

## Supplementary Material

### **Two phosphatidylinositol 3-kinase components are involved in interactions between *Nicotiana benthamiana* and *Phytophthora* by regulating pathogen effectors and host cell death**

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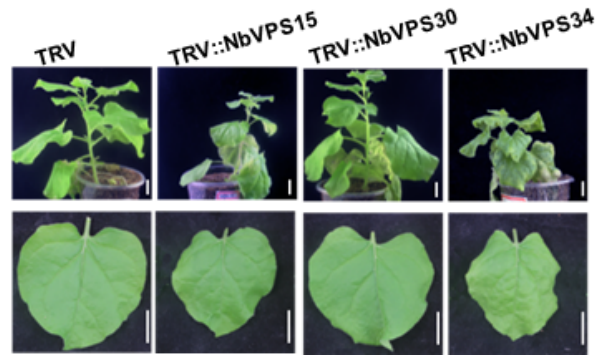
**Fig. S1.** Plant and detached leaf phenotypes of silenced *N. benthamiana*.

**Fig. S2.** Cell death induced by *P. sojae* in *N. benthamiana* leaves silencing the *VPS* genes.

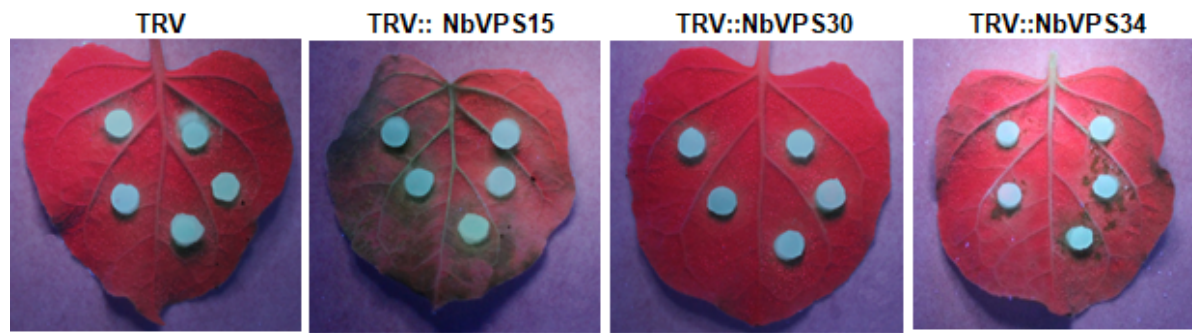
**Fig. S3.** Full-length blots of effectors stability in silenced *VPS* *N. benthamiana* leaves.

**Table S1.** Oligonucleotides used for PCR and plasmid constructions.

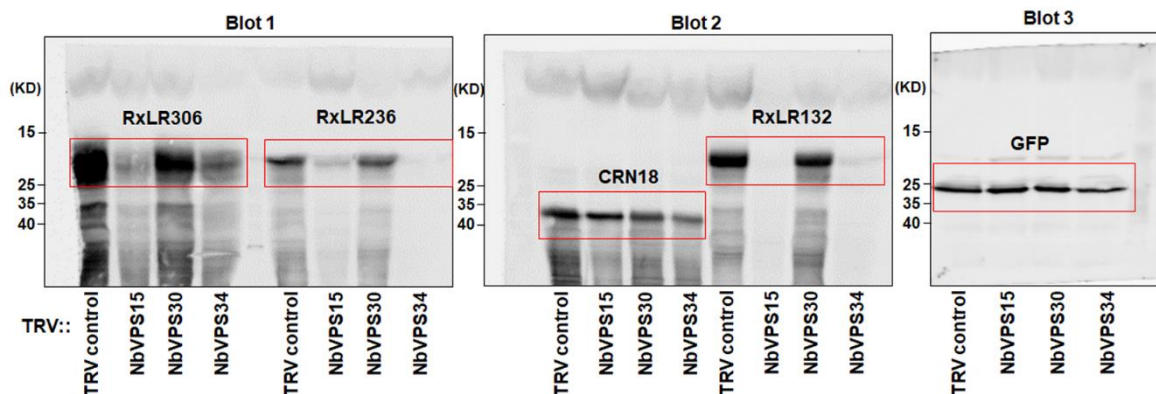
**Table S2.** Expression of the three *N. benthamiana* *VPS* genes in response to *P. parasitica* infection.



**Fig. S1.** Plant and detached leaf phenotypes of silenced *N. benthamiana*. Whole plants and detached leaves from the same position were shown at 14 days after inoculated. Bars = 2 cm.



**Fig. S2.** Cell death induced by *P. sojae* in *N. benthamiana* leaves silencing the *VPS* genes. *N. benthamiana* leaves were inoculated with *P. sojae* hyphae. Cell death of VIGS plants silencing the *VPS* genes or control (TRV) was viewed under UV illumination at 48 hpi. Bar = 2 cm.



**Fig. S3.** Full-length blots of effectors stability in silenced *VPS* *N. benthamiana* leaves.

Table S1. Oligonucleotides used for PCR and plasmid constructions.

No	Name	Applications	Sequence (from 5' to 3')
1	NbVPS15-F/xbaI	Construct the fragment of <i>NbVPS15</i> into TRV2 vector	gc <b>TCTAGACATCTTTGCTGTTGGGT</b> G
2	NbVPS15-R/smaI		<b>GGGAGCCCTTCTCCATCTCC</b>
3	NbVPS30-F/xbaI	Construct the fragment of <i>NbVPS30</i> into TRV2 vector	gc <b>TCTAGATGTCAGAACTGCCACA</b> ATC
4	NbVPS30-R/smaI		<b>GGGAATCTGGGTCTGCGTTG</b>
5	NbVPS34-F/xbaI	Construct the fragment of <i>NbVPS34</i> into TRV2 vector	<b>GGGTTACGGTTGGCATTTCG</b>
6	NbVPS34-R/smaI		gc <b>TCTAGAGGATTTGAACCTGGTG</b> TAG
7	NbEF1 $\alpha$ -F	Internal primers of <i>EF1<math>\alpha</math></i> , used for quantitative real-time PCR assay	AGAGGCCCTCAGACAAAC
8	NbEF1 $\alpha$ -R		TAGGTCCAAAGGTCACAA
9	NbVPS15(RT)-F	Primers of <i>NbVPS15</i> , used for quantitative real-time PCR assay	GAGACCAAGGTGAAAGC
10	NbVPS15(RT)-R		TGCTCATACCACCCACT
11	NbVPS30(RT)-F	Primers of <i>NbVPS30</i> , used for quantitative real-time PCR assay	GTTCTTGACCTGCGTAA
12	NbVPS30(RT)-R		GTCCAACCTTTCCTGCTT
13	NbVPS34(RT)-F	Primers of <i>NbVPS34</i> , used for quantitative real-time PCR assay	AAGCATACAACATTCTCCG
14	NbVPS34(RT)-R		TTCCTCGTCGTCCAAGT
15	RxLR132-F	Construct <i>PcRxLR132</i> (deletion the signal peptide sequence) into PVX-HA vector	<b>GGGATGAATGTGGCCTCGAACCA</b> AAAC
16	RxLR132-R		GAAGGAAGAAAGCGGCCGCCACA TAATCCCTATAGGTCA
17	RxLR236-F	Construct <i>PcRxLR236</i> (deletion the signal peptide sequence) into PVX-HA vector	<b>GGGATGGCGACTTGTAACGCAACT</b> G
18	RxLR236-R		GAAGGAAGAAAGCGGCCGCCACA TACCCCTGAAGATC
19	RxLR306-F	Construct <i>PcRxLR306</i> into PVX-HA vector	<b>GGGATGGCCTCCTCTACCAACCAA</b> AT
20	RxLR306-R		GAAGGAAGAAAGCGGCCGCGTTG AGACCCTTATCCTTGA
21	CRN18-F	Construct <i>PcCRN18</i> into PVX-HA vector	<b>GGGATGTTGTCGTCGGAGCCGCAC</b> A
22	CRN18-R		GAAGGAAGAAAGCGGCCGCTGCC AAGGAGCTGCACATGG
23	RxLR132-F	Primers of <i>PcRxLR132</i> , used for	AGGCACGACTGAACGACG

24	RxLR132-R	quantitative real-time PCR assay	TCCGCCCACTTCTGGTAT
25	RxLR236-F	Primers of <i>PcRxLR236</i> , used for quantitative real-time PCR assay	AAGTATCGATGGTGACG
26	RxLR236-R		ATACATCCTTGGCCCTCC
27	RxLR306-F	Primers of <i>PcRxLR306</i> , used for quantitative real-time PCR assay	CGGGACGAGGAAGAAAGG
28	RxLR306-R		TTGAGGTAGGCCGAGTAAGC
29	CRN18-F	Primers of <i>PcCRN18</i> , used for quantitative real-time PCR assay	CCAGCCTACCAGGTGTTGTT
30	CRN18-R		TTCTCCGTCAGACGCTATCC
31	GFPRTF	Primers of <i>GFP</i> , used for quantitative real-time PCR assay	ACAACCACTACCTGAGCACC
32	GFPRTR		CTTGTACAGCTCGTCCATGC
33	CAP6-F	Construct <i>PcCAP6</i> into PVX-HA vector	GGGATGAACACGTACTTTGCCCTC
34	CAP6-R		GAAGGAAGAAAGCGGCCGCGCAG GCACCACTGGGC

Table S2. Expression of the three *N. benthamiana* VPS genes in response to *P. parasitica* infection. Based on the RNA-Seq data (Shen et al., 2016) which is composed of two samples, 6 h inoculated and non-inoculated *N. benthamiana*, the expression value was showed in each sample for the three genes.

Name	Gene ID	Non-infection	Infection	Fold change
<i>NbVPS15</i>	NbS00025777g0007	7.93	12.66	1.60
<i>NbVPS30</i>	NbS00006597g0015	13.91	11.42	0.82
<i>NbVPS34</i>	NbS00054532g0002	11.81	16.30	1.38