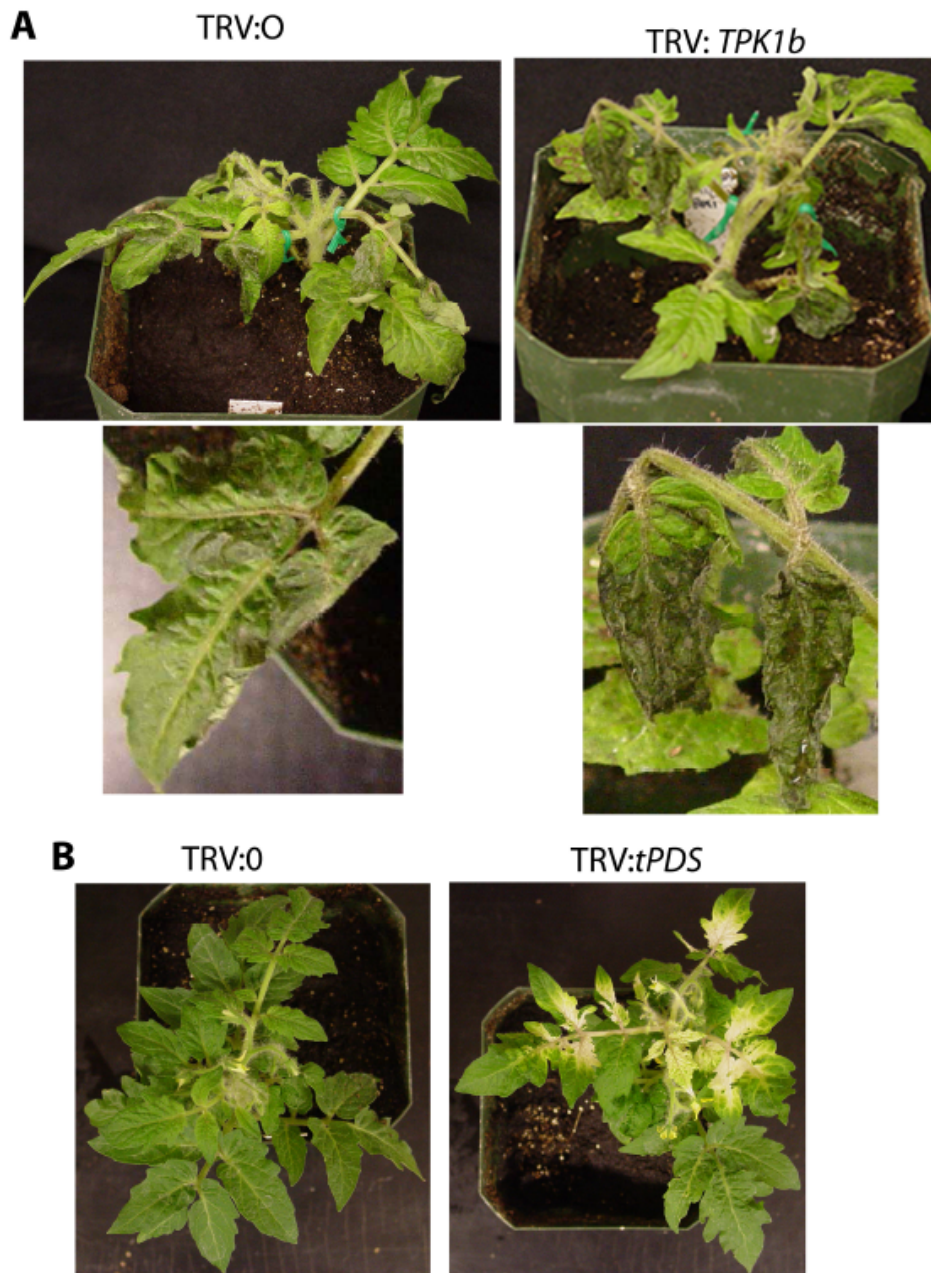


Supplemental data. AbuQamar et al (2008). Tomato Protein Kinase 1b mediates signaling of plant responses to necrotrophic fungi and insect herbivory.

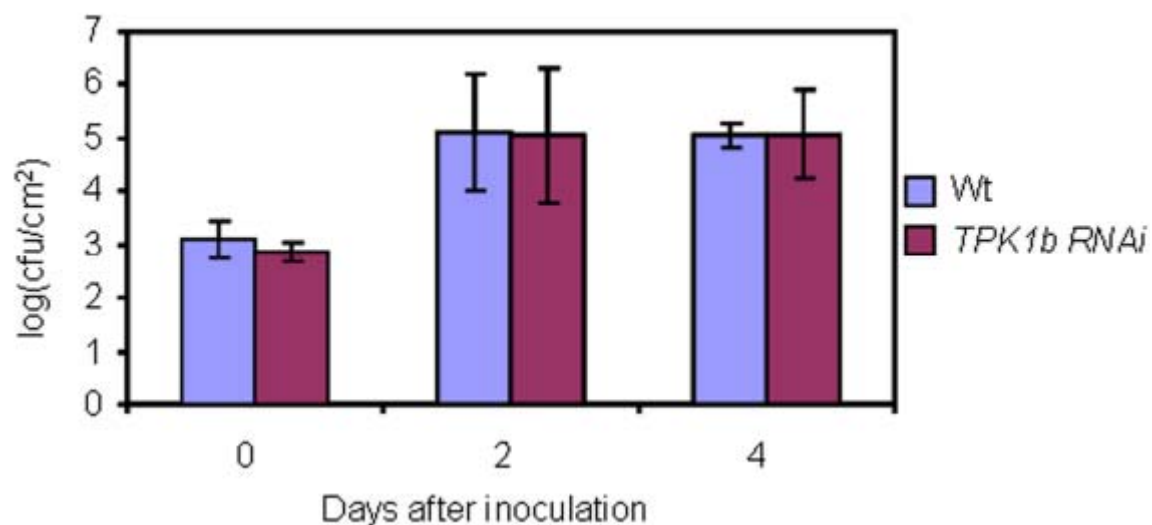


Supplemental Figure 1. Suppression of *TPK1b* through virus induced gene silencing (VIGS) causes susceptibility to *Botrytis*.

(a) Disease symptoms on TRV:O (control) and TRV:*TPK1b* plants at 3 dpi with *Botrytis*. Lower panels show close-ups of disease symptoms

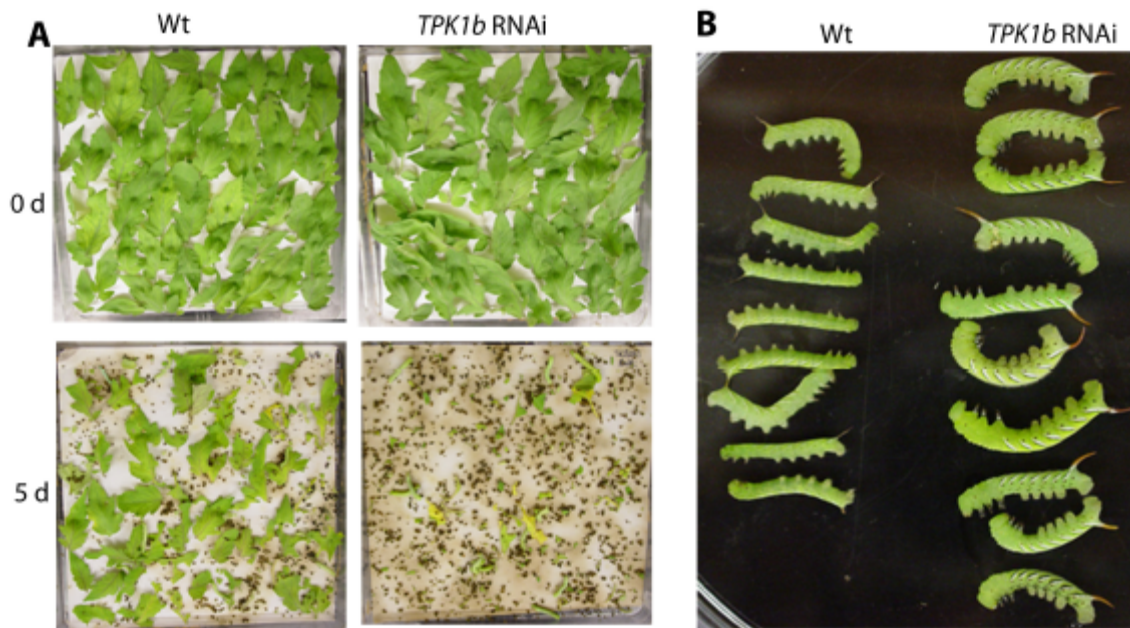
(b) Plants showing the silencing of the tomato phytylene desaturase (TRV:*tPDS*) used as a control.

Both *tPDS* silencing and the *Botrytis* disease symptoms are visible on the upper half of the plants that have emerged after the VIGS treatment. The *Botrytis* disease assay was done 17 days after the VIGS treatment.



Supplemental Figure 2. *TPK1b* RNAi plants show no altered responses to the bacterial pathogen *P.syringae* pv tomato.

The growth of *Pseudomonas syringae* pv tomato DC3000 at 0, 2 and 4 dpi is plotted for wild type (Wt) and *TPK1b* RNAi plants. Plants were infiltrated with a bacterial suspension ($OD_{600}=0.001$). Data represent average values \pm SE from three experiments. CFU, colony forming units.

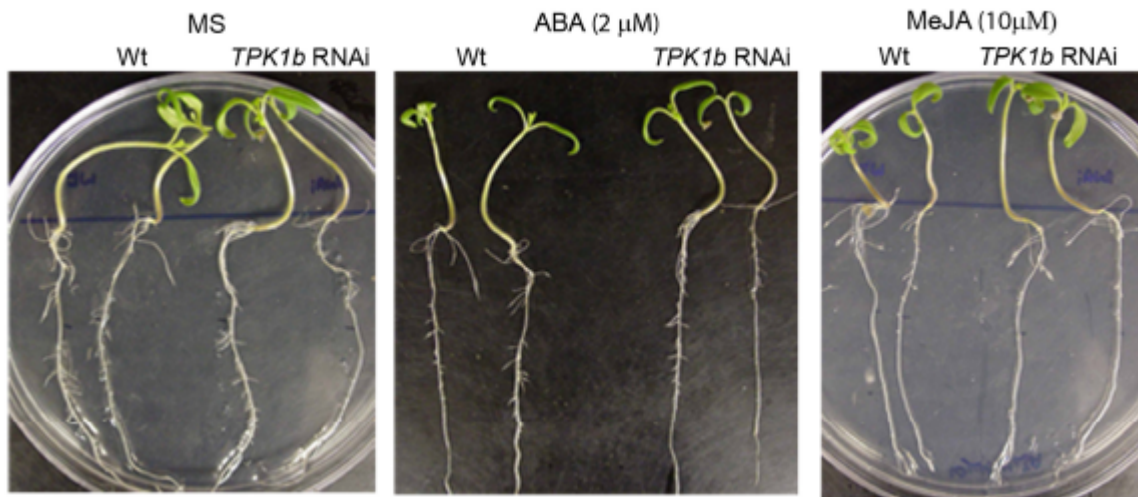


Supplemental Figure 3. Feeding trial on detached leaves showing reduced resistance of *TPK1b* RNAi plants to tobacco hornworm (*Manduca sexta*).

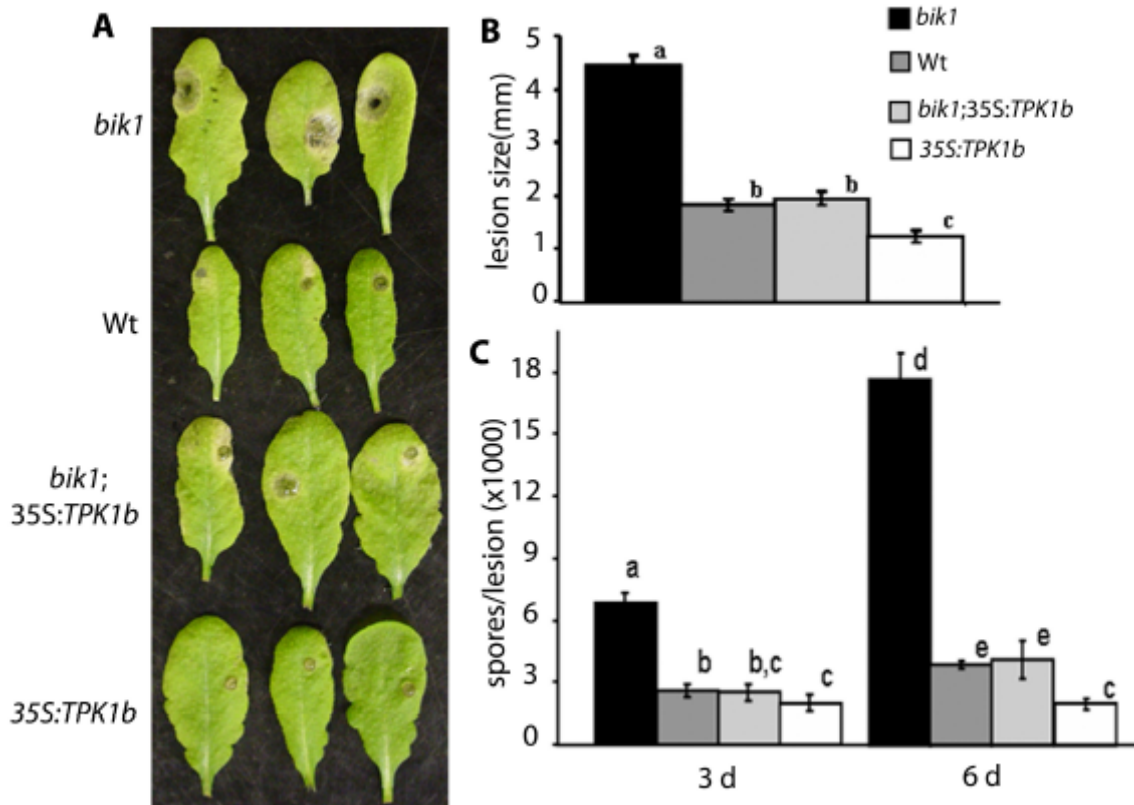
(a) Detached leaves at the beginning (top) and end (bottom) of tobacco hornworm feeding trial.

(b) Larval size recovered at the end of feeding trial from wild type and *TPK1b* RNAi plants.

Experiments were repeated at least three times with similar results. Ten newly hatched larvae (~9-11 mg each) were placed on leaves harvested from four eight-week-old plants of each genotype. Larvae were allowed to feed for 5 days.



Supplemental Figure 4. *TPK1b* RNAi tomato plants do not show any altered responses to the plant hormones Abscisic acid (ABA) and Methyl jasmonate (MeJA). Seeds were plated on plain Murashige and Skoog medium (MS) or were supplemented with ABA or MeJA.



Supplemental Figure 5. Tomato *TPK1b* suppresses the Arabidopsis *bik1* susceptibility to *A. brassicicola*.

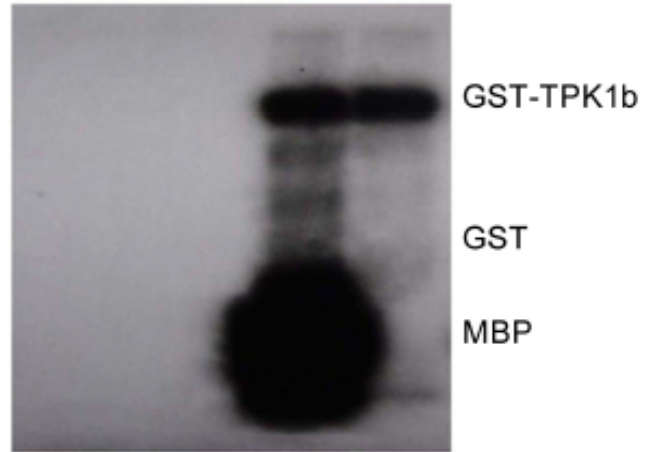
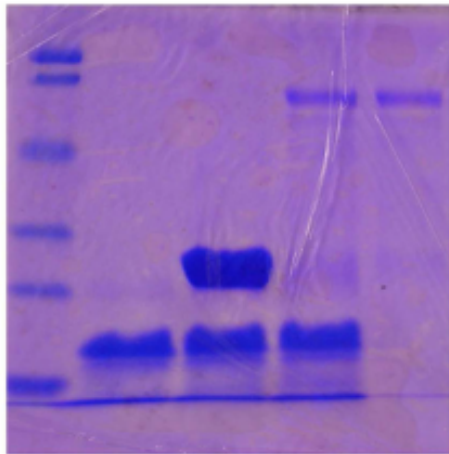
- (a) *A. brassicicola* disease symptoms in *bik1*, wild type, *bik1*;35S:TPK1b and 35S:TPK1b plants at 3 dpi
- (b) Disease lesion size in *A. brassicicola*-inoculated leaves at 6 days after inoculation.
- (c) Number of spores in *A. brassicicola*-inoculated leaves at 3 and 6 days after inoculation.

In (b) and (c), the data represent the mean \pm SE from a minimum of 20 lesions. Analysis of variance and Duncan's multiple range tests were performed to determine the statistical significance of the mean lesion sizes and spore counts using SAS software (SAS Institute, 1999). Bars with different letters are significantly different from each other at $P = 0.05$. Experiments were repeated at least three times with similar results.



Supplemental Figure 6. *35S:TPK1b* rescues the short root growth of *Arabidopsis bik1* mutant to wild type levels. Seeds were germinated on plain MS plates and incubated in a vertical position.

GST-TPK1b	-	-	+	+	-	-	+	+
GST	-	+	-	-	-	+	-	-
MBP	+	+	+	-	+	+	-	-



Supplemental Figure 7. The recombinant GST-TPK1b fusion protein autophosphorylates and also phosphorylates the myelin basic protein (MBP) *in vitro*. Left, Coomassie blue staining; right, autoradiogram of the gel shown on the left showing kinase activity of GST-TPK1b and lack of kinase activity for GST protein.



Supplemental Figure 8. 35S:*TPK1b*^{T243A} partially rescues the growth related phenotypes of Arabidopsis *bik1* mutant. Note that Arabidopsis *bik1* shows a smaller growth stature and altered leaf features.

TPK1b	MGICLSARIK	AESPFHTGLN...
APK1b	MGICLSAQIK	AVSPGASPKY...
MLPK	MGICMSVQVK	AESPSNTGAS...
APK1a	MGICLSAQVK	AESSGASTKY...
NAK	MGGCFSNRIK	TDIASSTWLS...
BIK1	MGSCFSSRVK	ADIFHNGKSS...
At3g55450	MGSCLSSRVL	NKSSSGLDDL...
CAO21648	MGVCLSARIK	AESPCHTGGS...
Consensus	MGXXX-S/T(K)	

Supplemental Figure 9. Alignment of N-terminal amino acid sequences of TPK1b and closely related proteins. These TPK1b related proteins are predicted to contain myristoylation motifs. Amino acid residues that are conserved among these proteins are shaded in yellow and the consensus sequence are according to Boisson et al., (2003). The accession numbers for the sequences are given in the legend for Figure 2.