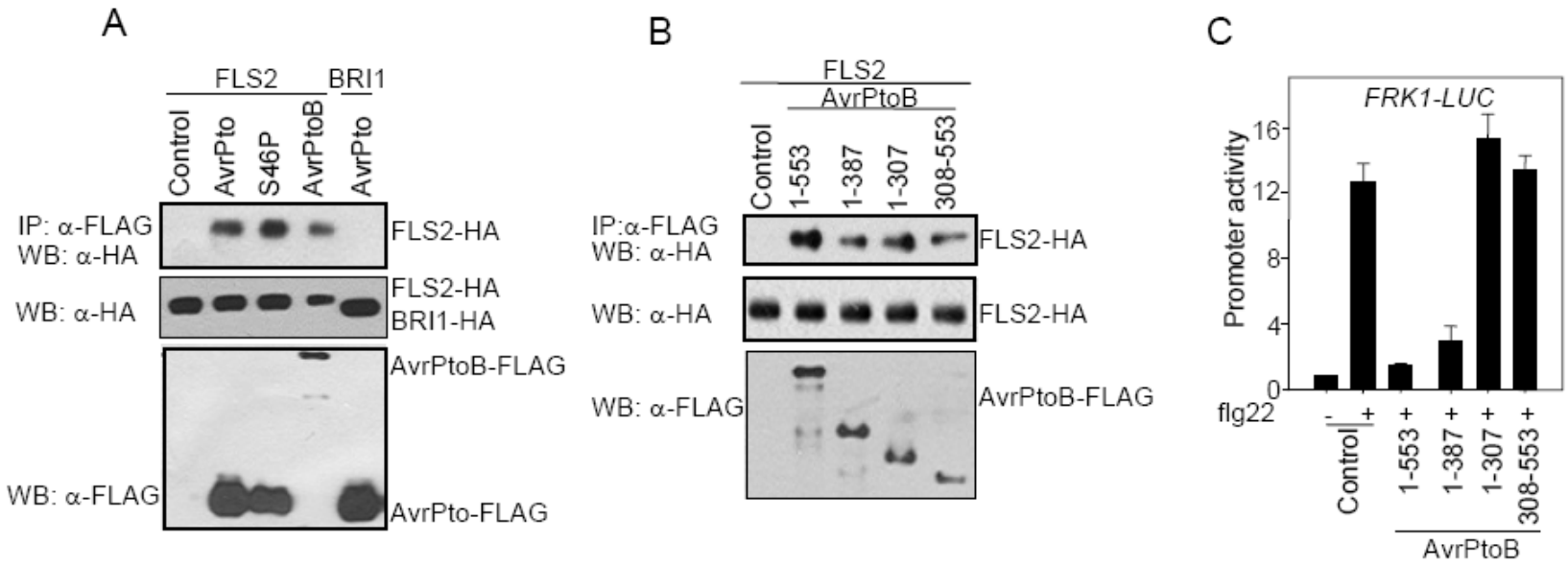

Figure S6. AvrPto and AvrPtoB loss-of-MAMP-suppression mutants still associate with FLS2. (A) AvrPtoS46P associates with FLS2. AvrPtoS46P does not have MAMP suppression activity (He, et al., 2006). The Co-immunoprecipitation (Co-IP) was performed with protoplasts co-expressing FLAG-tagged effectors and FLS2-HA or BRI1-HA. (B) AvrPtoB deletion mutants still associate with FLS2. The Co-IP was performed with protoplasts co-expressing FLS2-HA and FLAG-tagged AvrPtoB or AvrPtoB deletion mutants. (C) Some AvrPtoB deletions do not exhibit MAMP suppression activity. Protoplasts were co-transfected with *FRK1-LUC* and full-length AvrPtoB (1-553) or AvrPtoB deletion mutants. Transfected protoplasts were incubated for 3 hrs to express AvrPtoB before treated with 100 nM flg22 for 3 hrs. The experiments were repeated three times with similar results

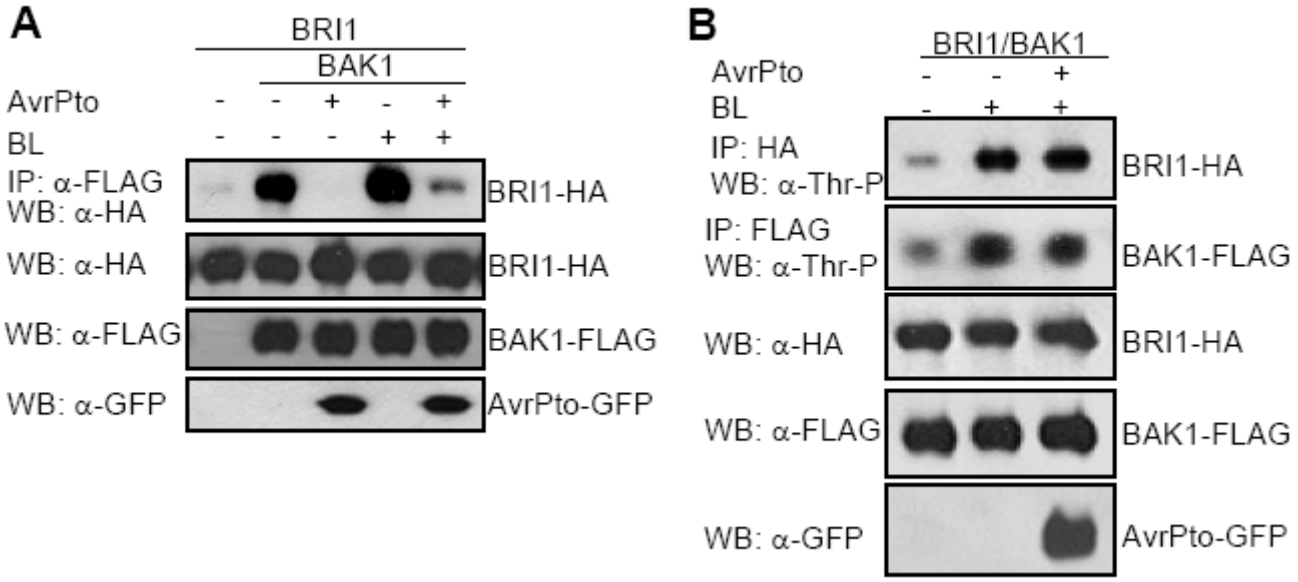

Figure S7. AvrPto suppresses BAK1 and BRI1 association but not BL-stimulated BAK1 and BRI1 phosphorylation. (A) AvrPto suppresses BAK1 and BRI1 association. The Co- immunoprecipitation (Co-IP) was performed with protoplasts co-expressing BAK1-FLAG and BRI1-HA with or without AvrPto-GFP. The Co-IP was carried out with an anti-FLAG antibody (IP: α-FLAG), and the proteins were analyzed using Western blot with an anti-HA antibody (WB: α-HA). (B) AvrPto does not affect BL-stimulated BAK1 and BRI1 phosphorylation. The immunoprecipitation (IP) was carried out with anti-FLAG-agarose (IP: α-FLAG) or anti-HA-agarose (IP: α-HA), and the proteins were analyzed using Western blot with an anti-phosphothreonine antibody (WB: α-Thr-P) (Wang et al., 2005) (Cell Signaling Biotechnology, Beverly, MA). Protoplasts were stimulated with 0.1 μM BL for 90 min. The experiments were repeated twice with similar results.

A

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CLV1      ---------------------------------------ECLKEENIIGKGGAGIVYRGSMPNNVDVAIKRLV--GRGTGRSDHGFTAEIQTLGRIRHRHIVRLLG-----YVANKDTNLL
ERECTA    ---------------------------------------ENLSEKYIIGHGASSTVYKCVLKNCKPVAIKRLY--SHNP-QSMKQFETELEMLSSIKHRNLVSLQA-----YSLSHLGSLL
CERK1     ---------------------------------------DNFNLSFKIGQGGFGAVYYAELR-GEKAAIKKMD--MEASK----QFLAELKVLTRVHHVNLVRLIG-----YCVEG-SLFL
2g23770   ---------------------------------------QSATSDFTSSSSIGGSGYIGKIN-GDGAMIKKIE--GNAS--------EEVNLLSKLNHLNIIRLSG-----FCFHEGDWYL
Pto       MGSKYSKATNSINDALSSSYLVPFESYRVPLVDLEEATNNFDHKFLIGHGVFGKVYKGVLRDGAKVALKRRT--PESSQG-IEEFETEIETLSFCRHPHLVSLIG-----FCDERNEMIL
SERK4     ---------------------------------------DNFSNKNVLGRGGFGKVYKGRLADGNLVAVKRLK--EERTKGGELQFQTEVEMISMAVHRNLLRLRG-----FCMTPTERLL
SERK5     ---------------------------------------EKFSKRNVLGKGRFGILYKGRLADDTLVAVKRLN--EERTKGGELQFQTEVEMISMAVHRNLLRLRG-----FCMTPTERLL
BAK1      ---------------------------------------DNFSNKNILGRGGFGKVYKGRLADGTLVAVKRLK--EERTQGGELQFQTEVEMISMAVHRNLLRLRG-----FCMTPTERLL
BRI1      ---------------------------------------NGFHNDSLIGSGGFGDVYKAILKDGSAVAIKKLI--HVSGQG-DREFMAEMETIGKIKHRNLVPLLG-----YCKVGDERLL
FLS2      ---------------------------------------DSFNSANIIGSSSLSTVYKGQLEDG-TVIAVKVLNLKEFSAESDKWFYTEAKTLSQLKHRNLVKILG----FAWESGKTKAL
EFR       ---------------------------------------SRFSSTNLIGSGNFGNVFKGLLGPENKLVAVKVLNLLKHGATKS--FMAECETFKGIRHRNLVKLITVCSSLDSEGNDFRAL

CLV1      LYEYMPNGSLGELLHG--SKGGHLQ-----WETRHRVAVEAAKGLCYLHHDCSPLILHRDVKSNNILLDSDFEAHVADFGLAKFLVDGAASECMSSIA-----GSYGYIAPEYAYTLKVD
ERECTA    FYDYLENGSLWDLLHGP-TKKKTLD-----WDTRLKIAYGAAQGLAYLHHDCSPRIIHRDVKSSNILLDKDLEARLTDFGIAKSLCVSKS-HTSTYVM-----GTIGYIDPEYARTSRLT
CERK1     VYEYVENGNLGQHLHGSG--REPLP-----WTKRVQIALDSARGLEYIHEHTVPVYVHRDIKSANILIDQKFRAKVADFGLTK--LTEVGGSATRGAM-----GTFGYMAPETVYG-EVS
2g23770   VYEHASNGSLSEWIHTT---KSLLS-----LTQKLQIALDIATGLNYLHNFADPPYVHRDLNSNNVFLDLEFRAKIGSLGSAR--STTEDFVLTKHVE-----GTRGYLAPEYLEHGLVS
Pto       IYKYMENGNLKRHLYGSDLPTMSMS-----WEQRLEICIGAARGLHYLHTR---AIIHRDVKSINILLDENFVPKITDFGISKKGTELDQTHLSTVVK-----GTLGYIDPEYFIKGRLT
SERK4     VYPYMANGSVASCLRERPEGNPALD-----WPKRKHIALGSARGLAYLHDHCDQKIIHRDVKAANILLDEEFEAVVGDFGLAK-LMNYNDSHVTTAVR-----GTIGHIAPEYLSTGKSS
SERK5     VYPYMANGSVASCLRERPEGNPALD-----WPKRKHIALGSARGLAYLHDHCDQKIIHLDVKAANILLDEEFEAVVGDFGLAK-LMNYNDSHVTTAVR-----GTIGHIAPEYLSTGKSS
BAK1      VYPYMANGSVASCLRERPESQPPLD-----WPKRQRIALGSARGLAYLHDHCDPKIIHRDVKAANILLDEEFEAVVGDFGLAK-LMDYKDTHVTTAVR-----GTIGHIAPEYLSTGKSS
BRI1      VYEFMKYGSLEDVLHDPKKAGVKLN-----WSTRRKIAIGSARGLAFLHHNCSPHIIHRDMKSSNVLLDENLEARVSDFGMARLMSAMDTHLSVSTLA-----GTPGYVPPEYYQSFRCS
FLS2      VLPFMENGNLEDTIHGSAAPIG-------SLLEKIDLCVHIASGIDYLHSGYGFPIVHCDLKPANILLDSDRVAHVSDFGTARILG--FREDGSTTASTSAFEGTIGYLAPEFAYMRKVT
EFR       VYEFMPKGSLDMWLQLEDLERVNDHSRSLTPAEKLNIAIDVASALEYLHVHCHDPVAHCDIKPSNILLDDDLTAHVSDFGLAQLLYKYDRESFLNQFSSAGVRGTIGYAAPEYGMGGQPS

CLV1      EKSDVYSFGVVLLELIAGKKPVGEFGEGVDIVRWVRNTEEEITQPSDAAIVVAIVDPRLT-G--YPLTSVIHVFKIAMMC
ERECTA    EKSDVYSYGIVLLELLTRRKAVDDE----------SNLHHLIMSKTGNNEVMEMADPDIT-STCKDLGVVKKVFQLALLC
CERK1     AKVDVYAFGVVLYELISAKGAVVKMTEAVGEFRGLVGVFEESFKETDKEEALRKIIDPRL-GDSYPFDSVYKMAELGKAC
2g23770   TKLDVYAFGVVLLEIVTGK-----------------EASELKKEIDEGKAIDEILIH---GRLLPEGLTSFVERLVVDC
Pto       EKSDVYSFGVVLFEVLCARSAIVQSLPR------EMVNLAEWAVESHNNGQLEQIVDPNL-ADKIRPESLRKFGDTAVKC
SERK4     EKTDVFGYGVMLLELITGQKAFDLARLAND----DDIMLLDWVKEVLKEKKLESLVDAEL-EGKYVETEVEQLIQMALLC
SERK5     EKTDVFGYGVMLLELITGQKAFDLARLAND----DDIMLLDWVKEVLKEKKLESLVDAEL-EGKYVETEVEQLIQMALLC
BAK1      EKTDVFGYGVMLLELITGQRAFDLARLAND----DDVMLLDWVKGLLKEKKLEALVDVDL-QGNYKDEEVEQLIQVALLC
BRI1      TKGDVYSYGVVLLELLTGKRPTDSPDFGDN-------NLVGWVKQHAKLRISDVFDPELMKEDPALEIELLQHLKVAVAC
FLS2      TKADVFSFGIIMMELMTKQRPTSLNDEDSQDMTLRQLVEKSIGNGRKGMVRVLDMELGDSIVSLKQEEAIEDFLKLCLFC
EFR       IQGDVYSFGILLLEMFSGKKPT---DESFAGDYNLHSYTKSILSG-----------CTSSGGSNAIDEGLRLVLQVGIKC

CLV1      VEEEAAARPTMREVVHMLTNPPKSVANLIAF-----------------------------------------------------
ERECTA    TKRQPNDRPTMHQVTRVLGSFMLSEQPPAATDTSATLAGSCYVDEYANLKTPHSVNCSSMSASDAQLFLRFGQVISQNSE
CERK1     TQENAQLRPSMRYIVVALS--TLFSSTGNWDVGNFQNEDLVSLMSGR--------------------------------
2g23770   LKKDHLNRPSMDENVMSLS--KILAATQNWEESSY-----------------------------------------------
Pto       LALSSEDRPSMGDVLWKLE--YALRLQESVI---------------------------------------------------
SERK4     TQSSAMERPKMSEVVRMLEGDGLAERWEEWQKEEMPIHDFNYQAYPHAGTDWLIPYSNSLIENDYPSGPR----------
SERK5     TQSSAMERPKMSEVVRMLEGDGLAERWEEWQKEEMPIHDFNYQAYPHAGTDWLIPYSNSLIENDYPSGPR----------
BAK1      TQSSPMERPKMSEVVRMLEGDGLAERWEEWQKEEMFRQDFNYPTHHPAVSGWIIGDSTSQIENEYPSGPR----------
BRI1      LDDRAWRRPTMVQVMAMFKEIQAGSGIDSQSTIRSIEDGGFSTIEMVDMSIKEVPEGKL-----------------------
FLS2      TSSRPEDRPDMNEILTHLMKLRGKANSFREDRNEDREV--------------------------------------------
EFR       SEEYPRDRMRTDEAVRELISIRSKFFSSKTTITESPRDAPQSSPQEWMLNTDMHTM-------------------------
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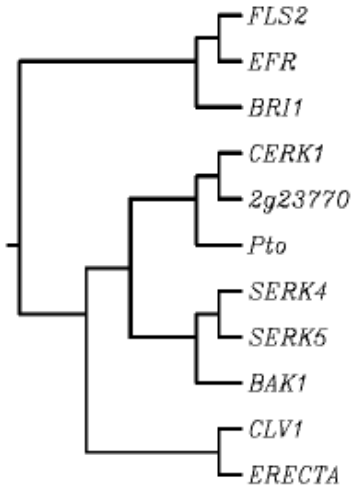

Figure S8. Comparison of tomato Pto with different *Arabidopsis* receptor-like kinases. (A) Alignment of amino acid sequences of tomato Pto with different *Arabidopsis* receptor-like kinases. The kinase domains of BAK1, FLS2, EFR, CERK1, At2g23770, ERECTA, CLV1 and BRI1 are shown. Pto residues that form the two interfaces with AvrPto are in bold. Key Pto residues that determine the specific recognition of AvrPto are marked in red (Xing et al., 2007). (B) Phylogenetic tree of tomato Pto with different *Arabidopsis* receptor kinases. The alignment and phylogenetic tree were generated by CLUSTALW at http://clustalw.genome.jp/sit-bin/clustalw.

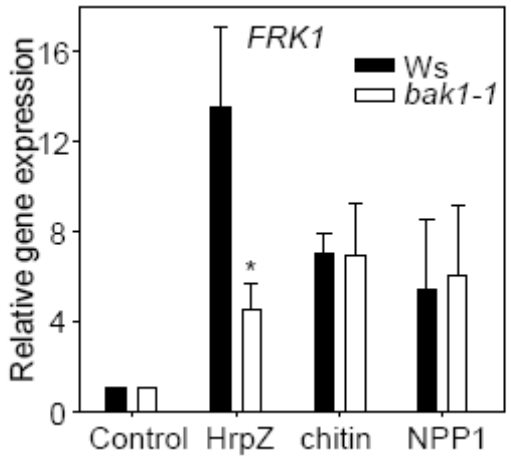

Figure S9. BAK1 is important in HrpZ- but not chitin- or NPP1-mediated activation of *FRK1*. Wild-type (Ws) and *bak1-1* mutant seedlings (12 days) were collected 1 hr after treatment with 1 μM HrpZ, 50 μg/ml chitin, or 20 nM NPP1. Endogenous *FRK1* expression was analyzed by real-time RT-PCR. The data are shown as means ± standard errors from three independent biological replicates. * indicates a significant difference with $p<0.05$ when compared with data from wild-type (Ws) based on the results of an unpaired Student's t-test.

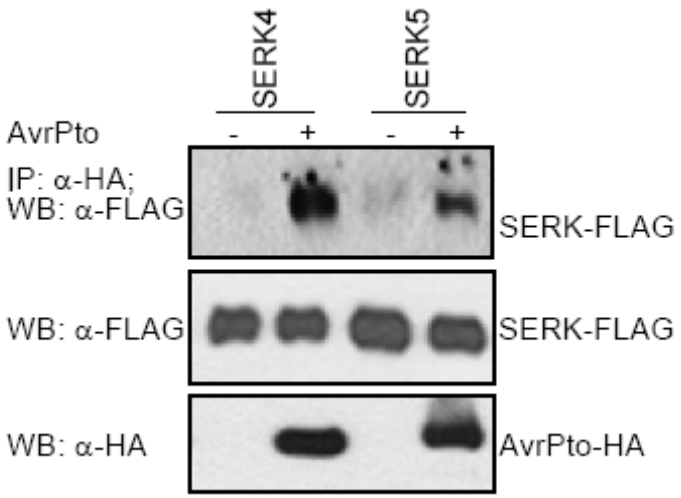

Figure S10. AvrPto associates with SERK4/BKK1 and SERK5 in *Arabidopsis* protoplasts. The Co-immunoprecipitation (Co-IP) was performed with protoplasts co-expressing AvrPto-HA and SERK4/BKK1-FLAG, or SERK5-FLAG. The Co-IP was carried out with anti-HA-agarose (IP: α-HA), and the proteins were analyzed using Western blot with an anti-FLAG antibody (WB: α-FLAG). The experiments were repeated twice with similar results.

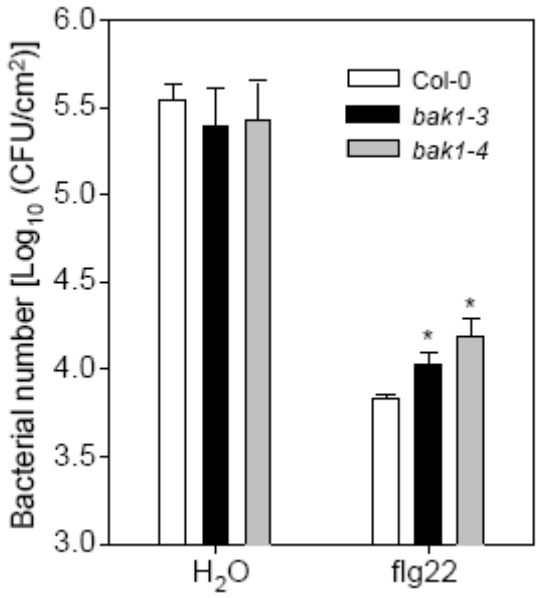

Figure S11. The *bak1* mutants reduce flg22-induced resistance to *P. s. tomato* DC3000 infection. *Arabidopsis* plants (4 weeks) were hand-inoculated with DC3000 at a concentration of 5 x 10^5 cfu/ml after infiltration with 200 nM flg22 for 24 hrs. The bacterial growth assay was performed two days after inoculation. Each data point is shown as triplicates. * indicates a significant difference with $p<0.05$ when compared with data from wild-type (Col-0) based on the results of an unpaired Student's t-test. The experiments were repeated twice with similar results.

Supplemental Experimental Procedures

Primers for constructs in protoplast transient assays

BAK1 (*At4g33430*) was amplified with primers 5'-CATGCCATGGAACGAAGATTAATGATC-3' and 5'-GAAGGCCTTCTTGGACCCGAGGGGTATTC-3'. *FLS2* (*At5g46330*) was amplified with primers 5'-CGGGATCCATGAAGTTACTCTCAAAGAC-3' and 5'-TCCCCCGGGAACTTCTCGATCCTCGTTACG-3'. *BRI1* (*At4g39400*) was amplified with primers 5'-CGGGATCCATGAAGACTTTTTCAAGCTT-3' and 5'-GAAGGCCTTAATTTTCCTTCAGGAAC-3'. *RPS2* (*At4g26090*) was amplified with primers 5'-GGGGTACCATGGATTTCATCTCATCTCTTATC-3' and 5'-TCCCCCGGGATTTGGAACAAAGCGCGGTAA-3'. *BKK1/SERK4* (*At2g13790*) was amplified with primers 5'-CGGGATCCATGACAAGTTCAAAAATGGA-3' and 5'-GAAGGCCTTCTTGGACCCGAGGGGTAAT-3'. *SERK5* (*At2g13800*) was amplified with primers 5'-CATGCCATGGAACATG GATCATCCCG-3' and 5'-GAAGGCCTTCTTGGCCCCGAGGGGTAAT-3'. CERK1 (*At3g21630*) was amplified with primers 5'-CGGGATCCATGAAGCTAAAGATTTCTCT-3' and 5'- GAAGGCCTCCGGCCGGACATAAGACTGAC-3'. *At2g23770* was amplified with primers 5'-CGGGATCCATGATCTCGTTTTCATTTCA-3' and 5'-GAAGGCCTGTACGACGATTCTTCCCAGTT-3'. *CLV1* (*At1g75820*) was amplified with primers 5'-CGGGATCCATGGCGATGAGACTTTTGAA-3' and 5'-GAAGGCCTGAACGCGATCAAGTTCGCCA-3'. EFR (*At5g20480*) was amplified from Col-0 genomic DNA with primers 5'-CGGGATCCATGAAGCTGTCCTTTTCACTTG-3' and 5'- GAAGGCCTCATAGTATGCATGTCCGTATTTAAC-3'.

AvrPtoB deletion mutants were generated by following primers, $AvrPtoB_{1-387}$: 5'-CATGCCATGGCGGGTATCAATAGAGC-3' and 5'-GAAGGCCTCATCACCCGCAATCGTGTTG-3'; $AvrPtoB_{1-307}$: 5'-CATGCCATGGCGGGTATCAATAGAGC-3' and 5'-GAAGGCCTCATTACATGTCTTTCAAGGG-3'; $AvrPtoB_{308-553}$: 5'-CGGGATCCATGCAGCGCCTCCCTATCCC-3' and 5'-GAAGGCCTGGGGACTATTCTAAAAGCATAC-3'. BAK1 deletion mutants were generated by following primers, BAK1ETJ: 5'-CATGCCATGGAACGAAGATTAATGATC-3'and 5'-GAAGGCCT

CGAAGCAACTTGTAGTTCAC-3’; BAK1TJK: 5’-CATGCCATGGGTTCCTTTTCACTTTTCACT-3’ and 5’-GAAGGCCTTCTTGGACCCGAGGGGTATTC-3’; BAK1JK:5’-CGGGATCCATGCGA AGGAAAAAGC CGCAGGAC-3’ and 5’-GAAGGCCTTCTTGGACCCGAGGGGTATTC-3’; BAK1K:5’-CATGCCATGGATAATTTTAGCAACAAG-3’ and 5’-GAAGGCCTTCTTGGACCCGAGGGGTATTC-3’; BAK1 and AvrPto point mutations were generated by site-specific mutagenesis kit (Stratagene) using following primers, BAK1F300A: 5’-GGGTAGAGGTGGTGCTGGTAAAGTTTATAA-3’ and 5’-TTATAAACTTTACCAGCACCACCTCTACCC-3’; BAK1T455N: 5’-GCAGTGCGTGGGAACATTGGTCATATA-3’ and 5’-TATATGACCAATGTTCCCACGCACTGC-3’; AvrPtoY89D: 5’- GACATGCAGCATAGGGACATGACGGGAG-3’ and 5’-CTCCCGTCATGTCCCTATGCTGCATGTC-3’

Primers for yeast split-ubiquitin assay

The primers of *BAK1* are, 5’-ACAAGTTTGTACAAAAAAGCAGGCTCTCCAACCACCATGGAACGAA GATTAATGATC-3’, and 5’- TCCGCCACCACCAACCACTTTGTACAAGAAAGCTGGGTATCTTGGACCCGAGGGGTA-3’. The primers of *BAK1ETJ* are, 5’-ACAAGTTTGTACAAAAAAGCAGGCTCTCCAACCACCATGGAACGAA GATTAATGATC-3’, and 5’-TCCGCCACCACCAACCACTTTGTACAAGAAAGCTGGGTACGAAGCAACTTGTAGTTCAC-3’. The primers of *BAK1TJK* are, 5’-ACAAGTTTGTACAAAAAAGCAGGCTCTCCAACCACCATGGGTTCCTTTTCACTTTTCAC and 5’-TCCGCCACCACCAACCACTTTGTACAAGAAAGCTGGGTATCTTGGACCCGAGGGGTA-3’. The primers of *BRI1* are, 5’-ACAAGTTTGTACAAAAAAGCAGGCTCTCCAACCACCATGAAGACTTTTTCAAGCTT-3’ and 5’-TCCGCCACCACCAACCACTTTGTACAAGAAAGCTGGGTATAATTTTCCTTCAGGAAC-3’. The primers of *FLS2* are, 5’-ACAAGTTTGTACAAAAAAGCAGGCTCTCCAACCACCATGAAGTTACTCTCAAAGAC-3’ and 5'-TCCGCCACCACCAACCACTTTGTACAAGAAAGCTGGGTAAACTTCTCGATCCTCGTTACG-3'.

The primers of *avrPto* are 5'-ACAAGTTTGTACAAAAAAGCAGGCTCTCCAACCACCATGGGAAATATATGTGTCGG-3', and 5'-TCCGCCACCACCAACCACTTTGTACAAGAAAGCTGGGTATTGCCAGTTACGGTACG-3'. The primers of *avrRpt2* are 5'-ACAAGTTTGTACAAAAAAGCAGGCTCTCCAACCACCATGAAAATTGCTCCAGTTGC-3', and 5'-TCCGCCACCACCAACCACTTTGTACAAGAAAGCTGGGTAGCGGTAGAGCATTGCGTGTG-3'

Primers for RT-PCR analysis

The RT-PCR primer sequences of *UBQ10* (*At4g05320*), *FRK1* (*At2g19190*), *At2g17740* and *CPD* (*At5g05690*) were described previously (He et al., 2005; He et al., 2006). The RT-PCR primer sequences of *SAUR-AC* (*At4g38850*) are 5'-CGTCGACACCAAGAGGATTC-3' and 5'-AAGTATGAAACCGGCACCAC-3'. The RT-PCR primer sequences of *IAA5* (*At1g15580*) are 5'-TCCTTGGGAAATGTTCCTTG-3' and 5'-TCATCCTCTGTTACATGATCTCTTC-3'.

Supplemental References

He, J. X., Gendron, J. M., Sun, Y., Gampala, S. S., Gendron, N., Sun, C. Q., and Wang, Z. Y. (2005). BZR1 is a transcriptional repressor with dual roles in brassinosteroid homeostasis and growth responses. Science *307*, 1634-1638.

He, P., Shan, L., Lin, N. C., Martin, G. B., Kemmerling, B., Nurnberger, T., and Sheen, J. (2006). Specific bacterial suppressors of MAMP signaling upstream of MAPKKK in Arabidopsis innate immunity. Cell *125*, 563-575.

Wang, X., Goshe, M. B., Soderblom, E. J., Phinney, B. S., Kuchar, J. A., Li, J., Asami, T., Yoshida, S., Huber, S. C., and Clouse, S. D. (2005). Identification and functional analysis of in vivo phosphorylation sites of the Arabidopsis BRASSINOSTEROID-INSENSITIVE1 receptor kinase. Plant Cell *17*, 1685-1703.

Xing, W., Zou, Y., Liu, Q., Liu, J., Luo, X., Huang, Q., Chen, S., Zhu, L., Bi, R., Hao, Q., *et al.* (2007). The structural basis for activation of plant immunity by bacterial effector protein AvrPto. Nature *449*, 243-247.