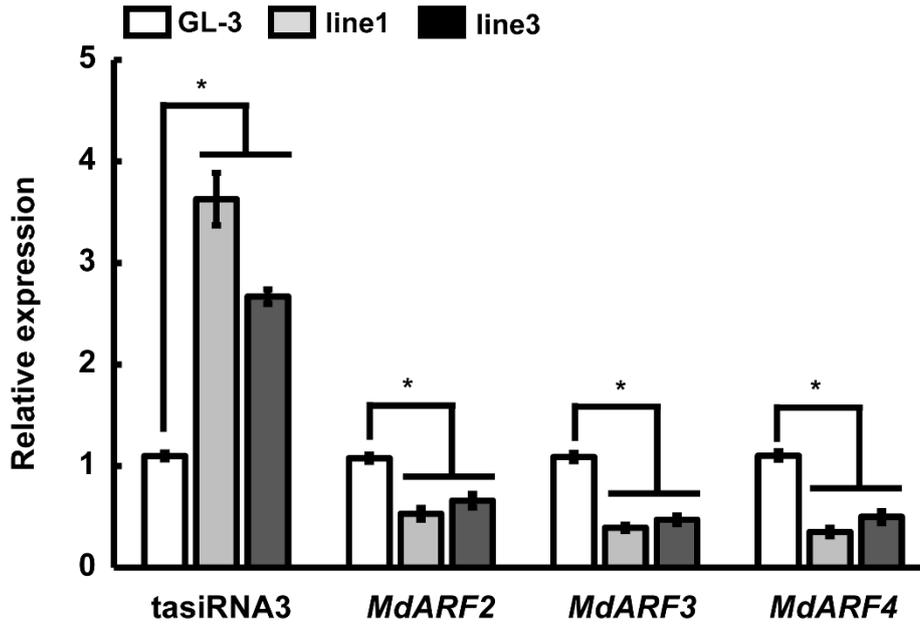


Supplementary Figure S1. Expression analysis of *mdm-MIR390a*, *mdm-MIR390b*, *mdm-MIR390c*, *mdm-MIR390d* and *mdm-MIR390e/f* in ‘Hanfu’ leaf and fruit. **(a)** qRT-PCR was used to examine *mdm-MIR390s* in apple leaf. The precursor sequences of *mdm-MIR390e* and *mdm-MIR390f* were the same, identical primes were used. The vertical bars represent SDs (n=3). **(b)** qRT-PCR was used to examine *mdm-MIR390s* in apple fruit. The precursor sequences of *mdm-MIR390e* and *mdm-MIR390f* were the same, identical primes were used. The vertical bars represent SDs (n=3).



Supplementary Figure S2. Expression analysis of tasiRNA3, *MdARF2*, *MdARF3* and *MdARF4* in ‘GL-3’ and *MIR390b*-overexpressing plants. Leaves of 4-week-old ‘GL-3’, *MIR390b*-line1 and *MIR390b*-line3 plants were harvested. Expression of tasiRNA3, *MdARF2*, *MdARF3* and *MdARF4* were measured in control and transgenic apple plants by qRT-PCR. The vertical bars represent SDs (n=3). ‘*’ represents $P < 0.05$ (Student’s *t*-test).

Supplementary Table S1. Primer sequences used in this study.

Primer	Sequence	Use
<i>mdm-MIR390b-F</i>	GTGTGGAAGAATCTGTTAAGCTCA	Precursor cloning
<i>mdm-MIR390b-R</i>	GTGTAAGAAGAAGCCATGAAACTCA	Precursor cloning
<i>mdm-MIR390a-QF</i>	AGTAAGGGAGAATCTGTAAAG	qRT-PCR
<i>mdm-MIR390a-QR</i>	AGTATGAAGAAGCCATGAAAC	qRT-PCR
<i>mdm-MIR390b-QF</i>	GTGTGGAAGAATCTGTTAAGCTCA	qRT-PCR
<i>mdm-MIR390b-QR</i>	GTGTAAGAAGAAGCCATGAAACTCA	qRT-PCR
<i>mdm-MIR390c-QF</i>	AGTAAGGGAGGATCTGTAAAG	qRT-PCR
<i>mdm-MIR390c-QR</i>	AGTAAGAAGAAGCCATGAAAC	qRT-PCR
<i>mdm-MIR390d-QF</i>	AGTAAGGGAGGATCTGTAAAG	qRT-PCR
<i>mdm-MIR390d-QR</i>	AGTAAGAAGAAGCCATGAAAC	qRT-PCR
<i>mdm-MIR390e-QF</i>	AGTGTGGAAGAATCTGTTAAG	qRT-PCR
<i>mdm-MIR390e-QR</i>	AGTAAGAAGAAGCCATGAAGC	qRT-PCR
<i>mdm-MIR390f-QR</i>	AGTGTGGAAGAATCTGTTAAG	qRT-PCR
<i>mdm-MIR390f-QR</i>	AGTAAGAAGAAGCCATGAAGC	qRT-PCR
<i>MdPR2-QF</i>	CATTCGTCTAGATTATGCTCTTTCCACAG	qRT-PCR
<i>MdPR2-QR</i>	TGTTGTTGCCGTCCCACCAGC	qRT-PCR
<i>MdPR3-1-QF</i>	CTTTCGTTGCTGCTGCTCGGTC	qRT-PCR
<i>MdPR3-1-QR</i>	TCTGGTGCACCTTCCCATCCTCC	qRT-PCR
<i>MdPR10-1-QF</i>	CACCTCCGTCATCCCCCTGC	qRT-PCR
<i>MdPR10-1-QR</i>	CCTTGTC AACCCCATCAATTCTGTG	qRT-PCR
<i>MdPR10-2-QF</i>	GCAA ACTACTC ATACGCCTACAC	qRT-PCR
<i>MdPR10-2-QR</i>	GCTCTTCCTTGATCTCAACATC	qRT-PCR
<i>MdARF2-QF</i>	ATCCACTTCCAATGCCCAGG	qRT-PCR
<i>MdARF2-QR</i>	AAACTGGCTCTCAAGGTCGG	qRT-PCR
<i>MdARF3-QF</i>	CTTATGATCTCCCGCCCCAC	qRT-PCR

Primer	Sequence	Use
<i>MdARF3</i> -QR	CATTGCCTCAACGTCCTCCT	qRT-PCR
<i>MdARF4</i> -QF	CCCACCTTTGAGCATCCAGT	qRT-PCR
<i>MdARF4</i> -QR	TTGCGGGCGGTTTACAGTAT	qRT-PCR
<i>MdEF-1α</i> -F	ATTCAAGTATGCCTGGGTGC	qRT-PCR
<i>MdEF-1α</i> -R	CAGTCAGCCTGTGATGTTCC	qRT-PCR
miR390-RT	CTCAACTGGTGTCGTGGAGTCCGGCAAT TCAGTTGAGGGCGCTAT	qRT-PCR
miR390-QF	ACACTCCAGCTGGGAAGCTCAGGA	qRT-PCR
miR390-QR	AACTGGTGTCGTGGAG	qRT-PCR
miR390probe	FAM-TTCAGTTGAGGGCGCTAT-TAMRA	qRT-PCR
tasiRNA3-RT	CTCAACTGGTGTCGTGGAGTCCGGCAAT TCAGTTGAGGAGATCTT	qRT-PCR
tasiRNA3-QF	ACACTCCAGCTGGGTTCTTGACCT	qRT-PCR
tasiRNA3-QR	AACTGGTGTCGTGGAG	qRT-PCR
tasiRNA3probe	FAM-TTCAGTTGAGGAGATCTT-TAMRA	qRT-PCR
5SrRNA-RT	GTCACATCGTATCGTGAAGCTGCGCAGC TGATGTGACTGGATTGG	qRT-PCR
5SrRNA-QF	TGCACTAGCGTGTAGAGGAACC	qRT-PCR
5SrRNA-QR	ACATCGTATCGTGAAG	qRT-PCR
5SrRNAprobe	FAM-CTGATGTGACTGGATTGG-TAMRA	qRT-PCR