



Fig. S1 *MdMYB5* expression levels in MdSND1 and MdMYB46 transgenic and non-transformed apple plants.

A. MdSND1 transgenic apple plants; B. MdMYB46 transgenic apple plants. The error bars indicate the standard deviation (SD, $n=3$). Asterisk indicates significant differences between the transgenic lines and GL-3 ($P < 0.05$, based on t -test).

GCAGAATTCAAGCTTACCCAAATAATGTTTCATGCCCAATTCACAAACTATACATACAAATATATCAGACA
TTGGTTGTTTTGTAGCTCAATAAGCACACAATTTGAATAAAAAAGTCAGACAAAGATTTATACCTCTT
TTTTCTGAGATTTGTGCTTGGATCCATGTCAATATTAGATGCATGCACATAAATATCGAAGTCTAGAATA
ATATGAAACAAAAGAAAAGAGATGATACATAGTAACAACCTCCAAACTGACACAATCGAGACGGTGAATT
TCCGATCGGAGCTGTAGTCATTCGTGAGAAGATCTGCAACAGAAGCCA
SNBE2
AAATGCAAGGTTTTAGATGC
TAATTACGCGCAATCGAGAGACGAAAAACAGTAGAAATATCGCAGAGACGAAGAGAGAGAGAGAG
AGAGAGAGAGTGAATAATGATTGCTTAACCTTGCTTTTTTGCCGATGGTTAAAAGTCCAGGTCCCTTGC
TCATCTTTATTGGGAAATTTGGGAGAGAGAATCGGTGATCTTCTGCGATTTTGACAGAGATGAAGACG
GCTCAAAATTAAGTTTGGGGCCGGATATGTGGGTTTTGCATACTGGCAAAGACAGAGATGGAGCTGCG
ATGCGAAATTAGAAAAGAAAATGAAAGGTTTTGAATGCCAAGAAGAAATGGGGGAGACGGACAATAG
CAGAGAGATCCCTCCATAAATGAAGGGAGATATTAGACGGACGTAGGCTTTGCCGTCAGGGACAAA
ATCGGAAATTTAATATTGGGCCATTTAATTGGGCTGGTTTAGTATTGGACTTTGTCCTAACCATTAAT
AAAGTTAGTACATGGTTTTTGGTTAACATTTAAAGTTTTCAAACCCTTTTCATTAGTTTTCTTTTTATTTA
ATTAGGGTCCCTCAACTCATCAAAGTGTGTAATTATGGTCAATTTTGTCAACTACGTAA
SNBE1
AAAAATTTGTC
AAAACGAGTTATATTTGAAGGACCATAGCTACAATTGGGATAAAGTTAAGGGACCATTTCTCTAGTTGG
ATTAAAATTGAGGGACCAAAGGTAATGGATTTTAGTTGAGGGACCATAACTGCACGTTTTAATGAGTT
GAAGGACCAATGGTAATGAATTTTTAGTTGAAGGACCATTGCTCCAATTTGAGTAAAGTTTAGGGACC
ATAGCTACAATTTACTCTTAAAAATTTGGTCTACTTAATATTATTATTTTTTAGGAAGGTGATCACGTGGT
GAATTCTGGTTTGGTATTGAAATTATTTATAAAAAAAAATGGGTATAAAAAAGTGAATTCAAAAAGA
M46RE2
TATTTGGTA
M46RE1
AACATATAAAAACAACCTATTTTCACAATTGTGGGTAAAAAAAATAATAACGTGAAAC
AGCAAAAATAAECTTATTATCACAGCACAGCAAAAGTAATTTTTTTCAAAGTATAGTAATATCAAACCA
GCCATGAGACTCATCGAGTCATTCATTCAATTCAACAACAAATCACTCAGCTACCCCCTCAACACGTG
AGGCTGAATTAACCAAAGCAGCAGACAGTGATTTTGTGTTTGTGAGAGAGGTGGAGCCAAAGAAT
ATCACTCAGCTACCCCCTCAATTAATATAGCACTAATAATGCGAGTGGTGTAAAGCAATAGAGTGGTG
CGTGAGAGTATATTTAGCTGCCTATTAGAATATTATTACAACAAAACCCAGCACTGTGTGTCACGGCTCC
CCATCTCTCATCTCTCTCTCTCTATCTCTCATCCCCATCCTCACTACCAAACAAATTAAGATGC
AAAACTAAAATCCACCTACACACAAACGCAGCATCTAAAACCTCACAGAAGTAAGAAAAACAAGAT
CAGGTTCTCAAGATATCAAATCTCCATTTGTATTGCGATTCGATCCACTCCTACTCAGAAGAAAAAAA
ACACTGAAAAAGCTTTACA

Fig. S2 The sequence of MdMYB5 promoter.

Table S1 Primers used in this study

Primer Name	Primer Sequence
MdSND1-eGFP	F: GTCGACATGTCAGATGATCAAATGAGT R: GGATCCCACCGACAAGTGGCAAAGCGG
MdSND1(Y2H)	F: GAATTCATGTCAGATGATCAAATGAGT R: GTCGACTTACACCGACAAGTGGCAAAG
MdSND1-N(Y2H)	F: GAATTCATGTCAGATGATCAAATGAGT R: GTCGACATGAGTGTGCTTTCATCAAG
MdSND1-C(Y2H)	F: GAATTCGAAACCACCGTTTCTAGCTCA R: GTCGACTTACACCGACAAGTGGCAAAG
MdSND1-pRI	F: GTCGACATGTCAGATGATCAAATGAGT R: GGATCCTTACACCGACAAGTGGCAAAG
MdSND1-pGEX	F: GGATCCCCATGTCAGATGATCAAATGAGT R: GTCGACCACCGACAAGTGGCAAAGCGG
MYC-MdSND1-pRI	F: GTCGACATGGAACAAAAGTTGATTTCTGAA GAAGATCTTATGTCAGATGATCAAATGAGT R: GGATCCTTACACCGACAAGTGGCAAAG
RNAi-MdSND1	ZF: CTCGAGGCTATTCGGCCATTGACG ZR: GAATTCTGACGGTGTGACGACGA FF: TCTAGATGACGGTGTGACGACGA FR: AAGCTTGCTATTCGGCCATTGACG
35S:MdMYB5	F: GTCGACATGAGGAACCCATCGTCTTC R: GGTACCTCAAAGATCTTCTTCAGAAATCAA
RNAi-MdMYB5	ZF: TCTAGAAACCCTAGTCCCCTTCT ZR: GTCGACCCGGAACGAGCAGCAGCTG FF: GGTACCCGGAACGAGCAGCAGCTG FR: GAGCTCAACCCTAGTCCCCTTCT
proMdMYB5	F: GCAGAATTCAAGCTTACCCAA R: TGTAAGCTTTTTTCAGTGTTT
For EMSA probes	
pMdMYB46(SND1)	F: TATTATGATTACCTTGAGAATGAAGAAAATAGGTTTA R: TAAACCTATTTTCTTCATTCTCAAGGTAATCATAATA
pMdMYB83A(SND1)	F: TCGATTCATTTTTCTTCACTCACAAGGTAATCCTATAT R: ATATAGGATTACCTTGTGAGTGAAGAAAAATGAATCGA
pMdMYB83B(SND1)	F: ATGATTCATTTTTCTTCACTCACAAGGTAATCATGTAC R: GTACATGATTACCTTGTGAGTGAAGAAAAATGAATCAT
proMdMYB5-SNBE1	F: TTCGTGAGAAGATCTGCAACAGAAGCCAAAATGCAAG R: CTTGCATTTTGGCTTCTGTTGCAGATCTTCTGACGAA
proMdMYB5-SNBE2	F: ATTATGGTCATTTTTGTCAACTACGTAAAAAATTTG R: CAAATTTTTTTACGTAGTTGACAAAAATGACCATAAT
proMdMYB5-M46RE1	F: CAAAAAGATATTTGGTAAACATATAA R: TTATATGTTTACCAAATATCTTTTTG
proMdMYB5-M46RE2	F: TGAATTCTGGTTTGGTATTGAAATTA R: TAATTTCAATACCAAACCAGAATTCA

For reporter genes

pMdMYB46(SND1)	F: GTCGACATTCATATGTTGGGCTTGGTT R: GGATCCGGGGTTGGTTGATGGGTCTGA
pMdMYB83A(SND1)	F: GTCGACATCCTCAATAAGTTTCATGCA R: GGATCCGCTTAAAATATGCATATCAAA
pMdMYB83B(SND1)	F: GTCGAC AAAGGTGCAACACTTTGCCTA R: GGATCCGACCTCCGTGGCTCCATTTCGC
pMdMYB46m(SND1)	F: TATTATGATTACCTTGAGAATGAATAAAAATAGGTTTA R: TAAACCTATTTTATTTCATTCTCAAGGTAATCATAATA
pMdMYB83Am(SND1)	F: TCGATTCATTTTTCTTCACTCACAATGTAATCCTATATC R: GATATAGGATTACATTGTGAGTGAAGAAAAATGAATCGA
pMdMYB83Bm(SND1)	F: TGATTCATTTTTCTTCACTCACAATGTAATCATGTAC R: GTACATGATTACATTGTGAGTGAAGAAAAATGAATCA
proMdMYB5-1	F: GTCGACGGGACCAAAGGTAATGGATT R: GGATCCATCACTGTCTGCTGCTTTTGG
proMdMYB5-2	F: GTCGACCGAAGTCTAGAATAATATGAA R: GGATCCCATTACCATTGGTCCTTCAAC

For ChIP-qPCR

pMdMYB46(SND1)	F:ATTCATATGTTGGGCTTGGTT R: TAGGGGTTGGTTGATGGGTCT
pMdMYB83A(SND1)	F: TCTGCATATAAACTTCAATTT R: ATTATGTGAAGTGGAAGCAAA
pMdMYB83B(SND1)	F: GCCTAGTGTACAAAGAGTACT R: TTATTATGTGAAGTGGAAGCA
proMdMYB5-P1	F: TATCACAGCACAGCAAAAGTA R: GGTAGCTGAGTGATATTCTTT
proMdMYB5-P2	F: GGGTATAAAAAAGTGAATTCA R: GAAAAAAATTACTTTTGCTGT
proMdMYB5-P3	F: GTTTAGGGACCATAGCTACAA R: TTCACTTTTTTATACCCATT
proMdMYB5-P4	F: GTTAGTACATGGTTTTTGGTT R: GTCCCTTAACTTTATCCCAAT
proMdMYB5-P5	F: ACAGAGATGAAGACGGCTCAA R: GTCCCTGACGGCAAAGCCTAC
proMdMYB5-P6	F: CAACTCCAAACTGACACAATC R: GTCTCTGCGATATTTCTACTG

For qRT-PCR

MdC4H (DL)	F: ACATGAACCTCCAGGATGCCA R: GAGATACCTGAAGTCGTTCCC
MdC3H (DL)	F: CTACTTCCATTTGGAGCAGGC R: CGGAGTAGGCACGACTTGAC
MdCAD (DL)	F: ATGCAAGAAGCTGCTGACTCA R: GAAGCTCCCTGTGATTGTCTT
MdF5H (DL)	F: AGCCCTCTAGGTTTCTGAAAG

MdHCT (DL)	R: GTCAAGCTCACTAGGTTTCAT F: TGCTTTGGTGCGTATGGATGA
Md4CL (DL)	R: CCAAAGTCGGCATCATGGATT F: CCCTGATACGGGTGCTTCGCT
MdCOMT (DL)	R: CGGTCGACGATGAAGAGCTCG F: GGTGAAGGTTGGGGGTTTGAT
MdCCR	R: GATTCGACGGCAGAGAGTGAT F: TCACATTCTGGTCTATGAGAC
MdSND1 (DL)	R: CTTCTGGTTTGTGAACTTGTA F: CGATCATCAATCCGAAGTATA
MdMYB46 (DL)	R: TACGTACGCACTTCCTATATA F: CATCCTCACCTGCAATAAAAA
MdMYB83A (DL)	R: GGTAGTCAAGAAAAGGAAATG F: TTAACAACCTACCACTTCCATA
MdMYB83B (DL)	R: AGTATCCAGCATGAAACCCTC F: CAGTTGGTAGCTGATAATATA
MdMYB5 (DL)	R: ATCTTGCATGAAACCGTCGAA F: AACAAAGTACTGCAGAATGGGA
MdCESA4 (DL)	R: CTCTGGTGATCATTTTGGATG F: CTCCAACCACAATCTTAGTCA
MdCESA8 (DL)	R: CATAAGACCTTTAAGGAAGGG F: CGTAACGAGCAGTTCTGGGTG
MdActin	R: GCTCTCCGAATTCTGTGTCTT F: TGGTGAAGGCTGGATTTG
	R: CTGTGAGCAGAACTGGGTG
