

Table S4. PCR primer pairs used in this study.

Gene/stock /construct/PCR fragment	Primer pairs and note
Amplification of T-DNA insertion junctions and corresponding wild-type genes	
<i>otu1-1</i>	Wild-type T_OTU1_5': GAACCTCTGTCTAGTTTAGCTGCAGAG T_OTU1_3': AGAATGTCATCTAGTTGCTCAAGGAAC T-DNA junction pROK2_LBa1: TGATGGTTCACGTAGTGGGCCATCGCCCTG T_OTU1_3': AGAATGTCATCTAGTTGCTCAAGGAAC
<i>otu2-1</i>	Wild-type T-OTU2-5': CTTTCATCGCGTTTGGTGTTCATCTTC T-OTU2-3': GTTGCTTGCAACTGCTGCTGCTATCAC T-DNA junction T-OTU2-5': CTTTCATCGCGTTTGGTGTTCATCTTC pROK2_LBa1: TGATGGTTCACGTAGTGGGCCATCGCCCTG
<i>otu3-1</i>	Wild-type T-OTU3_03: GGCTTCGCTAGATTTCGAGCTTGTTTC T-OTU3_06: GTACTTCTCCCTTTCCTTGGGGTCATTG T-DNA junction T-OTU3_03: GGCTTCGCTAGATTTCGAGCTTGTTTC pROK2_LBa1: TGATGGTTCACGTAGTGGGCCATCGCCCTG
<i>otu5-1</i>	Wild-type T_OTU5_5': GGGGGTTTGGTCTTGTTTCTAGAGTTG T_OTU5_3': CCAGCTATAGCTCTAACTAGAGTGTCG T-DNA junction pROK2_LBa1: TGATGGTTCACGTAGTGGGCCATCGCCCTG T_OTU5_3': CCAGCTATAGCTCTAACTAGAGTGTCG
<i>otld1-1</i>	Wild-type T_OTU6_5endA: GGACTTGGATTTAGTAGCCTTAGTGGG T_OTU6_3endA: TGCTGGTTTCGAATCGCTGCCTGAAGG T-DNA junction T_OTU6_5endA: GGACTTGGATTTAGTAGCCTTAGTGGG pROK2_LBa1: TGATGGTTCACGTAGTGGGCCATCGCCCTG
<i>otu7-1</i>	Wild-type T-OTU7_03: AACACTACAACAGTGTGCGTTCCAAGG T-OTU7_04: TATCATCGGTCTGTGTAGTGCCTTGG T-DNA junction T-OTU7_03: AACACTACAACAGTGTGCGTTCCAAGG pROK2_LBa1: TGATGGTTCACGTAGTGGGCCATCGCCCTG
<i>otu10-1</i>	Wild-type 184G03_5' : GGAGAAATACCTCCGGAAGAAGAAG 184G03_3' : ATGGAAGCTAGCAAAGATTCTCAA

	T-DNA junction 184G03_3' : ATGGAAGCTAGCAAAGATTCTCAA GABI_LB: CCCATTTGGACGTGAATGTAGACAC, GABI_LB4: CACGGATGATCTCGCGGAGGGTAG
<i>otu12-1</i>	Wild-type T_OTU12_5endB: GAATGGGGAGACCATATTACCCTACAAG T_OTU12_3endB: CTCTTTGGCTTATGCTGAACTGGAGCAG T-DNA junction pROK2_LBa1: TGATGGTTCACGTAGTGGGCCATCGCCCTG T_OTU12_3endB: CTCTTTGGCTTATGCTGAACTGGAGCAG
<i>fld-6</i>	Wild-type fld6-F: TCTCCCTTGGGGCAGCACTCGAGAC fld6-R: CATCGCCTGAAGCTCCCACTGCAAC T-DNA junction: fld6-F: TCTCCCTTGGGGCAGCACTCGAGAC LB3: TAGCATCTGAATTTTCATAACCAATCTCGATACAC
<i>arp6-1</i>	Wild-type ARP6-1-S: GTTCTTCCTGATGGTGTACACATA ARP6-1-A: GGCATGAGTTTATAGCTCGGACAAT T-DNA junction: LB3: TAGCATCTGAATTTTCATAACCAATCTCGATACAC ARP6-1-A: GGCATGAGTTTATAGCTCGGACAAT
<i>hub1-4</i>	Wild-type HUB1-2 RP: AGCTCCGACAAGAACTCAGTG HUB1-2 LP TGGGAAAACATGGTATTGAGG T-DNA junction: HUB1-2 RP: AGCTCCGACAAGAACTCAGTG pROK2_LBa1: TGATGGTTCACGTAGTGGGCCATCGCCCTG
<i>hub1-5</i>	Wild-type HUB1-1 LP: TTTTCTGTTTCAGGGATGTCG RP-1: GAGAGACCGAAGACGAGAAACTTTC T-DNA junction: pROK2_LBa1: TGATGGTTCACGTAGTGGGCCATCGCCCTG RP-1: GAGAGACCGAAGACGAGAAACTTTC
RT-PCR	
<i>FVE</i>	FVE01: AAGATTCTCAGACGCCGTCGTCTC FVE02: ACGGTTTGGTTGGGTTTCAACATC
<i>FLD</i>	FLD01: GAGCACAGATCTCGATACCTTTGG FLD02: TCGTAATCATCGCCTGAAGCTCCC
<i>FPA</i>	FPA01: TGTTAGCGAGCCTCTCAGAATACC FPA02: GAAACAGGATGATTTGACGAACCC
<i>FCA</i>	FCA01: CCCGTTAGGTGGTTATGGTGTTC FCA02: AGCGGTTGCTGCTGGGAACGAGGG

<i>LD</i>	LD01: TCTTGTTTATGCACTAACTTCGGG LD02: CTGGTTCCTAACTGCATACGAG
<i>FY</i>	FY01: AGCAGCAAGGGTATCAGCAACAAC FY02: CATCTGTGGACGGTTGAAACCACC
<i>FLC</i>	FLC-01: GCTTCTCCTCCGGCGATAACCTGG FLC-02: TGTCGGAGATTTGTCCAGCAGGTG
<i>MAF1</i>	MAF1-01: TGATGATGGAGTATATCGAGTCCC MAF1-02: AATCCAATCCGTACATTCAGACAC
<i>MAF2</i>	MAF2-01: TAATGATGGGGGAAGTGAAGTCCC MAF2-02: CTGTAAGTTTAAGGTGAAAGCTCAGCC
<i>MAF3</i>	MAF3-01: TAATGATGGAGGATATGAAGTCAC MAF3-02: GAACTCTGATATTTGTCTACTAAGGTAC
<i>MAF4</i>	MAF4-01: GCTGCTGAGAGAGGAGAACCAGAG MAF4-02: TGGATGACTTTTCCGTAGCAGGGGGAAG
<i>MAF5</i>	MAF5-01: AGTTGCTGAAAGAAAAGAACAAGGT MAF5-02: TCCTGTCTTCCAAGGTAACACAAAGG
<i>CO</i>	CO01: GAGTATGGACTACAAATTCACAGG CO02: GGTCAGGTTGTTGCTCTACTGTCC
<i>SOC1</i>	SOC1-01: CATAGATCGTTATCTGAGGCATAC SOC1-02: CTTTCTTGAAGAACAAGGTAACCC
<i>FT</i>	FT-01: AGACGTTCTTGATCCGTTTAATAGATC FT-02: CACTGTTTGCTGCCAAGCTGTCG
<i>UBQ10</i>	UBQ10-5': GTGGTGGTTTCTAAATCTCGTCTCTG UBQ10-3': GAAGAAGTTCGACTTGTCATTAGAAAG

Verification of flowering mutants

<i>FRIGIDA</i>	FRI-SF2_f: AGATTTGCTGGATTTGATAAGG FRI-SF2_r: GAAATTCACCGAGTGAGAACAGA (Wild-type and mutant <i>FRI</i> were distinguished by the size differences of <i>RsaI</i> -digested fragment)
<i>ld-1</i>	ld1-F: ACCTCTCCACAAAGCATCTCCTGA ld1-R: GCAACAGTTTGGACCCTGTGACGA (primers designed to differentiate a G to T mutation at the 5' splicing donor site of intron 8 in <i>ld-1</i>)
<i>fve-4</i>	FVE4-F: ACCGACAGTCCTGATGTGAGTGCTG FVE4-R: GGTTCCGTTGGGCACATGGCAAGAG (primers designed to differentiate a G to A mutation at 11 th residue of exon 6 in <i>fve-4</i>)

Complementation, overexpression and transient expression constructs including intermediates

pET28a- OTU5a-C192S	OTU5a-C192S-T: GATTAAACCAGACGGACATAGCCTTTACCGTGCTGTTG OTU5a-C192S-B: CAACAGCACGGTAAAGGCTATGTCCGTCTGGTTTAATC (site-mutagenized from pET28a-OTU5a)
pENTR221- OTU5a_C	OTU5a_CF: GGGGACAAGTTTGTACAAAAAAGCAGGCTTCATGGCAGACAATAAAACATCTGAAG OTU5a_CR: GGGGACCACTTTGTACAAGAAAGCTGGGTATCATCCGGTGATGTTGTTGACGAGCAC

	(The bold-face letters are attB1 and attB2 sites and the underlined are 5' and 3' OTU5-specific sequence; template pET28a-OTU5a)
pENTR221-OTU5a-C192S_C	OTU5a_CF: GGGGACAAGTTTGTACAAAAAAGCAGGCTTCATGGCAGACAATAAAACATCTGAAG OTU5a_CR: GGGGACCACTTTGTACAAAGAAAGCTGGGTATCATCCGGTGATGTTGTTGACGAGCAC (template pET28a-OTU5a-C192S)
OTU5a-eGFP	OTU5a-X: TCCCCCGGGATGGCAGACAATAAAACATCTGAAG OTU5-E: CATGAATTCTCCGGTGATGTTGTTGACGAGCAC (Amplified fragment was cloned into p2X35S-TEV-eGFP-35ST to express OTU5a-eGFP, see methods)
OTU5b-eGFP	OTU5b-X: TCCCCCGGGATGGATGCTTCTCAGGAGCAAC OTU5-E: CATGAATTCTCCGGTGATGTTGTTGACGAGCAC (Amplified fragment was cloned into p2X35S-TEV-eGFP-35ST to express OTU5b-eGFP, see methods)
eGFP-OTU5a	OTU5a-B: TCCGGATCC ATGGCAGACAATAAAACATCTGAAG OTU5-S: CATGTCGACTCATCCGGTGATGTTGTTGACGAGCAC (Amplified fragment was cloned into p2X35S-TEV-eGFP-35ST to express eGFP-OTU5a, see methods)
eGFP-OTU5b	OTU5b-B: TCCGGATCCATGGATGCTTCTCAGGAGCAAC OTU5-S: CATGTCGACTCATCCGGTGATGTTGTTGACGAGCAC (Amplified fragment was cloned into p2X35S-TEV-eGFP-35ST to express eGFP-OTU5b, see methods)
RT-qPCR	
UBQ10	F: GTGGTGGTTTCTAAATCTCGTCTCTG R: GAAGAAGTTCGACTTGTCATTAGAAAG
FLC	F: CCGAACTCATGTTGAAGCTTGTTGAG R: CGGAGATTTGTCCAGCAGGTG
MAF1	F: ACGTTGCTGGCAACAGATGA R: AATTGAGCAGCGGGAGAGTC
MAF2	F: ATGGCTCCGGCAACAAAGTA R: AAGGTGAAAGCTCAGCCGTT
MAF3	F: AAACACATTTTGGGTCCCCG R: ACCTTTGCGTCGTTTGGAGA
MAF4	F: TTTCGCACAAGGAGTTGCT R: GCTGCTCTTCCAGGGACTTTA
MAF5	F: GAAACAGGGGATGAAAGAGCAGTA R: TGGGCTGTGGCCAGAGCTAT
CO	F: CATTAACCATAACGCATACATTTTCATC R: TCCGGCACAACACCAGTT
SOC1	F: ATCGAGTCAGCACCAAACCG R: AGCTGTTGCTCAATCTGTTGC
FT	F: ATCTCCATTGGTTGGTGACTGATA

	R: GCCAAAGGTTGTTCCAGTTGTAG
<i>FVE</i>	F: ATGGCGGATGAGTGA R: ACTCTTAAGGCTTGGAGGCAC
<i>FLD</i>	F: TTAAAGCCGAGCGAACTGGT R: GCGGCAACGGTCCTTTAATC
<i>FPA</i>	F: AGGCCCCTCAGAGGTACAAA R: CTTGTGCAGGAGATGGGAGG
<i>FCA</i>	F: GCTCGGACACATATACCCGT R: GCTCCTCGTCTCATGTACCTC
<i>LD</i>	F: CGGTTTGCGTATTGGTCTTCG R: ACGACGACATCTTGGAGCTG
<i>FY</i>	F: CGCACTGTCTGCGGGATAAA R: TGCATATTGGAACAGAACAAAAACC
ChIP-qPCR	
<i>FLC1</i>	F: ATTTAGCAACGAAAGTGAAAATAAGG R: GCCACGTGTACCGCATGAC
<i>FLC2</i>	F: AGAAATCAAGCGAATTGAGAACAA R: CGTTGCGACGTTTGGAGAA
<i>FLC3</i>	F: AATTGCATGTCATTACGATTTG R: TGAAACTTCACTCAACAACATCGA
<i>FLC4</i>	F: TTATCGCCCTTAATCTTATCATCGT R: AAGATTGAGGTTGTGGATTGTCAA
<i>FLC5</i>	F: CCGCCACATCATCATTATCATC R: ACAAGGTTTTTTCCAGCGATAGA
<i>FLC6</i>	F: AAGCCAGCGCTATCACTAACTTT R: TCGGCAGATTGAAAATGACATT
<i>FLC7</i>	F: CATCTCTCCAGCCTGGTCAAG R: GGCTTTAAGATCATCAGCATGCT
<i>FLC8</i>	F: AGCCAGGTAACGAAAGCTACATTT R: ACATGGACATTGGACACACAACA
<i>FLC9</i>	F: CATCATGTGGGAGCAGAAGCT R: CGGAAGATTGTCGGAGATTTG
<i>FLC10</i>	F: CGTATGGTTGGCATGGGT TT R: ACTAAGCTTATTGGGCCGAATG
<i>MAF4-1</i>	F: AAAAGTACGGATTGGATTCAAAAGA R: GGAAAACCAAAGGAATTAAGAAGCT
<i>MAF4-2</i>	F: GACCAACGCGCCACAAG R: CGGTGCGTTTTTAATAGGAGTTTAG
<i>MAF4-3</i>	F: TGGTGTCCAAAGTCCAGAGATG R: CCTTGCAACAAATGAAAACAATAGA
<i>MAF4-4</i>	F: CCGAATTGAGACCTTGTAGAAGTAGA R: ATCAAGCATTTGTGGTGTTAAGTATGA
<i>MAF4-5</i>	F: GTTGTTTTCTTTTCTGTTGTTTATCTATG

	R: ATACTTACATTATCGCTTTTCGCTTCT
<i>MAF4-6</i>	F: GCGGAAAGCCGGTAAAAGAC R: CGAATCTGGGCTTAACAGTAACAGT
<i>MAF5-1</i>	F: CTTTTTCTCACTGTTTTGTCTTTATTCAGT R: CCCTGAGGGCGCGTTTAT
<i>MAF5-2</i>	F: TGGTGGCGGAAGATGTACTCT R: TCCCTGCAACAAATTGAAACAA
<i>MAF5-3</i>	F: AATTTGGCTTATTCTGTGAGTGCTT R: TTCAGAAAGTTGGTGAAATCATATTGAC
<i>MAF5-4</i>	F: CGGATCTTGCCTGACTTTGG R: GCAACAAGACATTGAGGATTG TG
<i>MAF5-5</i>	F: TTTGCGGCCCATTTAGAGAT R: TCCGAGGAGACAACCAGTGTT
<i>Actin2</i>	F: GATGAGGCAGGTCCAGGAATC R: AACCCCAGCTTTTTAAGCCTTT