

Supplementary Table 2. Primer list

Name	5'-sequence-3'	Objective
CTR1-F	CCACTTGTTTCTCTCTCTAG	Map-based cloning
CTR1-F	TATCAACAGAAACGCACCGAG	
nga76-F	AGGCATGGGAGACATTTACG	
nga76-R	GGAGAAAATGTCACTCTCCACC	
nga139-F	GGTTTCGTTTCACTATCCAGG	
nga139-R	AGAGCTACCAGATCCGATGG	
nga151-F	CAGTCTAAAAGCGAGAGTATGATG	
nga151-R	GTTTTGGGAAGTTTTGCTGG	
nga225-F	TCTCCCCACTAGTTTTGTGTCC	
nga225-R	GAAATCCAAATCCAGAGAGG	
nga249-F	GGATCCCTAACTGTAATAATCCC	
nga249-F	TACCGTCAATTTTCATCGCC	
PHYC.3-F	AAACTCGAGAGTTTTGTCTAGATC	
PHYC.3-R	CTCAGAGAATTCCAGAAAAATCT	
ciw9-F	CAGACGTATCAAATGACAAATG	
ciw9-R	GACTACTGCTCAAATATTCGG	
ciw10-F	CCACATTTTCCTTCTTTTCATA	
ciw10-R	CAACATTTAGCAAATCAACTT	
UPSC3195-F	GCGATACATTCAAATGTAA	
UPSC3195-R	CCTATCGGATCAGCTATCAC	
UPSC3400-F	TATTCGTTTTCTGAACATGA	
UPSC3400-R	AAACACACCACCATTTAAG	
UPSC3484-F	GGATAACTTCGAAGCCAACT	
UPSC3484-R	ATAGTCCTGTCTTGTGTCA	
UPSC3576-F	CAATTGAGCCAAAACCTAAC	
UPSC3576-R	AATTCATTTCTTCGGTGTAG	
UPSC3630-F	AAACCCACCGGAAAACC	
UPSC3630-R	ATAATCACGAAAAACATGAC	
MVK-F	GGGGACAAGTTTGTACAAAAAAGCAGGCTTCATGG AAGTCAAAGCTAGAGCT	pDONR-Zeo-MVK
MVK(no stop)-R	GGGGACCACTTTGTACAAGAAAGCTGGGTCTATAG CAAATCTGAGCTCCGTT	
MVK(stop)-R	GGGGACCACTTTGTACAAGAAAGCTGGGTCTCAAT AGCAAATCTGAGCTCCGTT	
MVK-EcoRI-F	GGAATTCATGGAAGTCAAAGCTAGAGCT	pET21a-MVK-HIS
MVK(stop)-Sall-R	GGTCGACTCAATAGCAAATCTGAGCTCC	
MVK(no stop)-Sall-R	GGTCGACATAGCAAATCTGAGCTCC	
MKK3-F	GGGGACAAGTTTGTACAAAAAAGCAGGCTTCATGG CGGCATTGGAGGAGCTAAAG	pDONR-Zeo-MKK3
MKK3(no stop)-R	GGGGACCACTTTGTACAAGAAAGCTGGGTGATCTA AGTTTGTAAATAAAGCTCTTGC	
MKK3-Sall-F	GTCGACGGATGGCGGCATTGGAGGA	pET21a-MKK3-HIS
MKK3(no stop)-XhoI-R	CTCGAGATCTAAGTTTGTAAATAT	
proMVK-F	GGGGACAAGTTTGTACAAAAAAGCAGGCTAACTCT TGAAGCTAACTTAC	pDONR-Zeo- proMVK

proMVK-R	GGGGACCACTTTGTACAAGAAAGCTGGGTGTGTTCCCTGCAAGTATGAT	
MVK-S77A-F	TATGATgCAAGCACTCTCTGCCG	site-directed mutagenesis
MVK-S77A-R	AGTGCTTGcATCATAAGGAATCG	
MVK-S78A-F	GATTCAgcCACTCTCTGCCGTTT	
MVK-S78A-R	GAGAGTGgcTGAATCATAAGGAA	
MVK-T79A-F	TCAAGCgCTCTCTGCCGTTCTAC	
MVK-T79A-R	GCAGAGAGcGCTTGAATCATAAG	
MVK-S87A-F	CCGGCTgCATGTTTCAAGGAGAC	
MVK-S87A-R	TGAACATGcAGCCGGCGTAGAAC	
MVK-S89A-F	TCATGTgCAGAGGAGACCCTTAA	
MVK-S89A-R	CTCCTCTGcACATGAAGCCGGCG	
MVK-T169A-F	GAGAAAgCCCGTGGTAACGGTTG	
MVK-T169A-R	ACCACGGGcTTTCTCTGAAATAG	
MVK-S208A-F	GATAGACAACACCGTCgcTGCATACG	
MVK-S208A-R	CATGTTGCCGTATGCAgcGACGGTG	
MVK-T222A-F	GAGATAgCTCGGTTACAATCCAA	
MVK-T222A-R	TAACCGAGcTATCTCGCCTGAGC	
MVK-S263A-F	ATGAAGgCAGTGTTCAACGCCGT	
MVK-S263A-R	GAACACTGcCTTCATCGCATCAG	
MVK-T285A-F	GACGAGgCCTCAGTTACAGAAAA	
MVK-T285A-R	AACTGAGGcCTCGTCTTTAGACT	
MVK-S329A-F	CTTGTCgCCAACTTACAGGAGC	
MVK-S329A-R	AAGTTTGcGACAAGCTTGTGCT	
MVK-T332A-F	AAACTTgCAGGAGCTGGTGGCGG	
MVK-T332A-R	AGCTCCTGcAAGTTTGGAGACAA	
MVK-T342A-F	GTCCTCgCTCTATTACCAACCGG	
MVK-T342A-R	TAATAGAGcGAGGACGCAGCCGC	
MVK-253-F	attgGTCTCCTCTGAACATGAAGC	CRISPR/CAS9
MVK-253-R	aaacGCTTCATGTTTCAAGGAGAC	
MVK-927-F	attgGGTTAGCCACAGCTCAATCG	
MVK-927-R	aaacCGATTGAGCTGTGGCTAACC	
P2K1-QF	TGGAGTTTGTGAGGTCCATCG	Real-time qPCR
P2K1-QR	CTGAGGATCTTCTGCAGGCAA	
MVK-QF	TCCAAACTTACAGGAGCTGGTGG	
MVK-QR	AATGCCGTGAAACTGAAAAC	
UBQ-QF	GGCCTTGTATAATCCCTGATGAATAAG	
UBQ-QR	AAGAAGAAGTTCGACTTGTATTAGAA	
SAND-F	AACTCTATGCAGCATTTGATCCA	
SAND-R	TGATTGCATATCTTTATCGCCATC	
WRKY40-QF	CCTCCAAGAAACGCAAATC	
WRKY40-QR	AACCGCGCAGCTGAATG	
CPK28-QF	ACCCACGAGCACGGCTAA	
CPK28-QR	TTCTCTAACCCACGCATGTGAT	