	Malus domestica gbrowse wide analysis						BLASTP results			BLASTN results				Features of new genes						
ORF	**Gene name on the Gbrowse**	**Gene position**	**Direction[1]**	**Chromosome**	**Conting name on the Gbrowse**	**Contig position**	**Most similar seqeuence ID**	**Description**	**E-value**	**Most similar sequence ID**	**Description**	**SNP in CDS**	**E-value**	**Identies**	**Full lenght (nt)**	**CDS (nt)**	**Intron/exon (nt)**	**Note**	***Mal d 1* locus**	**Nomenclature in Yang et al., 2011**	**Notes**
GD-ORF46	MDP0000831518	5630779..5631258	↑	1	MDC001848.391	5629453..5639052	AAS00050	Mal d 1-like	3.00E-80	AY822729	Mal d 1.03E02	19	0.0	95%	480	480	Intronless	New	***Mal d 1.03J***	Mal d 1.07B	Re-named in this paper *Mal d 1.03J* because more similar at *Mal d 1.03K* and *Mal d 1.03D* at the nucleotidic level (95%)
GD-ORF47	MDP0000831519	5634541..5635020	↑	1	MDC001848.391	5629453..5639052	AAS00049	Mal d 1-like	2.00E-82	AY822728	Mal d 1.03D02	17	0.0	96%	480	480	Intronless	New	***Mal d 1.03K***	*Mal d 1.07C*	Re-named in this paper *Mal d 1.03K* because more similar to Mal d 1.03D (95% the nt sequence and 95.6% the aa sequence)
GDsnp00152				1	MDC009760.304	5384524..5384524															
GD-ORF48	MDP0000840722	18633324..18633695	↓	4	MDC013649.418	18633177..18644468	AAX18306	major allergen Mal d 1.06C	4.00E-57	AY827729	Mal d 1ps2.01	1	0.0	99%				Pseudogene, identical to MDP0000287647	***Maldtps2***	*absent*	
GDsnp00889				4	MDC002738.126	18377389..18377389															
Hi08q03				6	MDC002407.853	5746654..5772074															
GDsnp02763				6	MDC024052.32	9847772..9847772															
GD-ORF49	MDP0000149794[#]	9828373..9828974	↑	6	MDC021919.136	9827677..9833604	AAX18295	major allergen Mal d 1.0501	4.00E-86	AY827682	Mal d 1.0501	0	3.00E-155	100%				Identical to MDP0000276353	***Mal d 1.05***	*Mal d 1.05A*	After this paper the name Mal d 1.05 assigned by Gao et al. (2005) has been kept because we decided to delay the assignment of different names to all the duplicated genes till their existence has been validated and assembly errors have been ruled out
GD-ORF50	MDP0000276353[#]	9836193..9836794	↓	6	MDC005357.463	9831882..9838052	AAX18295	major allergen Mal d 1.0501	4.00E-86	AY827682	Mal d 1.0501	0	3.00E-155	100%				Identical to MDP0000149794	***Mal d 1.05***	*Mal d 1.05B*	
GD-ORF51	MDP0000220042	15075156..15075738	↑	6	MDC001073.530	15074064..15081439		No significant similarities		AY822730	Mal d 1.03E01	29	4.00E-55	91%				New, pseudogene	***Mal d1ps6***	*absent*	
CN445290-SSR				6	MDC002236.539	21046202..21093951															
GD-ORF52	MDP0000212506[*]	24291156..24291818	↑	6	MDC018519.264	24287963..24294012	AAS00053	Mal d 1-like	2.00E-89	FN823234	Mal d 1.1101	19	1.00E-135	96%	663	492	Exon I:184; Intron: 171; Exon II: 308	New, identical to MDP0000203197	***Mal d 1.11B***	*absent*	
NH009b				13	MDC020685.206	12110944..12139311															
GD-ORF53	MDP0000299311[*]	14463513..14463992	↓	13	MDC012816.264	14462524..14465502	AAX18314	major allergen Mal d 1.03B	2.00E-84	AY822724	Mal d 1.03B02	1	0.0	99%	480	480	Intronless	New, identical to MDP0000299540	***Mal d 1.03B***	*Mal d 1.03B*	
GD-ORF54	MDP0000827820[#]	14465029..14465508	↑	13	MDC012816.264	14462524..14465502	AAX18317	major allergen Mal d 1.03D	2.00E-85	AY822728	Mal d 1.03D02	0	0.0	100%	480	480	Intronless	New, identical to MDP0000814399	***Mal d 1.03D***	*Mal d 1.03D*	
GD-ORF55	MDP0000295540[*]	14469119..14469598	↓	13	MDC012816.382	14461566..14485578	AAX18314	major allergen Mal d 1.03B	3.00E-85	AY822724	Mal d 1.03B02	1	0.0	99%	480	480	Intronless	New, identical to MDP0000299311	***Mal d 1.03B***	*Mal d 1.03B*	
GD-ORF56	MDP0000295542	14475691..14476170	↓	13	MDC012816.382	14461566..14485578	AAX18313	major allergen Mal d 1.03A	2.00E-83	AY822722	Mal d 1.03A01	2	0.0	99%					***Mal d 1.03A***	*Mal d 1.03A*	
GD-ORF57	MDP0000295543	14478900..14479379	↓	13	MDC012816.382	14461566..14485578	AAS00048	Mal d 1-like	1.00E-84	AY822730	Mal d 1.03E01	0	0.0	100%					***Mal d 1.03E***	*Mal d 1.03E*	
GD-ORF58	MDP0000814399[#]	14482284..14482763	↓	13	MDC012816.382	14461566..14485578	AAX18317	major allergen Mal d 1.03D	2.00E-85	AY822728	Mal d 1.03D02	0	0.0	100%	480	480	Intronless	New, identical to MDP0000827820	***Mal d 1.03D***	*Mal d 1.03D*	
GD-ORF59	MDP0000655694	14485052..14485492	↑	13	MDC039821.7	14484790..14488692	AAX18323	major allergen Mal d 1.03F	4.00E-71	AY822732	Mal d 1.03F02	1	0.0	99%				Identical to MDP0000533638 but missing the last 42 bp	***Mal d 1.03F***	*absent*	
snpMalD1				13	MDC039821.7	14485261..14485470															
GD-ORF60	MDP0000533638	14488714..14489193	↑	13	MDC001848.381	14486870..14491853	AAX18323	major allergen Mal d 1.03F	4.00E-71	AY822732	Mal d 1.03F02	0	0.0	100%					***Mal d 1.03F***	*Mal d 1.03F*	
GD-ORF61	MDP0000029929	14493380..14493811	↓	13	MDC012049.376	14491854..14502293	AAX18316	major allergen Mal d 1.03C	7.00E-71	AY789266	Malus x domestica major allergen Mal d 1.03C	25	0.0	94%				New, pseudogene (ORF with stop codon)	***Mal d 1ps5***	*absent*	
GD-ORF62	MDP0000838523	14496299..14496778	↑	13	MDC001848.388	14495277..14507772	AAX20990	Mal d 1.06C05	2.00E-76	AY822723	Malus x domestica clone 231103B6 Mal d 1.03B01	77	3.00E-121	84%	480	480	Intronless	New	***Mal d 1.13D***	*Mal d 1.12A*	After this paper we named this sequence *Mal d 1.13D* because Yang et al. (2011) didn't consider in their nomenclature system that the genes *Mal d 1.10* to *Mal d 1.12* had already been assigned through a NCBI deposited and sequence (FN823234). Due to this all the names of the genes after *Mal d 1.09* in Yang et al. (2011) are wrong
GD-ORF63	MDP0000418277	14499586..14500066	↓	13	MDC001848.388	14495277..14507772	AAX21000	Mal d 1.03C02	2.00E-75	AY822725	Mal d 1.03C02	16	0.0	95%	481	465	Exon I:114; Intron: 16; Exon II: 351	New	***Mal d 1.03H***	*absent*	
GD-ORF64	MDP0000750556	14510427..14510906	↓	13	MDC012049.250	14510180..14511249	AAX20990	Mal d 1.06C05	3.00E-78	AY428583	Malus x domestica clone 1h Mal d 1-like	47	9.00E-176	91%	480	480	Intronless	New	***Mal d 1.13C***	*Mal d 1.12D*	See the note for *Mal d 1.13D*
GD-ORF65	MDP0000260110	14514476..14514955	↓	13	MDC012049.377	14513008..14518545	AAX20990	Mal d 1.06C05	7.00E-78	AY428582	Malus x domestica clone 1g Mal d 1-like	46	5.00E-178	91%	480	480	Intronless	New	***Mal d 1.13B***	*Mal d 1.12C*	See the note for *Mal d 1.13D*
GD-ORF66	MDP0000195610	14522438..14523031	↓	13	MDC012049.378	14518545..14538765	AAX20990	Mal d 1.06C05	6.00E-76	AM283501	Malus x domestica mal d 1.06A gene for PR-10 protein, allele 02	40	3.00E-111	91%	594	480	Exon I:184; Intron: 114; Exon II: 296	New	***Mal d 1.14***	*Mal d 1.11*	See the note for *Mal d 1.13D*
GD-ORF67	MDP0000611199	14526222..14526701	↑	13	MDC012049.378	14518545..14538765	AAX18316	major allergen Mal d 1.03C	1.00E-85	AY789266	Mal d 1.03C01	0	0.0	100%					***Mal d 1.03C***	*absent*	
GD-ORF68	MDP0000611200	14530490..14530969	↓	13	MDC012049.378	14518545..14538765	AAX20989	Mal d 1.06C04	9.00E-78	AY428580	Malus x domestica clone 1e Mal d 1-like	48	5.00E-173	90%	480	480	Intronless	New	***Mal d 1.13A***	*Mal d 1.12B*	See the note for *Mal d 1.13D*
GD-ORF69	MDP0000195614	14533927..14534406	↑	13	MDC012049.378	14518545..14538765	AAX18316	major allergen Mal d 1.03C	4.00E-84	AY789266	Mal d 1.03C01	8	0.0	97%				New	***Mal d 1.03I***	*Mal d 1.03C*	
GD-ORF70	MDP0000103627[#]	14568759..14569403	↓	13	MDC004415.584	14567331..14580768	AAX18286	major allergen Mal d 1.01	2.00E-86	AY827644	Mal d 1.0105.04	0	0.0	100%				Identical to MDP0000103621	***Mal d 1.01***	*Mal d 1.01*	
GD-ORF71	MDP0000103621[#]	14587651..14588295	↓	13	MDC021015.337	14586773..14590805	AAX18286	major allergen Mal d 1.01	2.00E-86	AY827644	Mal d 1.0105.04	0	0.0	100%				Identical to MDP0000103627	***Mal d 1.01***	*Mal d 1.01*	
GD-ORF72	MDP0000360438	14588138..14588307	↑	13	MDC021015.337	14586773..14590805		No significant similarities		AY827644	Mal d 1.0105.04	0	1.00E-80	100%				Partial (only exon I)	***Mal d 1.01***	*absent*	
GD-ORF73	MDP0000203197[*]	14597190..14597852	↓	13	MDC004201.204	14595861..14600843	AAS00053	Mal d 1-like	2.00E-89	FN823234	Mal d 1.1101	19	1.00E-135	96%	663	492	Exon I:184; Intron: 171; Exon II: 308	New, identical to MDP0000212506	***Mal d 1.11B***	*absent*	
HI03E04				13	MDC041875.12	16526055..16537076															

[1]The arrows indicate the 5'-3' direction. The gene names with the same symbol in superscript (' ® ' ' ' ') are identical. The positions of SSR markers are highlited in gray. The putative new Mal d 1 genes are highlighted in black.