

Appendix A Primers used in this study

Gene		Primer Sequence (5' to 3')	Purpose
<i>EF-1α</i> (DQ341381)	Forward primer	ATTCAAGTATGCCTGGGTGC	RT-qPCR
	Reverse primer	CAGTCAGCCTGTGATGTTCC	
<i>MIOX</i>	Forward primer	ATCCTTTACATAGGGCAGGGGCATA	
	Reverse primer	TGGCTTAACTTTTTTCGACATCAACTCG	
<i>GolS</i>	Forward primer	GCCAAGGGGTTGAGAAAGGTAAAAA	
	Reverse primer	GGGTAAACGGGTTTCGATCTCACG	
<i>RS</i>	Forward primer	GGTGCTGATTGGAATGGAGAAACA	
	Reverse primer	CCTTGAGAGGACAGAAATGGAAAAC	
<i>StaS</i>	Forward primer	TCTGTGCTGAGAGTGGTTCTACCCA	
	Reverse primer	CTTCTCTTCCAACAGCCGAAAGGTAT	

Appendix B Effects of MdMIPS1 on plant height of apple under long-term moderate drought stress

Plant height (cm)	Day 0	Day 80		
				Increase
GL-3-Control	49.18 \pm 2.04 a	176.78 \pm 6.73	e	259.46%
OE-4-Control	49.22 \pm 2.36 a	175.11 \pm 4.20	e	255.77%
OE-6-Control	48.99 \pm 2.26 a	175.56 \pm 4.93	e	258.36%
GL-3-LT drought stress	-----	134.33 \pm 5.20	b	173.14%
OE-4-LT drought stress	-----	141.22 \pm 5.22	c	186.92%
OE-6-LT drought stress	-----	147.28 \pm 3.59	d	200.63%

Notes: **LT drought stress, long-term drought stress**; Increase indicates an average increment in comparison with Day 0. Values not followed by same letter are significantly different ($P < 0.05$).

Appendix C Effects of MdMIPS1 on stem diameter of apple under long-term moderate drought stress.

Stem diameter (mm)	Day 0	Day 80	
			Increase
GL-3-Control	4.39 ±0.20 a	7.99 ±0.27 e	82.00%
OE-4-Control	4.37 ±0.17 a	8.03 ±0.20 e	83.75%
OE-6-Control	4.33 ±0.21 a	8.08 ±0.26 e	86.61%
GL-3-LT drought stress	-----	6.15 ±0.24 b	40.09%
OE-4-LT drought stress	-----	6.47 ±0.23 c	48.05%
OE-6-LT drought stress	-----	6.62 ±0.17 d	52.89%

Notes: **LT drought stress, long-term drought stress**; Increase indicates an average increment in comparison with Day 0. Values not followed by same letter are significantly different ($P < 0.05$).

Appendix D Effects of MdMIPS1 on total fresh weight of apple under long-term moderate drought stress.

Total fresh weight (g)	Day 0	Day 80	
			Increase
GL-3-Control	26.14 ±2.32 a	343.75 ±10.64 e	1215.03%
OE-4-Control	25.86 ±1.18 a	333.11 ±14.22 e	1188.13%
OE-6-Control	24.45 ±0.83 a	344.05 ±24.50 e	1307.16%
GL-3-LT drought stress	-----	166.71 ±12.38 b	537.76%
OE-4-LT drought stress	-----	185.05 ±9.38 c	615.58%
OE-6-LT drought stress	-----	198.59 ±9.71 d	712.23%

Notes: **LT drought stress, long-term drought stress**; Increase indicates an average increment in comparison with Day 0. Values not followed by same letter are significantly different ($P < 0.05$).

Appendix E Effects of MdMIPS1 on total dry weight of apple under long-term moderate drought stress.

Total dry weight (g)	Day 0	Day 80	
			Increase
GL-3-Control	7.67 ±0.60 a	125.47 ±4.01 e	1535.85%
OE-4-Control	7.96 ±0.55 a	121.66 ±7.29 e	1428.39%
OE-6-Control	7.42 ±0.40 a	124.54 ±11.58 e	1578.44%
GL-3-LT drought stress	-----	64.47 ±2.51 b	740.55%
OE-4-LT drought stress	-----	71.84 ±3.31 c	802.51%
OE-6-LT drought stress	-----	75.55 ±2.36 d	918.19%

Notes: **LT drought stress, long-term drought stress**; Increase indicates an average increment in comparison with Day 0. Values not followed by same letter are significantly different ($P < 0.05$).