

Figure S1 Phenotype analysis of *MdTAC1a* and *MdTAC1b* over-expressed in transgenic tobaccos at flowering (after 30d growth).

A, WT, negative, *MdTAC1a*-OE and *MdTAC1b*-OE plant growth state at the time after 30 days growth of flowering, C, D, E, F are the angle magnifications of the corresponding plants, and B is the angle statistics of the plants during this period.

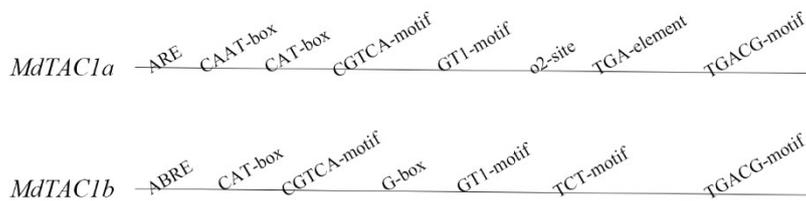


Figure S2. Cis-acting elements in CDS of *MdTAC1a* and *MdTAC1b*.



B

MASGHEVQVKLTSAHDLKNNWRNGAVRPYAVVWVDPKRKCSSRVDEEGDTSPY
WDETLTIPLPGPVDGDTTLHVDIVHAGSDPDTKPLIGSARLKLREVLDDVGFDE
RASRTLHLKRPSGRPHGKVDVKVTIRKPRPRVADPYYPYAPPYGVPPPAGSRDLPT
PPPAYGAPYGAPAPPAPYNPYPAAPPSPGYPYNGYNAAPPQYGQPAPYGGTGGQ
 SYGQPGQGYGQGSYGQEEKKKSKFGGMGTGTGLAVGAVAGVLGGLALAEGFEYM
 EDKIADDAAEKVEDDLYDGDDY

Figure S3. cis-acting elements in promoters and domain in CDS of *MdSRC2*

A, the cis-acting element of *MdSRC2* gene in 2000bp upstream of ATG. B, the domain of the *MdSRC2* gene in the CDS region, where the underlined part is the domain C2 SUPERFAMILY.

Table S1. Statistics on branch angles of 11 cultivars of four tree types.

Tree Ideo Type	Cultivars	Branch Angles
Columnar-type	Wijcik	36.8±2.18
	Waltz	38.5±1.50
	Maypole	41.6±2.50
	Bolero	40.2±1.84
	McIntosh	54.0±3.74
Standard-type	Summerland McIntosh	55.8±4.56
	Fuji	58.0±6.40
Spur-type	Fukushima Spur	68.5±3.91
	Miyazaki Spur	67.3±2.28
	Mutsu Spur	69.0±5.83
Weeping-type	Granny Smith	86.0±4.36

Table S2. Primers used for Quantitative real-time PCR analysis.

Primer Name	Forward Primer	Reverse Primer
qPCR- <i>MdACTIN</i>	GGATTTGCTGGTGATGATGCT	AGTTGCTCACTATGCCGTGC
qPCR - <i>MdTAC1a</i>	ACTTGTTGATGTTGACGGGCTTGA	CCTGATCGTCCTCTTCGCTCTCC
qPCR - <i>MdTAC1b</i>	CACAAGGGCACACAAGCATTCT	TCGTTCTGAGGGTTGAAGGGTTT
qPCR- <i>NbACTIN</i>	AGAGGTTCCGTTGCCCAGAAGT	GCTAGGAGCCAAAGCCGTGATT
qPCR- <i>NbGA20ox</i>	CATAGGCGATACATTTATGGCG	CAGCTCTGTAATGCTTTTGTGT
qPCR- <i>NbGA2ox</i>	GTGCTGGAAATGATAGCAGAAG	AAAAGGAGTAGTGATCAGGTGG
qPCR- <i>NbPT</i>	AACGCAAAGGTATCCCTCA	CATCAACCCAAATAAAGCAAC
qPCR- <i>NbPIN1</i>	ATTAGGAACCCGAACACTTA	ACACCCATTGAGAAAGCAG
qPCR- <i>NbPIN2</i>	TATTCTGTTCAATCGTCCCG	CCCGCTCATACTCCTACCTC
qPCR- <i>NbCCD7</i>	TTGGCTACGATTGGCAAAGTG	TTGGCGAGAACCAGAAGAAGT
qPCR- <i>NbARF2</i>	CACAAACAGGGTACAGCACTCG	AAATCTTGCGAACCATAACCACA
qPCR- <i>NbARF3</i>	TTATCGTCGGTATTCAGGTTC	TCTCCCTTCCTACTGATGTCC
qPCR- <i>NbPHOT1</i>	AAGCCTCATAGGAAGGACAGC	GCATAGAGTGCGGGAAGAAAA
qPCR- <i>NbPHOT2</i>	CAATTAGCAGAAGCGGAGAAA	CAGTCATCGTAAAGAAGCCAC
qPCR- <i>NbIAA5</i>	GCCTTTGAGAATGGCAGTGAA	CGCAAGCCTTAAACGGTATCT

Table S3. Primers used for *MdTAC1a/b*-GFP fusion constructs in this study.

Primer Name	Sequence (5' to 3')
<i>MdTAC1a</i> -F	ATGAAGATCTTCAACTGGGTTTCATAAGC
<i>MdTAC1a</i> -R	TCAATGGACACAAGCAGTAGCACCTTG
<i>MdTAC1b</i> -F	ATGAAGATCTTCAACTGGGTTTCATAAGC
<i>MdTAC1b</i> -R	TCAATGGACACAAGCAGTAGCACCTTG
BamHI- <i>MdTAC1a</i>	ggactcggtagcccggggatccATGAAGATCTTCAACTGGGTTTCATA
SaLI- <i>MdTAC1a</i> -R	acccctccgccaccgctcgacATGGACACAAGCAGTAGCACCTT
BamHI- <i>MdTAC1b</i> -F	ggactcggtagcccggggatccATGAAGATCTTCAACTGGGTTTCATA
SaLI- <i>MdTAC1b</i> -R	acccctccgccaccgctcgacATGGACACAAGCAGTAGCACCTT

Table S4. Primers used for promoter amplification.

Primer Name	Sequence (5' to 3')
<i>MdTAC1a</i> -pro-F	TTGCCAGTAACCCAACACCAATCAT
<i>MdTAC1a</i> -pro-R	ATGTGCATGGTTCTGCAACTAGTAC
<i>MdTAC1b</i> -pro-F	ATGGTATACGAACAGTCGCCAGAAG
<i>MdTAC1b</i> -pro-R	TCTGATGAAGCCGCTTATGAACC
InDel- <i>MdTAC1a</i> -F	GGTAAATTAAGGTTAGCCCAATTC
InDel- <i>MdTAC1a</i> -R	AATTATCAGAGCAAAGCCCCAG

Table S5. Primers used for Y₂H, BiFC analysis, and Co-IP in this study.

Primer Name	Sequence (5' to 3')
T7	TAATACGACTCACTATAGGGCG
3AD	GAGATGGTGCACGATGCACAG
EcoRI- <i>MdTAC1</i> -BD-F	atggccatggaggccgaattcATGAAGATCTTCAACTGGGTTTCATA
EcoRI- <i>MdTAC1</i> -BD-R	ccgctgcaggtcgacggatccTCAATGGACACAAGCAGTAGCA
<i>MdSRC2</i> -F	ATGGCGTCCGGTCACGAA
<i>MdSRC2</i> -R	CTAGAAGTCATCGCCGTCGTCG
XmaI- <i>MdSRC2</i> -AD-F	ggccagtgaattccacccgggATGGCGTCCGGTCACGAA
SacI- <i>MdSRC2</i> -AD-R	attcatctgcagctcgagctcCTAGAAGTCATCGCCGTCGTCG
BiFC -C-xbaI- <i>MdTAC1a</i> -F	gagaacacgggggactctaga ATGAAGATCTTCAACTGGGTTTCATAAGC
BiFC-C-xhoI- <i>MdTAC1a</i> -R	gacagtactatcgatgatcc TCAATGGACACAAGCAGTAGCACCTTG
BiFC-N-xbaI- <i>MdSRC2</i> -F	gagaacacgggggactctaga ATGGCGTCCGGTCACGAA
BiFC-N-xhoI- <i>MdSRC2</i> -R	gacagtactatcgatgatcc CTAGAAGTCATCGCCGTCGTCG
CoIP- <i>MdTAC1a</i> -HA-F	gagaacacgggggactctagaATGAAGATCTTCAACTGGGTTTCATAA
CoIP- <i>MdTAC1a</i> -HA-R	gccccggggctcgacggatccATGGACACAAGCAGTAGCACCTT
CoIP- <i>MdSRC2</i> -FLAG-F	atacacciaatcgactctagaATGGCGTCCGGTCACGAA
CoIP- <i>MdSRC2</i> -FLAG-R	catggtaccggatccactagtGTAGTCATCGCCGTCGTACAGA