

## Supplementary Materials

**Table S1. Primer sequences for qRT-PCR**

<b>Genus</b>	<b>Gene</b>	<b>Gene identifier</b>	<b>Forward primer</b>	<b>Reverse primer</b>
<i>Malus</i>	<i>MdANR1</i>		TTGGAGATTTCCGTCTGAGG	TTCTCATCAGAAAGCAACACGC
	<i>MdANR2</i>		TTGCTGTGCTGCCAACACCA	TTCTCATCAGAAAGCAACAAGAAG
	<i>MdCHS</i>	X68977	TCAAGCCTATTGGGATTTTCG	CAGTGACTTCCTCCTCACC
	<i>MdCHI</i>	X68978	GATATCGAAGCCGAAAATGA	TGTTGACTCACGCCAACAAAT
	<i>MdF3H</i>	AF117270	ACACCAAATATGGCTCCTGC	TTTCGTTGCTGAAGTCGTTG
	<i>MdFLS</i>	AF119095	AATGGGAGTGGAGTCTGTGG	AGTTGGAGCTGGCCTCAGTA
	<i>MdDFR</i>	AF117268	AAGGCCGTTACATTTGTTCG	GCCCTTGAACTTTGTGGGTA
	<i>MdUFGT</i>	AF117267	AGCTCCACTCGGAACCTCAA	AACCCGCCCTAAATATGTCC
	<i>MdANS</i>	AF117269	CAATTTGGCCTCAAACACCT	TCAACACCAAGTGCAAGCTC
	<i>MdANR</i>	DQ099803	GTTGCAACCCCTGTCAACTT	CACGACCAAACCTGTTCCCTT
	<i>MdLAR1</i>	DQ139836.1	ACAACACCCACCCCTTCTGAG	TGCAGCAAGGGCTAGTAGGT
	<i>MdActin</i>	DQ822466	CTACAAAGTCATCGTCCAGACAT	TGGGATGACATGGAGAAGATT
<i>Nicotiana</i>	<i>NbActin</i>	AY179605	AATGATCGGAATGGAAGCTG	TGGTACCACCACTGAGGACA
	<i>NtCHI</i>	AB213651	GAAATCCTCCGATCCAGTGA	CAACGTTGACAACATCAGGC
	<i>NbCHS</i>	EF421432	AGAAAAGCCTTGTGGAAGCA	ACTTGGTCCAAAATTGCAGG
	<i>NtF3H</i>	AB289450.1	ACAGGGTGAAGTGGTCCAAG	CCTTGGTTAAGGCCTCCTTC
	<i>NtF3'H</i>	AB289449.1	TCCAAGAATACTGGCCCAAG	CTCACAACCTCGGATGCAA
	<i>NtFLS</i>	AB289451	GAACTTGAAGGGAAAAGGGG	TCCTGTAGGAGGGAGGATT
	<i>NbDFR</i>	EF421431	TCCCATCATGCGATCATCTA	ATGGCTTCTTTGTACAGTCC
	<i>NtLAR</i>	AM827419.1	TCAAGGTCCTTTACGCCATC	ACGAACCTGCTTCTCTTTGG
	<i>NtANS</i>	AB289447	TGGCGTTGAAGCTCATACTG	TTTCAAGGGTGTCCCAATA
	<i>NtUFGT</i>	FG627024.1	GAGTGCATTGGATGCCTTTT	CCAGTCCATTAGGTCCTTG
	<i>NtANR1</i>	AM791704.1	CATTTGACTTTCCCAAACGC	ATTGGGCTTTTGAGTTGTGC
	<i>NtANR2</i>	DW003895.1	TGTTCCCACTGGGATGATA	TGCACCTATACTCTGTTAGTGGC
	<i>NtAN2</i>	FJ472647	AGGAGAGCAAGCAAAAAGCA	TGAATTCATCATCCGTCAA
	<i>NtTT1</i>	FG164336	ATGCAATACCAAAGCTTGCC	CAACATCAACCATCCACGAG
	<i>NtTT2</i>	EB425500	CCTACCCTTGGTACGCAAAA	TGGTTTTGTTGGTCATGAGG

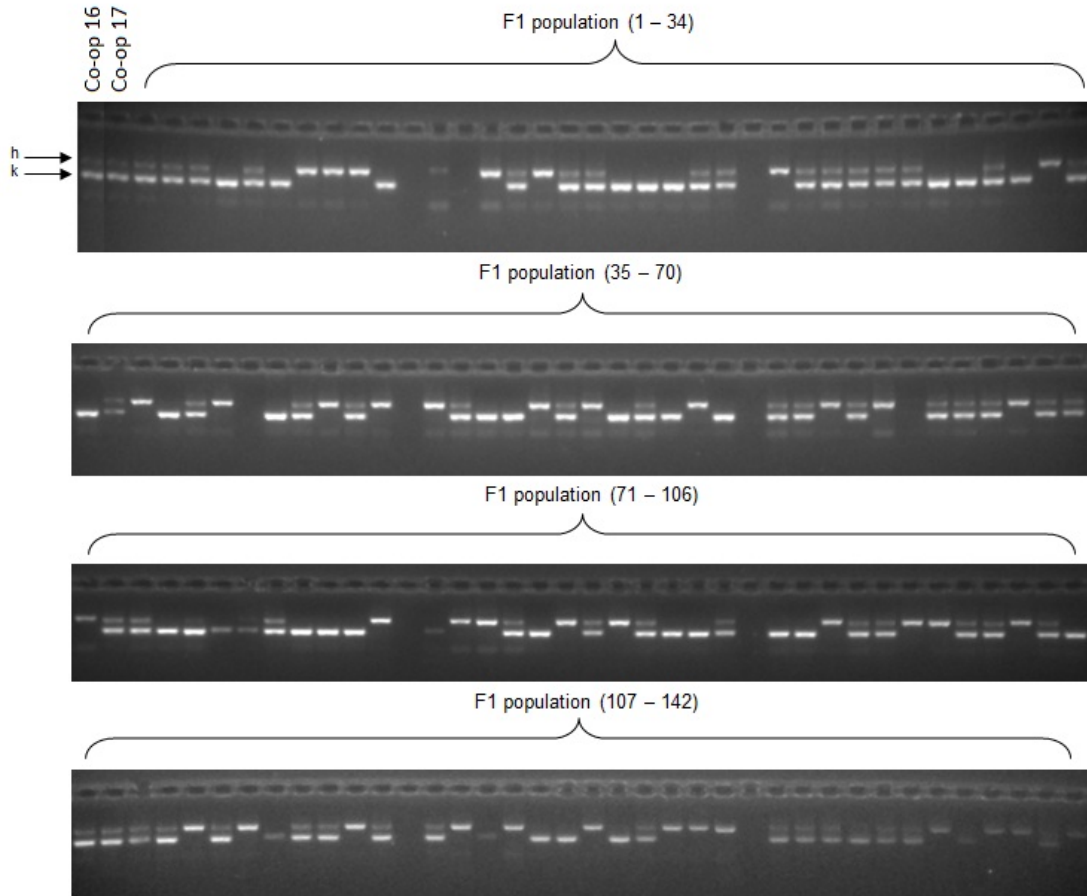


Fig. S1. Segregation for the *MdANR1* gene in an F1 apple population. The two parents (Co-op 16 and Co-op 17) and 142 individuals of 'Co-op 16' x 'Co-op 17' F1 population were screened using an *MdANR1*-indel marker. The arrows indicate segregated DNA bands where 'h' represents the upper band and 'k' represents the lower band.

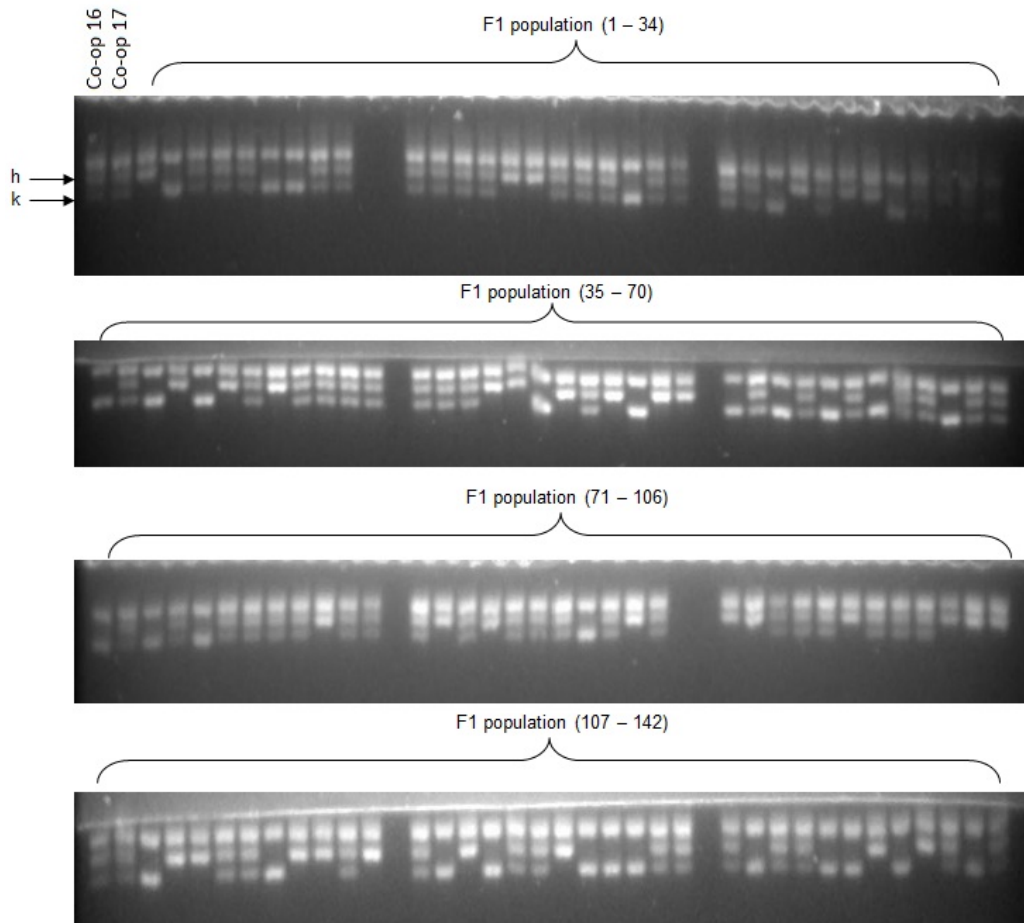


Fig. S2. Segregation for the *MdANR2* gene in an F<sub>1</sub> apple population. The two parents (Co-op 16 and Co-op 17) and 142 individuals of 'Co-op 16' x 'Co-op 17' F<sub>1</sub> population were screened using an *MdANR2*-indel marker. The arrows indicated the segregated DNA bands where 'h' represented the upper band and 'k' represented the lower band.

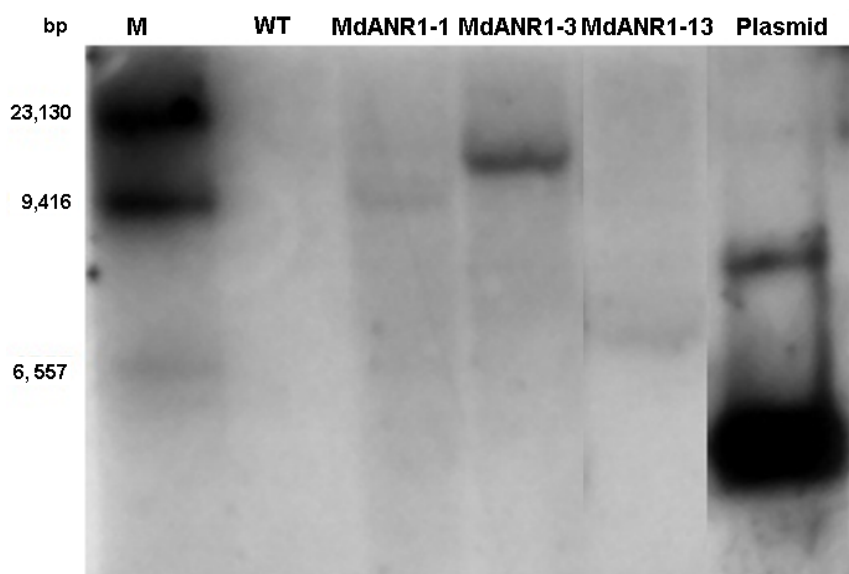


Fig. S3. Copy numbers of *MdANR1* genes in transgenic tobacco lines determined by Southern blot hybridization. The DIG marker II was used as a DNA marker (M). Genomic DNA of wild-type (WT) tobacco and MdANR-pBI121 (plasmid) served as negative and positive controls, respectively.