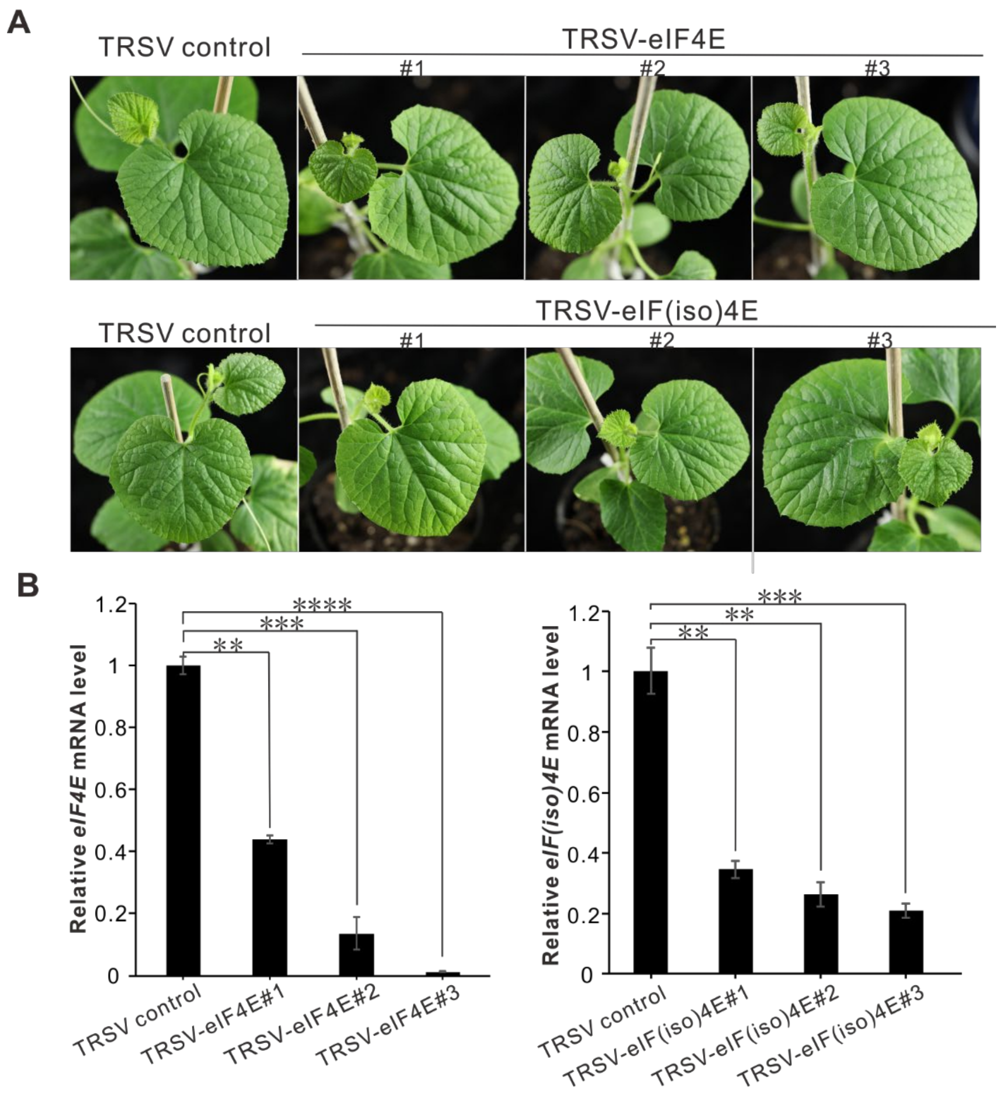
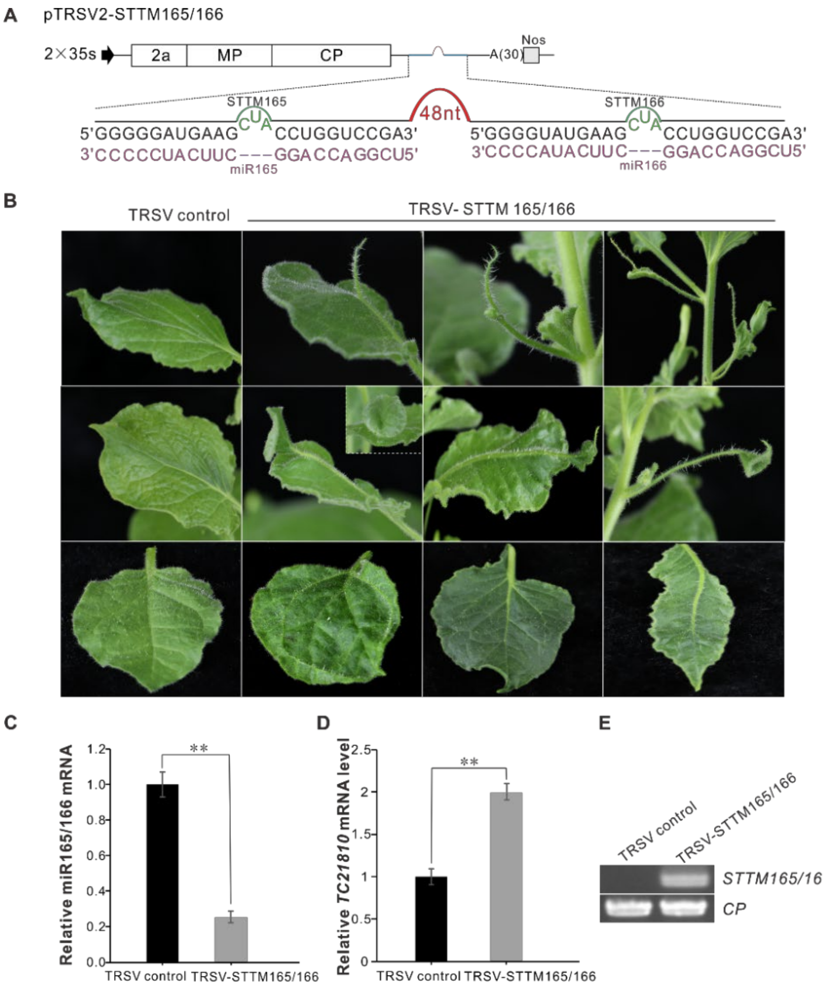
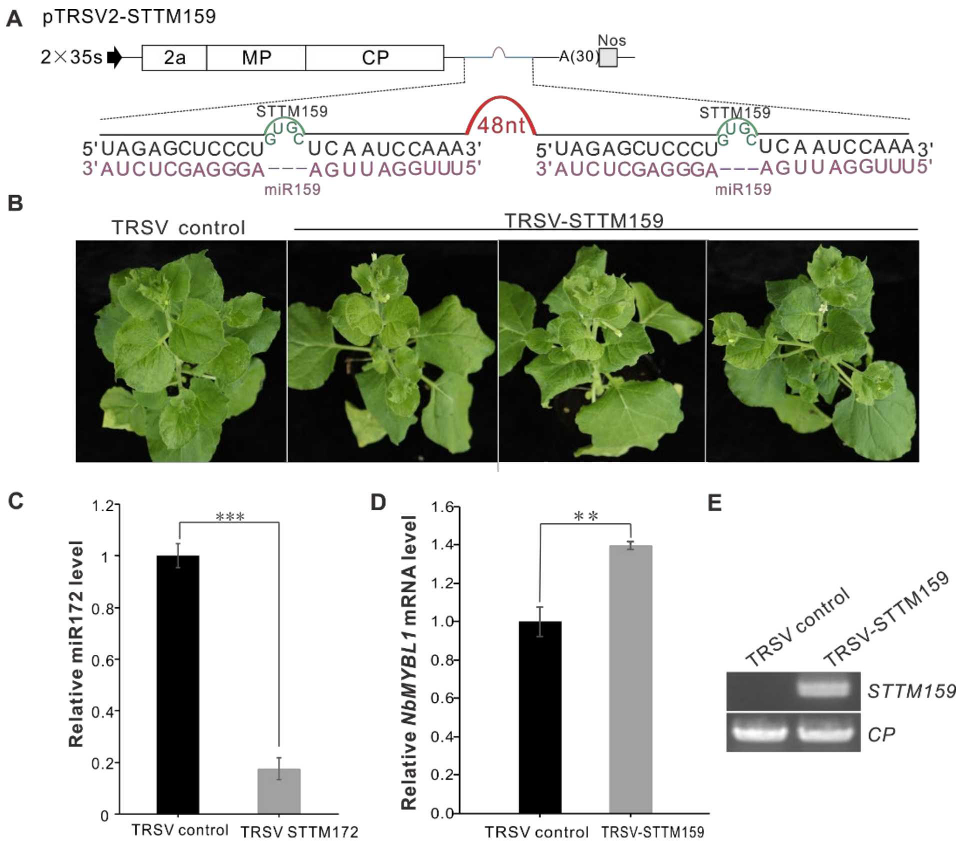


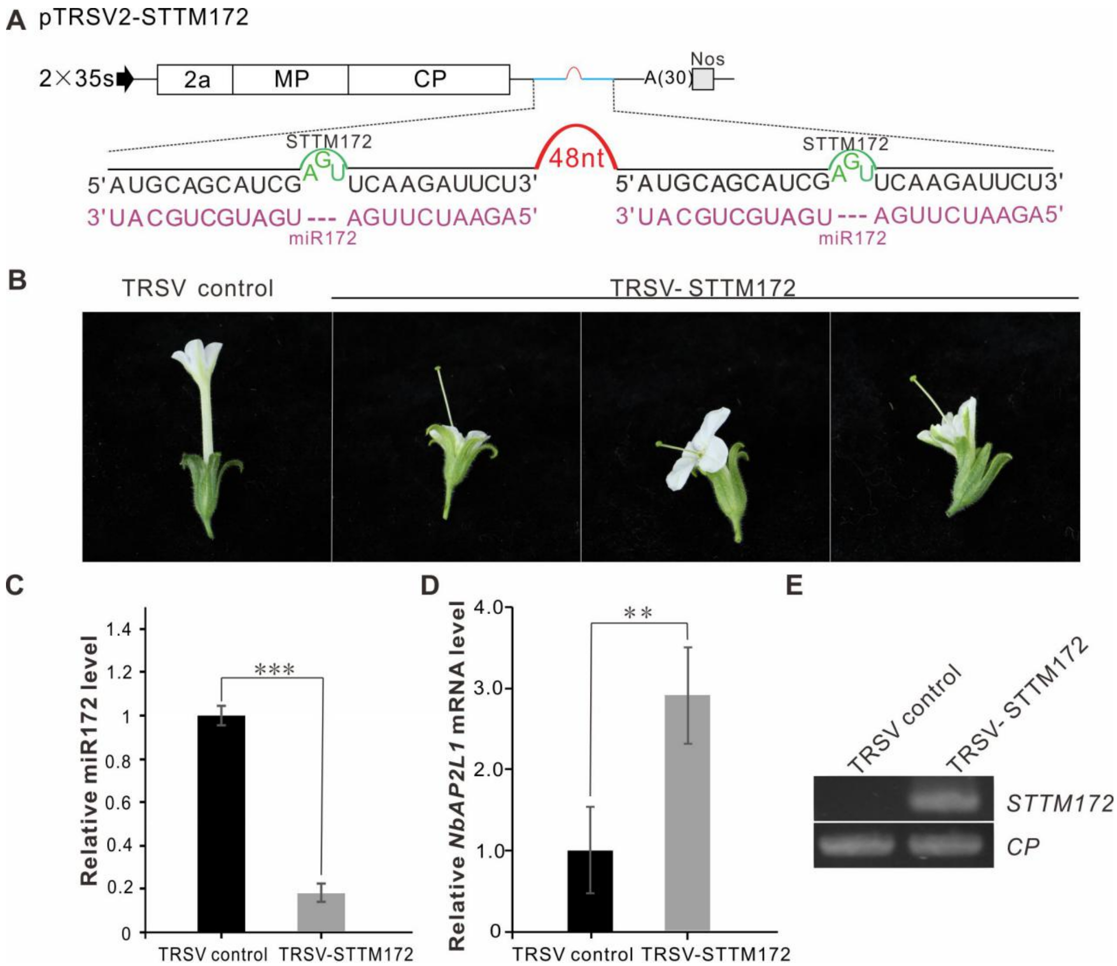
Supplemental Figure S1. TRSV-based silencing of *eIF4E* and *eIF(iso)4E* in *Cucumis melo* plants. A. Phenotypes of TRSV-based silencing of *eIF4E* and *eIF(iso)4E* in *Cucumis melo* plants at 20 dpi. B. qRT-PCR analysis of relative expression levels of *eIF4E* and *eIF(iso)4E* in *Cucumis melo* plants. Error bars represent ± SD of three biological experiments. Statistical significance between treatments was determined using paired Student's t-test: *P<0.05, **P<0.01, ***P<0.001, ****P<0.0001.



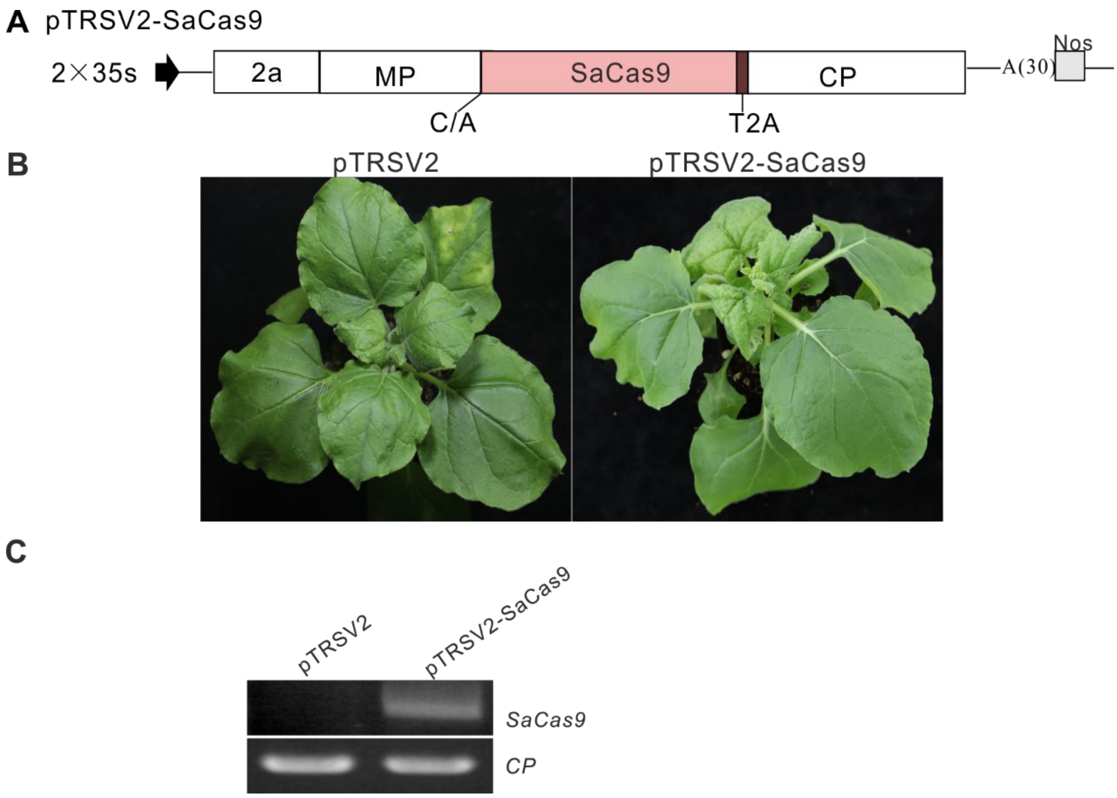
Supplemental Figure S2. TRSV-based silencing of miR165/166 in *N. benthamiana* plants. **A.** Schematic representation of pTRSV2-STTM165/166. **B.** The silencing phenotype caused by STTM165/166 at 18 dpai. **C.** Stem-loop RT-PCR detection of miR165/166 level in TRSV (control) and STTM165/166 inoculated *N. benthamiana* plants. **D.** The relative expression level of miR165/166 target gene in *N. benthamiana*. In C and D, error bars represent ± SD of three biological experiments. Statistical significance between treatments was determined using paired Student's t-test: **P*<0.05, ***P*<0.01, ****P*<0.001. **E.** RT-PCR detection confirmed the expression of STTM165/166.



Supplemental Figure S3. TRSV-based knockdown of miR159 in *N. benthamiana* plants. **A.** Schematic presentation of pTRSV2-STTM159. **B.** Phenotypes of TRSV-STTM159 infected *N. benthamiana* plants at 20 dpai. **C.** The relative accumulation level of miR159 in TRSV-STTM159 infected *N. benthamiana* plants. **D.** The relative accumulation level of *NbMYBL1* in TRSV-STTM159 infected *N. benthamiana* plants. In C and D, error bars represent ± SD of three biological experiments. Statistical significance between treatments was determined using paired Student's t-test: **P*<0.05, ***P*<0.01, ****P*<0.001. **E.** RT-PCR detection of TRSV infection and TRSV-based expression of STTM159.



Supplemental Figure S4. TRSV-based VbMS of miR172 in *N. benthamiana* plants. **A.** Schematic representation of VbMS vector of miR172. **B.** Flower phenotypes of TRSV-STTM172 infected plants at 21 dpai. **C.** Detection of miR172 level through stem-loop RT-PCR. **D.** qRT-PCR analysis of relative expression level of miR172 target gene Nb*AP2L1*. In C and D, error bars represent ± SD of three independent experiments. Statistical significance between treatments was determined using paired Student's t-test: **P*<0.05, ***P*<0.01, ****P*<0.001. **E.** RT-PCR detection of miR172 expression in TRSV-STTM172 infected plants.



Supplemental Figure S5. The expression of *SaCas9* gene using TRSV in *N. benthamiana* plants**. A.** Schematic presentation of pTRSV2-SaCas9. B. Symptoms of TRSV-SaCas9 infected *N. benthamiana* plants at 12 dpi. The appearance of mosaic symptom was later in TRSV-SaCas9 infected plants than in TRSV infected plants. B. RT-PCR detection of the *SaCas9* expression of TRSV-SaCas9 infected plants.

Supplemental Table S1. The silencing efficiency of *PDS* genes

Plants	No. of *PDS* silenced/inoculated plants	Efficiency of silencing *PDS* (%)
Cucumis melo		
Repetition 1	12/12	100.0
Repetition 2	10/12	83.3
Repetition 3	12/14	85.7
Citrullus lanatus		
Repetition 1	10/12	83.3
Repetition 2	9/12	75.0
Repetition 3	12/14	85.7
Cucumis sativus		
Repetition 1	5/ 12	41.7
Repetition 2	4/12	33.3
Repetition 3	5/14	35.7
N. benthamiana		
Repetition 1	16/16	100.0
Repetition 2	16/16	100.0
Repetition 3	12/12	100.0

Supplemental Table S2. The silencing efficiency of miR166.

Plants	No. of miR166 silenced/inoculated plants	Efficiency of silencing miR166 (%)
Cucumis melo		
Repetition 1	12/16	75.0
Repetition 2	10/16	62.5
Repetition 3	11/16	68.8
Citrullus lanatus		
Repetition 1	4/16	25.0
Repetition 2	5/16	31.3
Repetition 3	6/16	37.5
Cucumis sativus		
Repetition 1	3/16	18.8
Repetition 2	2/16	12.5
Repetition 3	3/16	18.8
Luffa aegyptiaca		
Repetition 1	13/16	81.3
Repetition 2	12/16	75.0
Repetition 3	14/16	87.5
N. benthamiana		
Repetition 1	14/16	87.5
Repetition 2	15/16	93.8
Repetition 3	12/12	100.0

Supplemental Table S3. The silencing efficiency of miR159

Plants	No. of miR159 silenced/inoculated plants	Efficiency of silencing miR159 (%)
Cucumis melo		
Repetition 1	8/16	50.0
Repetition 2	6/16	37.5
Repetition 3	7/16	43.8
N. benthamiana		
Repetition 1	4/16	25.0
Repetition 2	5/16	31.3
Repetition 3	4/16	25.0

Supplemental Table S4. The silencing efficiency of miR319

Plants	No. of miR319 silenced/inoculated plants	Efficiency of silencing miR319 (%)
Citrullus lanatus		
Repetition 1	7/16	43.8
Repetition 2	6/16	37.6
Repetition 3	8/16	50.0

Supplemental Table S5. The silencing efficiency of miR172

Plants	No. of miR172 silenced/inoculated plants	Efficiency of miR172 silencing (%)
Cucumis sativus		
Repetition 1	4/16	25.0
Repetition 2	5/16	31.3
Repetition 3	6/16	37.5
N. benthamiana		
Repetition 1	14/16	87.5
Repetition 2	13/16	81.3
Repetition 3	16/16	100.0

Supplemental Table S6. Sequences of primers used in this paper.

Primer Name	Primer Sequence
GFP-1F	ATGCTGCGGTACTCTTAGTTTCAAAGTGCCTATGAGTAAAGGAGAAGAACTTTTC
GFP-2F	GCTGTCACAGTAGTACCTGACCCTACATGCTGCGGTACTCTTAGTTTC
GFP-1R	CACAGGTTAGCAAGCTTCCTCTCCCTTCTGCTCTTTTGTAGAGCTCATCCATGC
GFP-2R	TGGCCCTGGATTTTCCTCAACGTCTCCACAGGTTAGCAAGCTTCCTCTC
SaCas9-F	ATGGATTACAAGGATCACGATGGTG
SaCas9-R	ACCCTTCTTAATGATCTGAGGGTGC
TRSV2 *Sna* BI-F	TTTACGTAGGTGTTTTGTGTGTTGATTCTTCTAACC
TRSV2 *Sna* BI-R	CAAAACACCTACGTAAAGGCATTTAAAACAAAGTGG
CuPDS-*Sna* BI-F	AAATACGTATTTGGGGCTTATCCCAA
CuPDS-*Sna* BI-R	AAATACGTATCTCATCCACTCTTGC
CueIF4E-*Sna* BI-F	AAATACGTACTCCTCCAATTTGTCCGCGTC
CueIF4E-*Sna* BI-R	AAATACGTATTTATCCTGCCCAGACCTAACATTAAC
CueIF(iso)-*Sna* BI-F	AAATACGTAAAAATGGACCTTTTGGTTTGATAACC
CueIF(iso)-*Sna* BI-F	AAATACGTATTCCTACCAATGCTCATCTGAGC
Cuactin-F	TTGGTGATGAAGCTCAGTC
Cuactin-R	TAGGATAGCATGAGGGAGTG
NbPDS*Sna* BI-F	AAATACGTAATGCAGAACCTGTTTGG
NbPDS*Sna* BI-R	AAATACGTAGTTAAGTGCCTTTGAC
Nb EF1α-F	AGACCACCAAGTACTACTGCAC
Nb EF1α-R	CCACCAATCTTGTACACATCC
CP-F53	AGGTTTTCATGCTTAAAGATG
NbmiR165-R1	ATAACAACAACAACTCGGACCAGGTAGCTTCATCCCCCAAGGCATTTAAAACAAAGTGG
miR165-R2	CCATTCTTCTTCTTTAGACCATATTTAAATTAGACCATAACAACAACAACTCGGACC
NbmiR165-R3	CAAAACACCTAATTATCGGACCAGGTAGCTTCATACCCCATTCTTCTTCTTTAGACCAT
CumiR166-R1	ATAACAACAACAACTCGGACCAGGTAGCTTCATTCCCCAAGGCATTTAAAACAAAGTGG
CumiR166-R3	CAAAACACCTAATTATCGGACCAGGTAGCTTCATTCCCCATTCTTCTTCTTTAGACCAT
miR159-R1	TAACAACAACAACTTTGGATTGAGCACAGGGAGCTCTAAAGGCATTTAAAACAAAGTGG
miR159-R2	TCTAATTCTTCTTCTTTAGACCATATTTAAATTAGACCATAACAACAACAACTTTGGA
miR159-R3	CAAAACACCTAATTATTTGGATTGAGCACAGGGAGCTCTAATTCTTCTTCTTTAGACC
miR319-R1	ATAACAACAACAACTTGGACTGAATAGGGGAGCTCCCAAGGCATTTAAAACAAAGTGG
miR319-R2	CCCATTCTTCTTCTTTAGACCATATTTAAATTAGACCATAACAACAACAACTTGGACTG
miR319-R3	CAAAACACCTAATTATTGGACTGAATAGGGGAGCTCCCATTCTTCTTCTTTAGACC

NbmiR172-R1	ATAACAACAACAACAGAATCTTGAACTCGATGCTGCATAAGGCATTTAAAACAAAGTGG
miR172-R2	ATATTCTTCTTCTTTAGACCATATTTAAATTAGACCATAACAACAACAACAGAATCTTG
NbmiR172-R3	CAAAACACCTAATTAAGAATCTTGAACTCGATGCTGCATATTCTTCTTCTTTAGACCAT
CumiR172-R1	ATAACAACAACAACAGAATCTTGAACTTGATGCTGCATAAGGCATTTAAAACAAAGTGG
CumiR172-R3	CAAAACACCTAATTAAGAATCTTGAACTTGATGCTGCATATTCTTCTTCTTTAGACCAT
qNbmiR166-RT-R	GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACGGGGTA
qNbmiR166-F	GCGTCGGACCAGGCTTCA
qNbmiR166-R	AGTGCAGGGTCCGAGGTATT
qCumiR166-RT-R	GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACGGGGAA
qCumiR166-F	GCGTCGGACCAGGCTTCA
qCumiR166-R	AGTGCAGGGTCCGAGGTATT
qmiR159-RT-R	GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACTAGAGC
qmiR159-F	CGCGTTTGGATTGAAGGGA
qmiR159-R	CGCGTTTGGATTGAAGGGA
qmiR319-RT-R	GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACAGGGAG
qmiR319-F	CGCGTTGGACTGAAGGGAG
qmiR319-R	AGTGCAGGGTCCGAGGTATT
qmiR172-RT-R	GTCGTATCCAGTGCAGGGTCCGAGGTATTCGCACTGGATACGACATGCAG
qmiR172-F	GCGCGAGAATCTTGATGATG
qmiR172-R	AGTGCAGGGTCCGAGGTATT
qNbTC2180-F	TCATGGCGTCCGTACTTTGA
qNbTC2180-R	GGGTTTGAACAGAAAAGCAACCT
qCuCML-F	GGCTTCTTGGGTTGGATGCTG
qCuCML-R	ACTTGGAGTTCGGTGGCGGAT
qNbMYBL1-F	CATCACCCATCATTCTCCGGT
qNbMYBL1-R	GACCACTGTTCCGAGGTGAC
qNbLA-F	GCGGATTCTCTGGGTTTCG
qNbLA-R	CCATCGTGCTCCTCTTCTTCA
qCuTCP4-F	GGGAGATTGTGGAGGTTC
qCuTCP4-R	CTGGATGGCGGTATGAG
qNbAP2-F	CGTATTCGGATAGGGACC
qNbAP2-R	TCAAAGCACAACCAGTGAC
qCuAP2-F	GTTAATGCCACCGACGAG
qCuAP2-R	GAGACGACCCAGAATCCC

qNbeIF4A-F	GCTTTGGTCTTGGCACCTACTC
qNbeIF4A-R	TGCTCGCATGACCTTTTCAA