Supplemental Table S1. The silencing efficiency of *PDS* gene by TYLCCNV-amiRPDS(319L) vectors in *N. benthamiana* plants at 30 dpi.

Viral vectors	MIR VIGS plants[a]			Average MIR VIGS efficiency (%)[b]
	Group 1	Group 2	Group 3	
TYLCCNV	0/6	0/6	0/6	0±0
TYLCCNV-amiRPDS(319L)	4/6	5/6	3/6	67±0.14

[a] MIR VIGS plants were expressed as *PDS* silenced plants/total agroinoculated plants;

[b] MIR VIGS efficiency was the ratio of *PDS* silenced plants to total Agroinoculated plants. Value indicated mean ± SD (n=3).

Supplementary Table S2. Lists of primers used in this study. Lists of primers used in plasmid construction, virus detection, RT-qPCR and northern blot analysis for genes and small RNAs.

Primer name	Primer sequence (5′-3′)*	Brief description
For plasmid construction		
***Xba* I-ami-F**	GCTCTAGAGTTCATACACTTAATACT	For TYLCCNV-amiRPDS(319L) cloning
***Sma* I-ami-R**	TCCCCCGGGTGCCTTAAATAAAGAT	
amiRPDS(athmiR319)-1	GATCAACATAGACTGATTGGGGCTCT	
amiRPDS(athmiR319)-2	GAGCCCCAATCAGTCTATGTTGATCA AAGAGAATCAATGA	
amiRPDS(athmiR319)-3	GAGCACCAATCAGTCAATGTTGTTCA CAGGTCGTGATATG	
amiRPDS(athmiR319)-4	GAACAACATTGACTGATTGGTGCTCT ACATATATATTCCT	
***Xba* I-amiRPDS(319)-F**	GCTCTAGAGAGCACCAATCAGTCAAT GTTGTTCACAGGTCGTGATATG	For TYLCCNV- amiRPDS(319) cloning
***Sma* I-amiRPDS(319)-R**	TCCCCCGGGGAGCCCCAATCAGTCTA TGTTGATCAAAGAGAATCAATGA	
***Xba* I-amiRPDS(159)-F**	GCTCTAGACCCCCAATGTGTCTATGTT GAAGAAGATCTAACAGGTTAGA	For TYLCCNV- amiRPDS(159) cloning
***Sma* I-amiRPDS(159)-R**	TCCCCCGGGGCCCCAATCAGTCTATG TTGAAAATGATCAAACAAAGGGTA	
***Xba* I-amiRPDS(390)-F**	GCTCTAGAAAAGTAGAGAAGAATCT GTATCAACATAGACTGATTGGGGCAT GATGATCACATTCGTTATC	For TYLCCNV- amiRPDS(390) cloning
amiRPDS(390)-R	TGTAGTAAGAAGAGCCAATGTCAAC ATAGAATGATTGGGGCAAAAAATAGA TAACGAAT	
***Xba* I-amiR156-F**	GCTCTAGAAAAGTAGAGAAGAATCT GTATGACAGAAGAGAGTGAGCAC ATGATGATCACATTCGTTATC	For TYLCCNV-amiR156 cloning
amiR156-R	TGTAGTAAGAAGAGCCAATGTGACA GAAGATAGTGAGCACAAAAAATAGA TAACGAAT	
***Xba* I-5′D(8)-F**	GCTCTAGAAAAGTAGAGAAGAATCT GTATCTTGACCTTGTAAGGCCTTTAT GATGATCACATTCGTTATC	For TYLCCNV-5′D8(+) cloning
5′D(8)-R	TGTAGTAAGAAGAGCCAATGTCTTG ACCTTTTAAGGCCCTTAAAAAATAG ATAACGAAT	

***Xba* I-amiRSu-F**	GCTCTAGAAAAGTAGAGAAGAATCT GTATAATTAGGATAAATCGGGCCCA TGATGATCACATTCGTTATC	For TYLCCNV-amiRSu cloning
amiRSu-R	TGTAGTAAGAAGAGCCAATGTAATT AGGATCAATCGGGCCCAAAAAATAG ATAACGAAT	
***Xba* I-amiRPCNA-F**	GCTCTAGAAAAGTAGAGAAGAATCT GTATATAGTGCTCAAAACCCTCACAT GATGATCACATTCGTTATC	For TYLCCNV-amiRPCNA cloning
amiRPCNA-R	TGTAGTAAGAAGAGCCAATGTATAG TGCTCCAAACCCTCACAAAAAATAG ATAACGAAT	
For virus detection		
DNA-A-F	CATCGTGTTGGTAAGAGGTTTTG	For TYLCCNV DNA-A detection
DNA-A-R	TATACAGGATTACTTGCATGGGT	
DNA-mβ-F	ACATCGGTTCCCCTATTAGTGCC	For TYLCCNV DNA-mβ detection
DNA-mβ-R	GCTGCTGCGTAGCGTAGTGGT	
For RT-qPCR of genes		
NbeIF4α-qF	GCTTTGGTCTTGGCACCTACTC	RT-qPCR primers for *eIF4α*
NbeIF4α-qR	TGCTCGCATGACCTTTTCAA	
NbPDS-qF	GGCGGCGTTATTATCATC	RT-qPCR primers for *PDS*
NbPDS-qR	ACCAATCTCCATCATCATCT	
pri-319-qF	TTCCGACTCATTCATCCAA	RT-qPCR primers for pri-amiRPDS(319)
pri-319-qR	CTACCGCATCATTCATTCAT	
pri-159-qF	GCTGCTGACCTATGGATT	RT-qPCR primers for pri-amiRPDS(159)
pri-159-qR	TCAAACAAAGGGTAAAATAAAGC	
pri-390-qF	GCGGCAAAGTAGAGAAGAATCTGTA	RT-qPCR primers for pri-amiRPDS(390)
pri-390-qR	GCGTGTAGTAAGAAGAGCCAA	
TC17947-qF	GCACAGTGGAAGACAGTA	RT-qPCR primers for *TC17947*
TC17947-qR	ACGATGATAGTTAGATATGAAGGA	
TC24007-qF	CACTCTAACGGTTATCATCCT	RT-qPCR primers for *TC24007*
TC24007-qR	CAACAGACAGCCTCACAA	
NbARF3-qF	GGCAAGTGATGAGGTCTA	RT-qPCR primers for *NbARF3*
NbARF3-qR	GTATCCGAAGCAGTGAGA	
NbARF4-qF	TTACCACCACTGAGCATTC	RT-qPCR primers for *NbARF4*
NbARF4-qR	GGCGGACTGTCTTATCAC	
NbSu-qF	CCAGATGACCAAGAAGTAATG	RT-qPCR primers for *Su*

NbSu-qR	TGTCCTCAGTAGCACCTA	
NbPCNA-qF	AGAGATGAATGAGCCAGTAT	RT-qPCR primers for *PCNA*
NbPCNA-qR	TTAGGTGCCAGGTAGAAC	
For RT-qPCR of small RNAs		
universal-qR	GTGCAGGGTCCGAGGT	Universal reverse primer for all miRNA end-point stem-loop RT-qPCR
amiRPDS-RT	GTTGGCTCTGGTGCAGGGTCCGAGG TATTCGCACCAGAGCCAACGCCCCA	RT primer for amiRPDS
amiRPDS-qF	CCGGCTCAACATAGACTGAT	Forward primer for qPCR analysis of amiRPDS
amiR156-RT	GTTGGCTCTGGTGCAGGGTCCGAGG TATTCGCACCAGAGCCAACGTGCTC	RT primer for amiR156
amiR156-qF	CCGGCTGACAGAAGAGAGTG	Forward primer for qPCR analysis of amiR156
5′D8(+)-RT	GTTGGCTCTGGTGCAGGGTCCGAGG TATTCGCACCAGAGCCAACAAAGGC	RT primer for 5′D8(+)
5′D8(+)-qF	CCGGCTCTTGACCTTGTAAG	Forward primer for qPCR analysis of 5′D8(+)
amiRSu-RT	GTTGGCTCTGGTGCAGGGTCCGAGG TATTCGCACCAGAGCCAACGGGCCC	RT primer for amiRPDS
amiRSu-qF	GCCCGGCGTAATTAGGATAAATC	Forward primer for qPCR analysis of amiRPDS
amiRPCNA-RT	GTTGGCTCTGGTGCAGGGTCCGAGG TATTCGCACCAGAGCCAACGTGAGG	RT primer for amiRPCNA
amiRPCNA-qF	CCGGCTATAGTGCTCAAAAC	Forward primer for qPCR analysis of amiRPCNA
For northern blot analysis		
U6-probe	TTGCGTGTCATCCTTGCGCAGG	For northern blot assay of U6
amiRPDS-probe	GCCCCAATCAGTCTATGTTGA	For northern blot assays of amiRPDS and pri-amiRPDS
PDS-PF	GCTCTAGACAAGTGCCACGACCCGA AG	Primers for amplifying *PDS* fragment to produce *PDS* probe
PDS-PR	CGAGCTCGCATCGAAAGCTCGTCAG G	
PDS-PT7R	TAATACGACTCACTATAGGGCGAGCT CGCATCGAAAGCTCGTCAGG	Reverse primer for adding T7 promoter in 3′ *PDS* fragment to produce *PDS* RNA probe

*Restriction sites were shown underline.

Supplemental Table S3. The silencing efficiency of *PDS* gene by TYLCCNV-amiRPDS(319), TYLCCNV-amiRPDS(159) and TYLCCNV-amiRPDS(390) vectors in *N. benthamiana* plants at 25 dpi.

Viral vectors	MIR VIGS plants[a]			Average MIR VIGS efficiency (%)[b]
	Group 1	Group 2	Group 3	
TYLCCNV	0/6	0/6	0/6	0±0
TYLCCNV-amiRPDS(319)	6/6	6/6	6/6	100±0
TYLCCNV-amiRPDS(159)	6/6	6/6	6/6	100±0
TYLCCNV-amiRPDS(390)	6/6	6/6	6/6	100±0

[a] MIR VIGS plants were expressed as *PDS* silenced plants/total agroinoculated plants;

[b] MIR VIGS efficiency was the ratio of *PDS* silenced plants to total agroinoculated plants. Value indicated mean ± SD (n=3).

Supplemental Table S4. The silencing efficiency of overexpressing miR156 by TYLCCNV-amiR156 vectors in *N. benthamiana* plants at 14 dpi.

Viral vectors	MIR VIGS plants[a]			Average MIR VIGS efficiency (%)[b]
	Group 1	Group 2	Group 3	
TYLCCNV	0/6	0/6	0/6	0±0
TYLCCNV-amiR156	4/6	4/6	5/6	72±0.08

[a] MIR VIGS plants were expressed as miR156 overexpression plants/total Agroinoculated plants;

[b] MIR VIGS efficiency was the ratio of the efficiency of miR156 overexpression plants to total Agroinoculated plants. Value indicated mean ± SD (n=3).

Supplemental Table S5. The silencing efficiency of overexpressing 5′D8(+) by TYLCCNV-5′D8(+) vectors in *N. benthamiana* plants at 30 dpi.

Viral vectors	MIR VIGS plants[a]			Average MIR VIGS efficiency (%)[b]
	Group 1	Group 2	Group 3	
TYLCCNV	0/6	0/6	0/6	0±0
TYLCCNV-5′D8(+)	4/6	5/6	5/6	78±0.08

[a] MIR VIGS plants were expressed as 5′D8(+) overexpression plants/total Agroinoculated plants;

[b] MIR VIGS efficiency was the ratio of the efficiency of 5′D8(+) overexpression plants to total Agroinoculated plants. Value indicated mean ± SD (n=3).

Supplemental Table S6. The silencing efficiency of *Su* gene by TYLCCNV-amiRSu vectors in *N. benthamiana* plants at 25 dpi.

Viral vectors	MIR VIGS plants[a]			Average MIR VIGS efficiency (%)[b]
	Group 1	Group 2	Group 3	
TYLCCNV	0/6	0/6	0/6	0±0
TYLCCNV-amiRSu	6/6	6/6	6/6	100±0

[a] MIR VIGS plants were expressed as *Su* silenced plants/total Agroinoculated plants;

[b] MIR VIGS efficiency was the ratio of *Su* silenced plants to total Agroinoculated plants. Value indicated mean ± SD (n=3).

Supplemental Table S7. The silencing efficiency of *PCNA* gene by TYLCCNV-amiRPCNA vectors in *N. benthamiana* plants at 25 dpi.

Viral vectors	MIR VIGS plants[a]			Average MIR VIGS efficiency (%)[b]
	Group 1	Group 2	Group 3	
TYLCCNV	0/6	0/6	0/6	0±0
TYLCCNV-amiRPCNA	6/6	6/6	6/6	100±0

[a] MIR VIGS plants were expressed as *PCNA* silenced plants/total Agroinoculated plants;

[b] MIR VIGS efficiency was the ratio of *PCNA* silenced plants to total Agroinoculated plants. Value indicated mean ± SD (n=3).