

Supplementary Figures

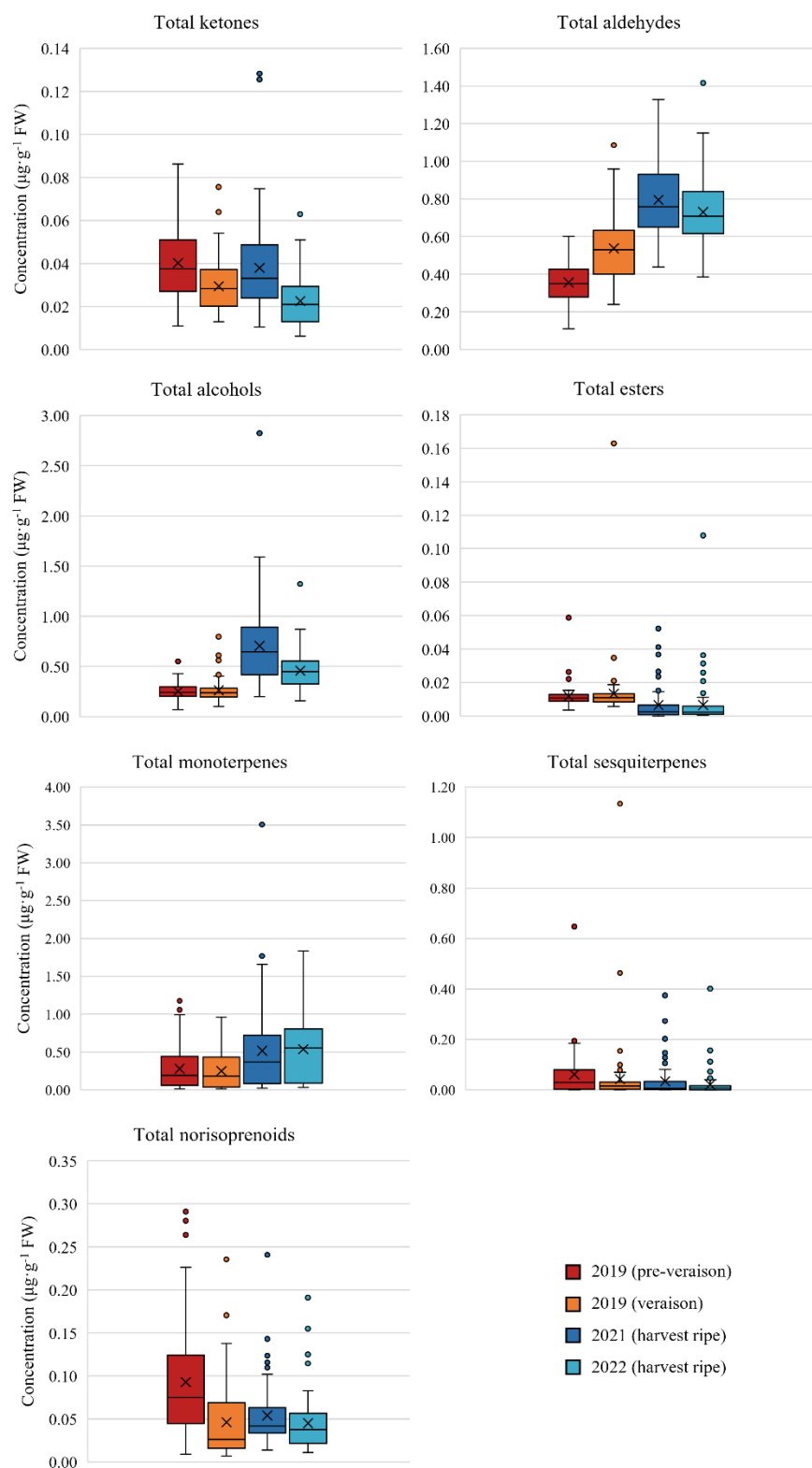
Grapevine genome analysis demonstrates the role of gene copy number variation in the formation of monoterpenes

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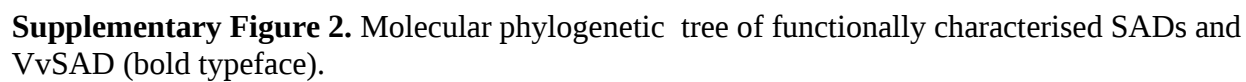
***Correspondence:**

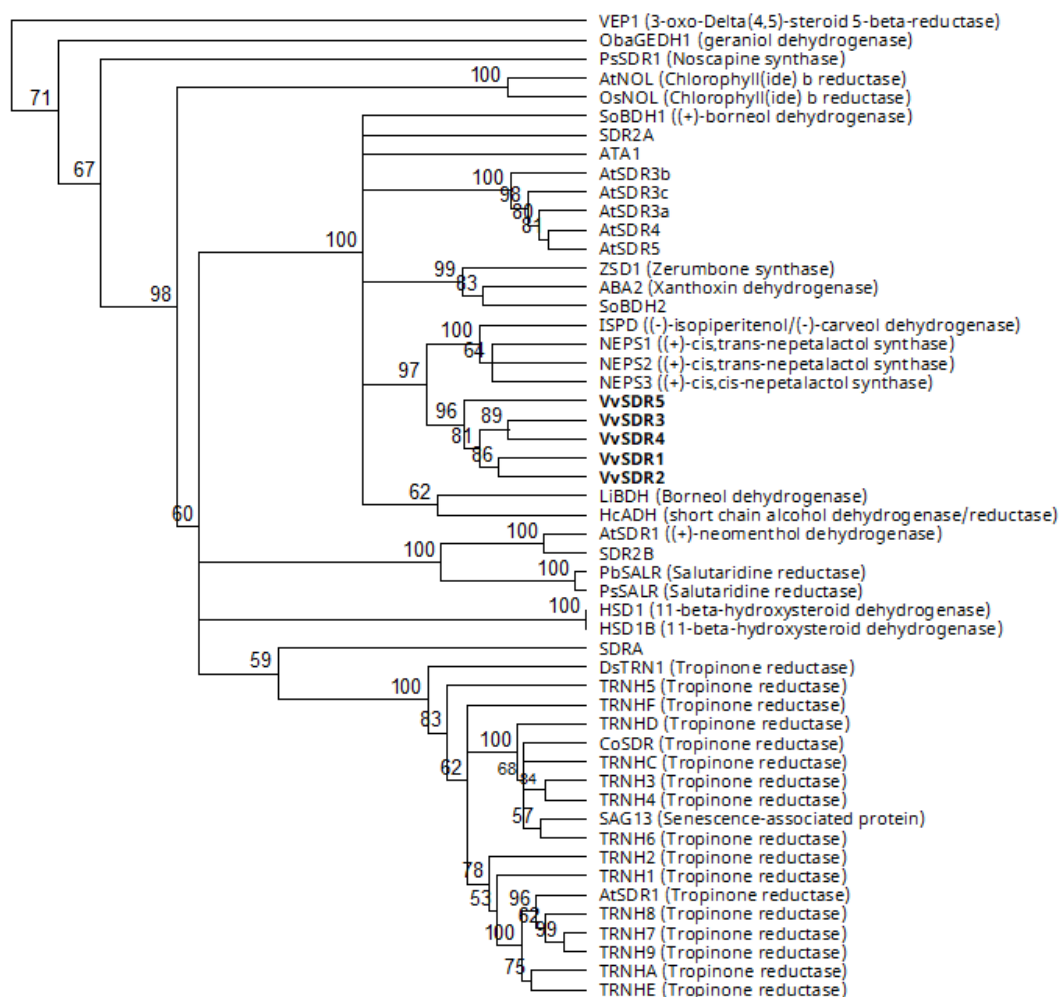
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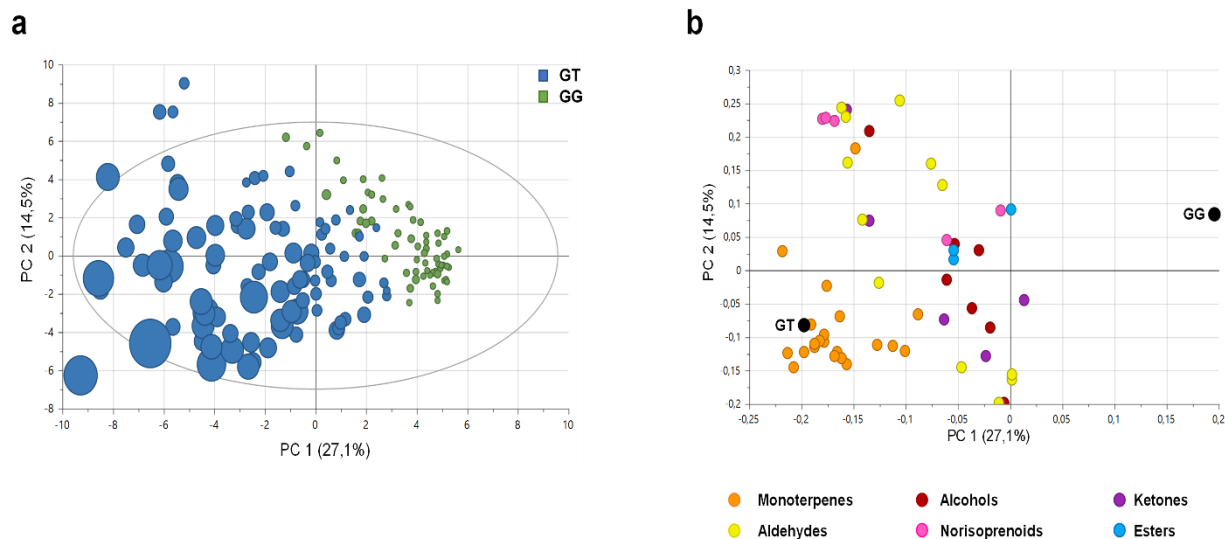


Supplementary Figure 1. The distribution of VOC compound classes in the mapping population identified in this study.

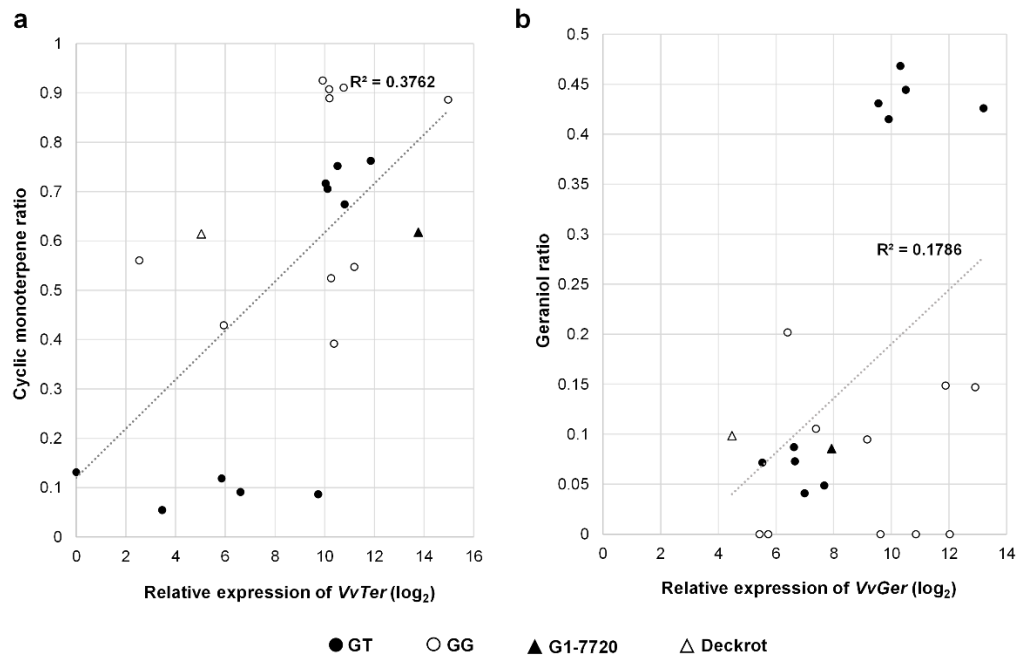




Supplementary Figure 3. Molecular phylogenetic tree of functionally characterised SDRs and VvSDRs (bold typeface). The UniProtKB/SwissProt annotated function of each SDR is shown in brackets (where available).



Supplementary Figure 4. **a)** OPLS of VOC dataset and *VvDXS1* genotypes. Data points are coloured according to the presence of the *VvDXS1* SNP: GT = heterozygous for the SNP and GG = wild-type. Data points are sized based on total monoterpene concentration; samples with higher monoterpene concentrations are bigger. **b)** Loading plot. Variable data points are coloured according to which compound class they fall within.



Supplementary Figure 5. a) VvTer expression plotted against cyclic monoterpene ratio and **b)** VvGer expression plotted against geraniol ratio. Each graphs represent a subset of 20 progenies from the mapping population which includes ten progenies with the VvDXS1 SNP and ten without. The subset is further divided by five progenies with the highest and five progenies with the lowest cyclic monoterpene ratio (a) and five progenies with highest and five progenies with the lowest geraniol ratio (b).

a

Consensus	ATGGCTCTTTCCATGCTTGCTTCAATTCTGATCACKACACAAGACTTCCAATYATRASAAAGATCCAGCAGYTGAAAGGCTTCTCCTMSAGGAA	100
GlTer01	T.....T..G.G.....T..C.....CC.....	100
GlTer03	T.....T..G.G.....T..C.....CC.....	100
GlTer07	T.....T..G.G.....T..C.....CC.....	100
GlTer09	T.....T..G.G.....T..C.....CC.....	100
GlTer11	T.....T..G.G.....T..C.....CC.....	100
GlTer04	T.....T.....T..G.G.....T..C.....CC.....	100
GlTer06	T.....T.....T..G.G.....T..C.....CC.....	100
GlTer05	T.....T.....T..G.G.....T..C.....CC.....	100
DRTer07	T.....T.....T..G.G.....T..C.....CC.....	100
GlTer08	T.....T..G.....T..G.G.....T..C.....CC.....	100
GlTer12	T.....T.....T..G.G.....T..C.....CC.....	100
GlTer02	T.....T.....T..T.G.....T..C.....CC.....	100
DRTer01	G.....C..A.C..A.....C..T.....AG.....	100
DRTer05	G.....C..A.T..A.....C..T.....AG.....	100
DRTer10	G.....C..A.T..A.....C..T.....AG.....	100
DRTer03	G.....C..A.C..A.....C..T.....AG.....	100
DRTer08	G.....C..A.T..A.....C..T.....AG.....	100
DRTer04	G..T.....C..A.T..A.....C..T.....AG.....	100
DRTer11	T.....G.....C..A.C..A.....C..T.....AG.....	100
DRTer06	G.....C..A.T..A.....C..T.....AG.....	100
DRTer09	G.....C..A.T..A.....C..T.....AG.....	100
DRTer12	G.....C..A.T..A.....C..T.....AG.....	100
DRTer13	G.....C..A.C..A.....C..T.....AGG.....	100
DRTer02	G.....C..A.C..A.....C..T.....AG.....	100
DRTer14	G.....C..A.C..A.....C..T.....AG.....	100
GlTer10	T.....T..G.G.....T..C.....CC.....	100
Consensus	WCMARKYCAMRATTGGCAACAGCAMTTGYGAGGAAATCATTGTTMGCGWACTGCAAACTACCATCCTMCCATTGGGACTATGATTATGTGCAGTCACT	200
GlTer01	A..C.ATC..TG.....C..C.....C...T.....C.....A.....	200
GlTer03	A..C.ATCT.TG.....C..C.....C...T.....C.....A.....	200
GlTer07	A..C.ATCT.TG.....C..C.....C...T.....C.....A.....	200
GlTer09	A..C.ATCT.TG.....C..C.....C...T.....C.....A.....	200
GlTer11	A..C.ATCT.TG.....C..C.....C...T.....C.....A.....	200
GlTer04	A..C.ATC..TG.....C..C.....C...T.....C.....A.....	200
GlTer06	A..C.ATC..TG.....C..C.....C...T.....C.....A.....	200
GlTer05	A..C.ATCT.TG.....C..C.....C...T.....C.....A.....	200
DRTer07	A..C.ATCT.TG.....C..C.....C...T.....C.....A.....	200
GlTer08	A..C.ATCT.TG.....C..C.....C...T.....C.....A.....	200
GlTer12	A..C.ATC..TG.....C..C.....C...T.....C.....A.....	200
GlTer02	A..C.ATC..TG.....C..C.....C...T.....C.....A.....	200
DRTer01	T..A.GGT..AA.....A..T.....C..A..A.....G..A.....A.....	200
DRTer05	T..A.GGT..AA.....A..T.....A..A.....A.....A.....A.....	200
DRTer10	T..A.GGT..AA.....A..T.....A..A.....A.....A.....A.....	200
DRTer03	T..A.GGT..AA.....A..T.....C..A..A.....G..A.....A.....	200
DRTer08	T..A.GGT..AA.....A..T.....A..A.....A.....A.....A.....	200
DRTer04	T..A.GGT..AA.....A..T.....A..A.....A.....A.....A.....	200
DRTer11	T..A.GGT..AA.....A..T.....A..A..C.....A.....A.....	200
DRTer06	T..A.GGC..AA.....A..T.....C..A..A..T.....G..A.....G.....	200
DRTer09	T..A.GGT..AA.....A..T.....C..A..A.....G..A..C.....G.....	200
DRTer12	T..A.GGT..AA.....A..T.....A..A.....A.....A.....A.....	200
DRTer13	T..A.GGT..AA.....A..T.....A..A.....A.....A.....A.....	200
DRTer02	T..A.GGT..AA.....A..T.....C..A..A.....G..A.....G.....	200
DRTer14	T..A.GGT..AA.....A..T.....C..A..A.....G..A.....G.....	200
GlTer10	A..C.ATCT.TG.....C..C.....C...T.....C.....C.....	200
Consensus	RAGAAGTGATTATGTGGGAGAAAYATACACCAGAAGACTTGATAAGCTAAAGAGAGATGTGAAGCCAATGCTTGGSAAAGTGAAGAAGCCTTTGGATCAG	300
GlTer01	G.....T.....A.....A.....G.....	300
GlTer03	G.....T.....A.....A.....G.....	300
GlTer07	G.....T.....A.....A.....G.....	300
GlTer09	G.....T.....A.....A.....G.....	300
GlTer11	G.....T.....A.....A.....G.....	300
GlTer04	G.....T.....A.....A.....G.G.....	300
GlTer06	G.....T.....A.....A.....G.....	300
GlTer05	G.....T.....A.....A.....G.....	300
DRTer07	G.....T.....A.....A.....G.....	300
GlTer08	G.....T.....A.....A.....G.....	300
GlTer12	G.....T.....A.....A.....G.....	300
GlTer02	G.....A..G.....C.....G.....	300
DRTer01	A.....C.....C.....C.....C.....	300
DRTer05	A.....C.....C.....C.....C.....	300
DRTer10	A.....C.....C.....C.....C.....	300
DRTer03	A.....C.....C.....C.....C.....	300
DRTer08	A.....C.....C.....C.....C.....	300
DRTer04	A.....C.....C.....C.....C.....	300
DRTer11	A.....C.....G.....C.....C.....	300
DRTer06	T.....C.....C.....C.....C.....	300
DRTer09	T.....C.....C.....C.....C.....	300
DRTer12	A.....C.....C.....C.....C.....	300
DRTer13	A.....C.....C.....C.....C.....	300
DRTer02	T.....C.....C.....C.....C.....	300
DRTer14	T.....G.C.....C.....C.....C.....	300
GlTer10	G.....T.....G.....G.....G.....	300

Consensus	CTGGAGCTAATCGATGTYTTGCCAAGGCTTGGAMTATATTACACTTCAAGGATGMAATAAAGAGAATATTGRACAGCATATACAACCAGTACAATCRGC	400
GlTer01	 T C C G A	400
GlTer03	 T C C G A	400
GlTer07	 T C G . C G A	400
GlTer09	 T C C G A	400
GlTer11	 T C C G A	400
GlTer04	 T C C G A	400
GlTer06	 T C C G A	400
GlTer05	 T C C G A	400
DRTer07	 T C C G A	400
GlTer08	 T C C G A	400
GlTer12	 T C C G A	400
GlTer02	 T C C G A	400
DRTer01	 C A A A G	400
DRTer05	 C A A A G	400
DRTer10	 C A A A G	400
DRTer03	 C A A A G	400
DRTer08	 C A A A G	400
DRTer04	 C A A G A	400
DRTer11	 CA C A A A	400
DRTer06	 C A A A G	400
DRTer09	 A C A A A	400
DRTer12	 C A A A T	400
DRTer13	 C A A A G	400
DRTer02	 C A A A G	400
DRTer14	 C A A A G	400
GlTer10	 T C C G A	400
Consensus	AYGAAGAGTGGMAGAAAGATGATTTATACGCAACAGCTCTTGAATTTAGACTGTTAAGGCAGCATGGCTATGATGTGCCTSAAGATGTTTTAGTAGATT	500
GlTer01	. C A A G G	500
GlTer03	. C A A G G	500
GlTer07	. C A A G G	500
GlTer09	. C A A G G	500
GlTer11	. C A A G G	500
GlTer04	. C A A G G	500
GlTer06	. C A A G G	500
GlTer05	. C A A G G	500
DRTer07	. C A A G G	500
GlTer08	. C A A G A	500
GlTer12	. C A C G G	500
GlTer02	. C C A G G	500
DRTer01	. T C C C C	500
DRTer05	. T C C C C	500
DRTer10	. T C C C C	500
DRTer03	. T C C C C	500
DRTer08	. T C C C C	500
DRTer04	. T C C C C	500
DRTer11	. T C C C C	500
DRTer06	. T C A C C	500
DRTer09	. T C A C C	500
DRTer12	. T C C C C	500
DRTer13	. T C C C C	500
DRTer02	. T C A C C	500
DRTer14	. T C A C C	500
GlTer10	. C A A G G	500
Consensus	CAAGGACGAWACAGGGAGCTTTAAGGCATGCCTGTGTGAAGATATGAAGGGARTGCTCTGCTTGACGAAGCTTCATACCTTTGTGTACAAGGAGAAAAT	600
GlTer01	 A T G G	600
GlTer03	 A T G G	600
GlTer07	 A T G G	600
GlTer09	 A T G G	600
GlTer11	 A T G G	600
GlTer04	 A T G G	600
GlTer06	 A T G G	600
GlTer05	 A T G G	600
DRTer07	 A T G G	600
GlTer08	 A T G G	600
GlTer12	 A T G G	600
GlTer02	 G C C C	600
DRTer01	 T A A A	600
DRTer05	 T A A A	600
DRTer10	 T A A A	600
DRTer03	 T A A A	600
DRTer08	 T A A A	600
DRTer04	 T A A A	600
DRTer11	 T A A A	600
DRTer06	 T A A C	600
DRTer09	 T A A A	600
DRTer12	 T A A A	600
DRTer13	 T A A A	600
DRTer02	 A C C T A	600
DRTer14	 A C C T A	600
GlTer10	 A T G G	600
Consensus	ACCWTGGAGCAGGCCAGAGAYTTGCGACACAGACATCTTGGAAAGGGCCTTGAGCACAACATAGATCAAAATCTTGCCATTGAGGTGAACCATGCCTTAG	700
GlTer01	 T T A A	700
GlTer03	 T T A A	700
GlTer07	 T T A A	700
GlTer09	 T T A A	700
GlTer11	 T T A A	700
GlTer04	 T T A A	700
GlTer06	 T T A A	700
GlTer05	 T T A A	700
DRTer07	 T T A A	700
GlTer08	 T T A A	700
GlTer12	 T T A A	700
GlTer02	 T T A A	700
DRTer01	 A C A A	700
DRTer05	 A C A A	700
DRTer10	 A C A A	700
DRTer03	 A C A A	700
DRTer08	 A C A A	700
DRTer04	 A C A A	700
DRTer11	 A C A A	700
DRTer06	 A C A A	700
DRTer09	 A C A A	700
DRTer12	 A C A A	700
DRTer13	 A C A A	700
DRTer02	 T C A A	700
DRTer14	 T C A A	700
GlTer10	 T T A A	700

Consensus	AGCTTCCATTGCATTGGAGAATGCCAAGGTTAGAGGCAAGGTGGTTCATAGACGTATACGAGAAAAACAGGACATGAATCCTATCTTTGGTGGAGTTTGC	800
GlTer01	.....	800
GlTer03	A.G.....	800
GlTer07	.....	800
GlTer09	G.....	800
GlTer11	.....	800
GlTer04	A.G.....	800
GlTer06	A.G.....	800
GlTer05	A.....T.....	800
DRTer07	A.....T.....	800
GlTer08	.....	800
GlTer12	A.G.....G.....	800
GlTer02	T.....A.....C.....	800
DRTer01	G.....	800
DRTer05	.....	800
DRTer10	.....	800
DRTer03	.....	800
DRTer08	.....	800
DRTer04	.....	800
DRTer11	.....	800
DRTer06	C.....	800
DRTer09	.....	800
DRTer12	.....	800
DRTer13	G.....	800
DRTer02	G.....	800
DRTer14	.....	768
GlTer10	A.G.....	800
Consensus	TAAATTGGACTTCAATATGGTACAAGCCACACCAGGAGGATCTAARACACATGTCTAGCTGGTGGAGGAGTACACGCCTGGGAGAAAAGTTGAAMTTT	900
GlTer01	A.....	900
GlTer03	A.....	900
GlTer07	A.....	900
GlTer09	A.....	900
GlTer11	A.....	900
GlTer04	A.....	900
GlTer06	A.....	900
GlTer05	A.....	900
DRTer07	A.....	900
GlTer08	A.....	900
GlTer12	A.....	900
GlTer02	A.....	900
DRTer01	C.....G.....	900
DRTer05	G.....	900
DRTer10	G.....G.....A.....T.....C.....	900
DRTer03	G.....A.....T.....C.....	900
DRTer08	G.....A.....T.....C.....	900
DRTer04	G.....A.....T.....C.....	900
DRTer11	G.....A.....T.....C.....	900
DRTer06	G.....A.....T.....C.....	900
DRTer09	G.....A.....T.....C.....	900
DRTer12	G.....A.....T.....C.....	900
DRTer13	G.....A.....C.....T.....C.....	900
DRTer02	G.....	900
DRTer14	G.....	834
GlTer10	A.....	900
Consensus	GCTAGGGACAGGCTGATGGAGAATTTCTTATGGACTGTGGGAGTGATATTCGAGCCTCAGTATGGATATTGTAGGAGAATGYTCACGAAGGTTTTRCACAY	1000
GlTer01	C.....GG...T	1000
GlTer03	CC.....GG...T	1000
GlTer07	C.....GG...T	1000
GlTer09	C.....GG...T	1000
GlTer11	C.....GG...T	1000
GlTer04	C.....GG...T	1000
GlTer06	C.....GG...T	1000
GlTer05	C.....GG...T	1000
DRTer07	C.....GG...T	1000
GlTer08	C.....GG...T	1000
GlTer12	C.....GG...T	1000
GlTer02	C.....GG...T	1000
DRTer01	A.....T.....A.....G...TC.....AA...GC	1000
DRTer05	T.....A.....G...TC.....AA...GC	1000
DRTer10	T.....A.....G...TC.....AA...GC	1000
DRTer03	TC...A.....AA...C	1000
DRTer08	TC...A.....AA...C	1000
DRTer04	TC...A.....AA...C	1000
DRTer11	TC...A.....AA...C	1000
DRTer06	TC...A.....AA...C	1000
DRTer09	TC...A.....AA...T...C	1000
DRTer12	TC...A.G...AA...C	1000
DRTer13	TC...A.....AA...T...C	1000
DRTer02	TC...A.....AA...C	1000
DRTer14	T.....A.....G...TC...AA...GC	906
GlTer10	C.....	988
Consensus	TCATAACRATAATTGATGATGTTTACGACGTTTATGGTACATTGGATGAAGTCTGAGCTTTTACAGATGCTGTTGACAGGTGGGATATCAATGCAATGGA	1100
GlTer01	A.....T.....	1100
GlTer03	A.....G.....T.....	1100
GlTer07	A.....T.....G.....	1100
GlTer09	A.....T.....	1100
GlTer11	A.....T.....	1100
GlTer04	A.....T.....	1100
GlTer06	A.....T.....	1100
GlTer05	A.....T.....	1100
DRTer07	A.....T.....	1100
GlTer08	A.....T.....	1099
GlTer12	A.....T.....	1099
GlTer02	A.....T.....	1100
DRTer01	T.....T.....	1100
DRTer05	T.....T.....	1100
DRTer10	T.....T.....	1100
DRTer03	G.....A.....C.....T.....	1100
DRTer08	G.....A.....C.....T.....	1100
DRTer04	G.....A.....C.....A.....	1100
DRTer11	G.....A.....C.....T.....	1100
DRTer06	G.....A.....C.....T.....	1100
DRTer09	G.....A.....C.....T.....	1100
DRTer12	G.....A.....C.....T.....	1100
DRTer13	G.....A.....C.....T.....	1100
DRTer02	G.....A.....C.....T.....	1100
DRTer14	T.....A.....T.....	1006
GlTer10	.....	1011

Consensus	TCCACTTCCAGARTACATGAAGTTGTGCTTCCTTGCTCTCTACAACCTCCACTAATGAAATGGCTTATGATGCTCTCAAGGAACATGGTTTACASATMTT	1200
GlTer01	A.....	1200
GlTer03	A.....	1200
GlTer07	A.....	1200
GlTer09	A.....	1200
GlTer11	A.....	1200
GlTer04	A.....	1200
GlTer06	A.....	1200
GlTer05	A.....C.....	1200
DRTer07	A.....C.....	1200
GlTer08	A.....	1199
GlTer12	A.....	1199
GlTer02	A.....	1200
DRTer01	G.....	1200
DRTer05	G.....	1200
DRTer10	T.T.T.....C.....C.....T.....	1200
DRTer03	G.....C.....	1200
DRTer08	G.....C.....	1200
DRTer04	G.....T.....	1200
DRTer11	G.....	1200
DRTer06	G.....	1200
DRTer09	G.....A.....	1200
DRTer12	G.....	1200
DRTer13	G.....	1200
DRTer02	G.....	1200
DRTer14	T.T.T.....C.....C.....T.....	1106
GlTer10	A.....	1111
Consensus	TCCTATCTTAGAAAAGY-----	1217
GlTer01	T-----	1217
GlTer03	T-----	1217
GlTer07	T-----	1217
GlTer09	T-----	1217
GlTer11	T-----	1217
GlTer04	T-----	1217
GlTer06	T-----	1217
GlTer05	T-----	1217
DRTer07	T-----	1217
GlTer08	T-----	1216
GlTer12	T-----	1216
GlTer02	T-----	1217
DRTer01	C-----	1217
DRTer05	T.....C-----	1217
DRTer10	T.....C-----	1217
DRTer03	C-----	1217
DRTer08	C-----	1217
DRTer04	C-----	1217
DRTer11	C-----	1217
DRTer06	C-----	1217
DRTer09	C-----	1217
DRTer12	C-----	1217
DRTer13	C-----	1217
DRTer02	C-----	1217
DRTer14	T.....C-----	1123
GlTer10	TGTTATTATCTGCAACTCTGAACTCATTCATTATATGCTGTTTACATGCATGTGGTACTCTTAACTCATGTTATATGATTA	1211
Consensus	-----GTGGTCAGACTTATGTAATCTTWCCTTACTGGAGGCAAAGTGGTACTACAGTGGATATAMACCAASCTTACAAGAATACATTAGCAATGCATG	1310
GlTer01	-----T-----	1310
GlTer03	-----T-----	1310
GlTer07	-----T-----	1310
GlTer09	-----T-----	1310
GlTer11	-----T-----	1310
GlTer04	-----T-----	1310
GlTer06	-----G.....T-----	1310
GlTer05	-----C.....T-----	1310
DRTer07	-----C.....T-----	1310
GlTer08	-----C.....T-----	1309
GlTer12	-----T-----	1309
GlTer02	-----T-----	1310
DRTer01	-----C.A.....A.....C.....G.....T.....	1310
DRTer05	-----G.....A.....T.....C.....G.....	1310
DRTer10	-----G.....A.....T.....C.....G.....	1310
DRTer03	-----C.A.....G.....A.....C.....G.....	1310
DRTer08	-----C.A.....A.....C.....G.....	1310
DRTer04	-----C.A.....A.....C.....G.....	1310
DRTer11	-----C.A.....A.....C.....G.....	1310
DRTer06	-----C.A.....T.....C.....G.....	1310
DRTer09	-----C.A.....A.....C.....G.....	1310
DRTer12	-----C.A.....A.....C.....G.....	1310
DRTer13	-----C.A.....A.....C.....G.....	1310
DRTer02	-----C.A.....T.....C.....G.....G.....	1310
DRTer14	-----C.A.....A.....C.....G.....	1216
GlTer10	TCCTTCA-----T-----	1311
Consensus	GATTTCRATRTCAGGTCCTGTARTACTAGTCCAYGCYTATTTTGTTCRCAAAATCCAATCACCAGGAGGCCTTGCAATCCTTAGAGAGATATCACAAT	1410
GlTer01	G.G.....G.....C..T.....T.....A.....	1410
GlTer03	G.G.....G.....C..T.....T.....A.....	1410
GlTer07	G.G.....G.....C..T.....T.....A.....	1410
GlTer09	G.G.....G.....C..T.....T.....A.....	1410
GlTer11	G.G.....G.....C..T.....T.....A.....	1410
GlTer04	G.G.....G.....C..T.....T.....A.....	1410
GlTer06	G.G.....G.....C..T.....T.....A.....	1410
GlTer05	G.G.....G.....C..T.....T.....A.....	1410
DRTer07	G.G.....G.....C..T.....T.....A.....	1410
GlTer08	G.G.....G.....C..T.....T.....A.....	1409
GlTer12	G.G.....G.....C..T.....T.....A.....	1409
GlTer02	G.G.....G.....C..T.....T.....A.....	1410
DRTer01	A.A.....A.....T..C.....C.....G.....	1410
DRTer05	A.A.....A.....T..C.....C.....G.....	1410
DRTer10	A.A.....A.....T..C.....C.....G.....	1410
DRTer03	A.A.....A.....T..C.....C.....G.....	1410
DRTer08	A.A.....A.....T..C.....C.....G.....	1410
DRTer04	A.A.....A.....T..C.....C.....G.....	1410
DRTer11	A.A.....A.....T..C.....C.....G.....	1410
DRTer06	A.A.....T.....T..C.....C.....G.....G.....G.....	1410
DRTer09	A.A.....A.....T..C.....C.....G.....	1410
DRTer12	T.....A.A.....A.....T..C.....C.....G.....	1410
DRTer13	A.A.....A.....T..C.....C.....G.....	1410
DRTer02	A.A.....A.....T..C.....C.....G.....G.....	1410
DRTer14	A.A.....A.....T..C.....C.....G.....	1316
GlTer10	G..G.....G.....C..T.....T.....A.....	1411

Consensus	ATTATCCGYTGGTCATCAATGATTTTAAAGGCTTTCAGATGATCTGGGAACATCACTG---GATGAGTTGAAAAGAGGAGATGTTCCCAAGTCAATCCAG	1506
GlTer01	T.....C.....	1506
GlTer03	C.....C.....	1506
GlTer07	C.....C.....	1506
GlTer09	T.....C.....	1506
GlTer11	T.....C.....	1506
GlTer04	C.....C.....	1506
GlTer06	C.....C.....	1506
GlTer05	C.....C.....	1506
DRTer07	C.....C.....	1506
GlTer08	C.....C.....	1505
GlTer12	C.....C.....	1505
GlTer02	C.....C.....	1506
DRTer01	T.....T.....	1506
DRTer05	T.....T.....	1506
DRTer10	T.....T.....	1506
DRTer03	T.....T.....	1506
DRTer08	T.....T.....	1506
DRTer04	T.....T.....A.....	1506
DRTer11	T...T.....T.....	1506
DRTer06	T.....T.....T.....	1506
DRTer09	T...C.....T.....	1506
DRTer12	T.....-...T.....	1505
DRTer13	T.....T.....T.....	1506
DRTer02	T.....T.....T.....	1506
DRTer14	T.....T.....GTCT.....	1416
GlTer10	C.....C.....C.....	1507
Consensus	TGTTACATGTATGAAACTGGTGCTTCTGAAGAAGACGCCGTAACACATAAGCTATTTGATTGRAGRGACATGGAAGAAGCTAAATGAAGATGGAGCTG	1606
GlTer01	A..G.....G.....	1606
GlTer03	A..G.....G.....	1606
GlTer07	A..G.....G.....	1606
GlTer09	A..G.....G.....	1606
GlTer11	A..G.....G.....	1606
GlTer04	A..G.....G.....	1606
GlTer06	A..G.....G.....	1606
GlTer05	A..G.....G.....	1606
DRTer07	A..G.....G.....	1606
GlTer08	A..G.....G.....	1605
GlTer12	A..G.....G.....	1605
GlTer02	A..G.....G.....	1606
DRTer01	C.....G..A.....	1606
DRTer05	C.....G..A.....	1606
DRTer10	C.....G..A.....C.....	1606
DRTer03	C.....G..A.....G.....	1606
DRTer08	C.....G..A.....G.....	1606
DRTer04	C.....G..A.....G.....	1606
DRTer11	C.....G..A.....G.....	1606
DRTer06	C.....G..A.....G.....	1606
DRTer09	C.....G..A.....G.....	1606
DRTer12	C.....G..A.....G.....	1605
DRTer13	A.....T..AC.....	1606
DRTer02	A.....T..AC.....	1606
DRTer14	A.....T..AC.....	1516
GlTer10	A..G.....A.....G.....	1607
Consensus	TAGAGTCTCCATTCCCTGAAACWTTTATTAGAATTGCAAYGAATYTTGCTAGGATGGCCAGTGCATGTATCAGCATGGAGATGGACATGGTATTGAAGA	1706
GlTer01	T.....C...T.....	1706
GlTer03	A.....T.....C...T.....	1706
GlTer07	A.....T.....C...T.....C.....	1706
GlTer09	T.....C...T.....C.....	1706
GlTer11	T.....C...T.....C.....	1706
GlTer04	A.....T.....C...T.....G.....	1706
GlTer06	A.....T.....C...T.....G.....	1706
GlTer05	T.....C...T.....C.....	1706
DRTer07	T.....C...T.....C.....	1706
GlTer08	A.....T.....C...T.....G.....	1705
GlTer12	A.....T.....C...T.....G.....	1705
GlTer02	T.....C...T.....C.....	1706
DRTer01	A.....G.....T...C.....C...G.....T.....	1706
DRTer05	A.....G.....T...C.....C...G.....T.....	1706
DRTer10	G.....G.....T...C.....C...G.....T.....	1706
DRTer03	A.....G.....T...C.....C...G.....T.....	1706
DRTer08	A.....G.....T...C.....C...G.....T.....	1706
DRTer04	A.....G.....T...C.....C...G.....T.....	1706
DRTer11	G.....G.....T...C.....C...G.....T.....	1706
DRTer06	A.....G.....T...C.....C...G.....T.....	1706
DRTer09	A.....G.....T...C.....C...G.....T.....	1706
DRTer12	A.....G.....T...C.....C...G.....T.....	1704
DRTer13	A.....G.....T...C.....G.....T.....	1704
DRTer02	---G.....A.....G.....T...C.....G.....T.....	1704
DRTer14	A.....G.....T...C.....G.....T.....	1614
GlTer10	T.....C...T.....C...T.....	1707
Consensus	TGGTGAAACTRAGGATMGAGTGTGTCCTACTCCTTGGAGCCCATTCCTCCRMAYAKGNNNSAANTAAGTACG	1777
GlTer01	A.....A.....A.....TTAG.C.AT-G.C...C.....	1776
GlTer03	A.....A.....A.....GTAC.T...-C.....	1770
GlTer07	A.....A.....A.....GTAC.T...-C.....	1770
GlTer09	A.....A.....A.....GTAC.T...-C.....	1770
GlTer11	A.....A.....A.....GTAC.T...-C.....	1770
GlTer04	A.....A.....A.....GTAC.T...-C.....	1770
GlTer06	A.....A.....A.....GTAC.T...-C.....	1770
GlTer05	A.....A.....A.....GTAC.T...-C.....	1770
DRTer07	A.....A.....A.....GTAC.T...-C.....	1770
GlTer08	AG...A.....A.....GTAC.T...-C.....	1769
GlTer12	A.....A.....A.....TTGG.C.AT-G.C...C.....	1775
GlTer02	G.....C.....T...AG.....TTAG.C.AT-G.C...C.....	1776
DRTer01	CG...C.....T...G.....AGCTTG..TTCTG.....	1773
DRTer05	G...C.....T...G.....AGCTTG..TTCTG.....	1773
DRTer10	G...C.....T...G.....AGCTTG..TTCTG.....	1773
DRTer03	G...C.....T...G.....C..AGCTTG..TTCTG.....	1773
DRTer08	G...C.....T...G.....AGCTTG..TTCTG.....	1773
DRTer04	G...C.....T...G.....AGCTTG..TTCTG.....	1773
DRTer11	G...C.....T...AG.....AGCTTG..TTCTG.....	1773
DRTer06	G...C.....T...G.....AGCTTG..TTCTG.....	1773
DRTer09	G...C.....T...G.....AGCTTG..TTCTG.....A.....	1774
DRTer12	G...C.....T...G.....AGCTTG..TTCTG.....	1771
DRTer13	G...C.....T...AG.....G.....AGCTTG..TTCTG.....	1771
DRTer02	G...C.....T...G.....AGCTTG..TTCTG.....	1771
DRTer14	G...C.....T...AG.....G.....AGCTTG..TTCTG.....	1681
GlTer10	A.....A.....A.....GTAC.T...-C.....	1771

b

Consensus	ATGGCTTTGAATATGAGCAGGTCGTTACCATGCCTTCACATGTGCTGCCATCTTCCTTTGTCGCTCCTTCACTTCAAGTCTCATCGTCTCCTTGTTCAT	100
GlGer01	C.....C.....	100
GlGer03	.....	100
GlGer06	.....	100
GlGer04	T.....A.....	100
GlGer11	G.....	100
GlGer08	.....	100
GlGer17	C.....	100
GlGer14	.....	100
GlGer02	C.....	100
GlGer09	.....	100
GlGer15	T.....	100
GlGer07	.....	100
GlGer18	.....	100
DRGer01	.....	100
DRGer09	.....	100
DRGer03	.....	100
DRGer02	.....	100
DRGer04	.....	100
DRGer08	.....	100
GlGer12	.....	100
GlGer05	C.....	100
GlGer16	.....	100
GlGer13	.....	100
DRGer06	.....	100
DRGer07	.....	100
DRGer13	.....	100
DRGer14	C.....	100
DRGer05	.....	100
DRGer12	.....	100
DRGer11	.....	100
DRGer10	.....	100
GlGer10	.....	100
Consensus	GGCGGACGCGCCCTCCCTTGCACCACTGYCATTTATCGCCATCATCATCGTCAAAGCCACTGCTTGAAGCCATGATTATCTTTGCTCAAGTCCTT	200
GlGer01	C.....	200
GlGer03	C.....	200
GlGer06	C.....	200
GlGer04	C.....	200
GlGer11	C.....	200
GlGer08	C.....	200
GlGer17	C.....	200
GlGer14	C.....	200
GlGer02	...C..T.....G..T.....	200
GlGer09	...C..T.....G..T.....	200
GlGer15	...C..T.....C.....G..T.....	200
GlGer07	...C..T.....G..T.....C.....	200
GlGer18	...C..T.....G..T.....	200
DRGer01	...G..T.....C.....	200
DRGer09	...G..T.....	200
DRGer03	...G..T.....	200
DRGer02	...G..T.....	200
DRGer04	...C.....	200
DRGer08	...G..T.....	200
GlGer12	...C..T.....G..T.....	200
GlGer05	...C.....	200
GlGer16	...C.....	200
GlGer13	...C.....	200
DRGer06	...C.....	200
DRGer07	...C.....	200
DRGer13	...C.....	200
DRGer14	...C.....	200
DRGer05	...G..T.....	200
DRGer12	...G..T.....	200
DRGer11	...C.....C.....	200
DRGer10	...G..T.....	200
GlGer10	...C.....	200
Consensus	AACCTCTATCTCCACATGTGGTGAATTCTGAAGCTGATAGCAGCACCAGAAGGTGAAAGAAAGTGAAGGAAAGAACCCGGGAGGCATTCTATAGAGCTTGG	300
GlGer01	...G.....G.....	300
GlGer03	...G.....	300
GlGer06	...G.....	300
GlGer04	...G.....	300
GlGer11	...G.....	300
GlGer08	...G.....	300
GlGer17	...G.....	300
GlGer14	...G.....	300
GlGer02	.....	300
GlGer09	.....	300
GlGer15	.....	300
GlGer07	.....	300
GlGer18	.....	300
DRGer01	G.....	300
DRGer09	.....	300
DRGer03	A.....	300
DRGer02	C.....T.....	300
DRGer04	.....	300
DRGer08	.....	300
GlGer12	C.....T.....	300
GlGer05	G.....	300
GlGer16	C.....T.....	300
GlGer13	C.....T.....	300
DRGer06	C.....T.....	300
DRGer07	C.....T.....	300
DRGer13	C.....G.....T.....	300
DRGer14	C.....T.....	300
DRGer05	G.....T.....	300
DRGer12	C.....	300
DRGer11	C.....T.....	300
DRGer10	T.....	300
GlGer10	G.....	300

Consensus	GATTCAAGGGCTGCTATGGAGATGGTAGACACAGTTGAGAGGCTAGGTCTATCATACCAATTTGAAGACGAGATAAATGCACTAYTGCAAAGGTTCTGCG	400
GlGer01	A.....C.....	400
GlGer03	A.....C.....C.....	400
GlGer06	A.....C.....	400
GlGer04	A.....C.....	400
GlGer11	A.....C.....	400
GlGer08	A.....C.....	400
GlGer17	A.....C.....	400
GlGer14	A.....C.....	400
GlGer02	A.....C.....G.....T.....	400
GlGer09	G.....T.....	400
GlGer15	G.....T.....	400
GlGer07	G.....T.....	400
GlGer18	G.....T.....	400
DRGer01	G.....T.....	400
DRGer09	G.....T.....	400
DRGer03	G.....T.....	400
DRGer02	G.....T.....	400
DRGer04	T.....	400
DRGer08	G.....T.....	400
GlGer12	G.....A.....C.....	400
GlGer05	T.....	400
GlGer16	G.....A.....C.....	400
GlGer13	T.....	400
DRGer06	T.....	400
DRGer07	T.....	400
DRGer13	T.....	400
DRGer14	T.....	400
DRGer05	G.....G.....G.....T.....	400
DRGer12	G.....G.....T.....	400
DRGer11	G.....T.....	400
DRGer10	T.....	400
GlGer10	A.....C.....	400
Consensus	ACTGGAATGCCAGTGAAGATCTCTTCACCACTGCCCTTCGTTCCGGTTGCTTCGCCAAATGGATTCCCACTCATCTGATGTTTTGGCAAGTTCAT	500
GlGer01	T.....T.....	500
GlGer03	T.....T.....	500
GlGer06	T.....T.....	500
GlGer04	T.....T.....	500
GlGer11	T.....T.....	500
GlGer08	T.....T.....	500
GlGer17	T.....T.....	500
GlGer14	T.....T.....	500
GlGer02	T.....	500
GlGer09	T.....	500
GlGer15	T.....	500
GlGer07	T.....	500
GlGer18	T.....	500
DRGer01	T.....	500
DRGer09	T.....	500
DRGer03	T.....	500
DRGer02	T.....	500
DRGer04	T.....	500
DRGer08	T.....	500
GlGer12	T.....T.....	500
GlGer05	T.....	500
GlGer16	T.....T.....	500
GlGer13	T.....	500
DRGer06	T.....	500
DRGer07	T.....	500
DRGer13	T.....	500
DRGer14	C.....T.....	500
DRGer05	T.....T.....	500
DRGer12	T.....	500
DRGer11	T.....	500
DRGer10	T.....G.....T.....	500
GlGer10	T.....G.....T.....	500
Consensus	GGATAAGAAATGGAAAATTCAGGAAAGCTTGACTGAAGACATATGGGGTATGCTGAGTTTACATGAGGCATCTCACTTGGGGGCCAAAAATGAAGAAGTA	600
GlGer01	.....	600
GlGer03	.....	600
GlGer06	.....	600
GlGer04	.....	600
GlGer11	.....	600
GlGer08	.....	600
GlGer17	.....	600
GlGer14	C.....	600
GlGer02	C.....	600
GlGer09	.....	600
GlGer15	.....	600
GlGer07	.....	600
GlGer18	.....	600
DRGer01	.....	600
DRGer09	.....	600
DRGer03	.....	600
DRGer02	G.....	600
DRGer04	.....	600
DRGer08	.....	600
GlGer12	.....	600
GlGer05	C.....	600
GlGer16	.....	600
GlGer13	C.....	600
DRGer06	.....	600
DRGer07	.....	600
DRGer13	.....	600
DRGer14	.....	600
DRGer05	.....	600
DRGer12	.....	600
DRGer11	.....	600
DRGer10	.....	600
GlGer10	C.....	600

Consensus	TTAGCAGAAGCCAAGGAGTTCAACAAGGATTCACCTCATACAGTCTATGCCGCACATGGAACCCCATTTTAGCAGCCATGTCGGCCGGGCACTCGAGCTTC	700
GlGer01	C.	700
GlGer03		700
GlGer06		700
GlGer04		700
GlGer11		700
GlGer08		700
GlGer17		700
GlGer14		700
GlGer02		700
GlGer09		700
GlGer15	C	700
GlGer07	C	700
GlGer18		700
DRGer01		700
DRGer09		700
DRGer03		700
DRGer02		700
DRGer04		700
DRGer08		700
GlGer12		700
GlGer05	G.....C	700
GlGer16		700
GlGer13	G	700
DRGer06		700
DRGer07		700
DRGer13		700
DRGer14		700
DRGer05		700
DRGer12		700
DRGer11	T	700
DRGer10		700
GlGer10		700
Consensus	CCAGGCACTTGAGGATGGCGAGGTTGGAGGCTAGAACTATATAGRCGAATATAGCAGGGAAGCAACCCGAAGCTCTCTCTAGAGCTAGCAAAAT	800
GlGer01	T.....G.....C.....T	800
GlGer03	T.....G.....T	800
GlGer06	C.....T.....G.....T	800
GlGer04	T.....G.....T	800
GlGer11	T.....G.....T	800
GlGer08	A.....C.....G	800
GlGer17	T.....G.....T	800
GlGer14	T.....A.....G.....T	800
GlGer02	A.....C.....C.....G	800
GlGer09	C.....A.....C.....G	800
GlGer15	A.....C.....G	800
GlGer07	A.....C.....G	800
GlGer18	A.....C.....G	800
DRGer01	A.....C.....G	800
DRGer09	A.....C.....G	800
DRGer03	A.....C.....G	800
DRGer02	A.....C.....G	800
DRGer04	A.....C.....G	800
DRGer08	A.....C.....G	800
GlGer12	A.....C.....G	800
GlGer05	T.....G.....T.....T	800
GlGer16	T.....G.....T.....T	800
GlGer13	T.....G.....T.....T	800
DRGer06	T.....G.....T.....T	800
DRGer07	T.....G.....T.....T	800
DRGer13	T.....G.....T.....T	800
DRGer14	T.....G.....T.....T	800
DRGer05	A.....C.....G	800
DRGer12	A.....C.....G	800
DRGer11	T.....G.....T.....T	800
DRGer10	A.....C.....G	800
GlGer10	T.....G.....T	800
Consensus	GGATTTCGACATGGTTCAATCACTGCACAGAAAGAGTTGGCTGAGATAGT-----AAGGTGGTGGAAACAGTTGGGTCT	875
GlGer01	A.....	875
GlGer03		875
GlGer06		875
GlGer04		875
GlGer11		875
GlGer08		875
GlGer17		875
GlGer14		875
GlGer02		875
GlGer09		875
GlGer15		875
GlGer07	G.....	875
GlGer18	C.....	875
DRGer01		875
DRGer09		875
DRGer03	G.....	875
DRGer02		875
DRGer04		875
DRGer08		875
GlGer12		875
GlGer05		875
GlGer16	AAGGCCATCCATGTTCAATTCTATA.....	900
GlGer13		875
DRGer06	T.....	875
DRGer07	T.....	875
DRGer13	T.....	875
DRGer14	T.....	875
DRGer05	G.....T.....	875
DRGer12		875
DRGer11	T.....	875
DRGer10	T.....	875
GlGer10		875

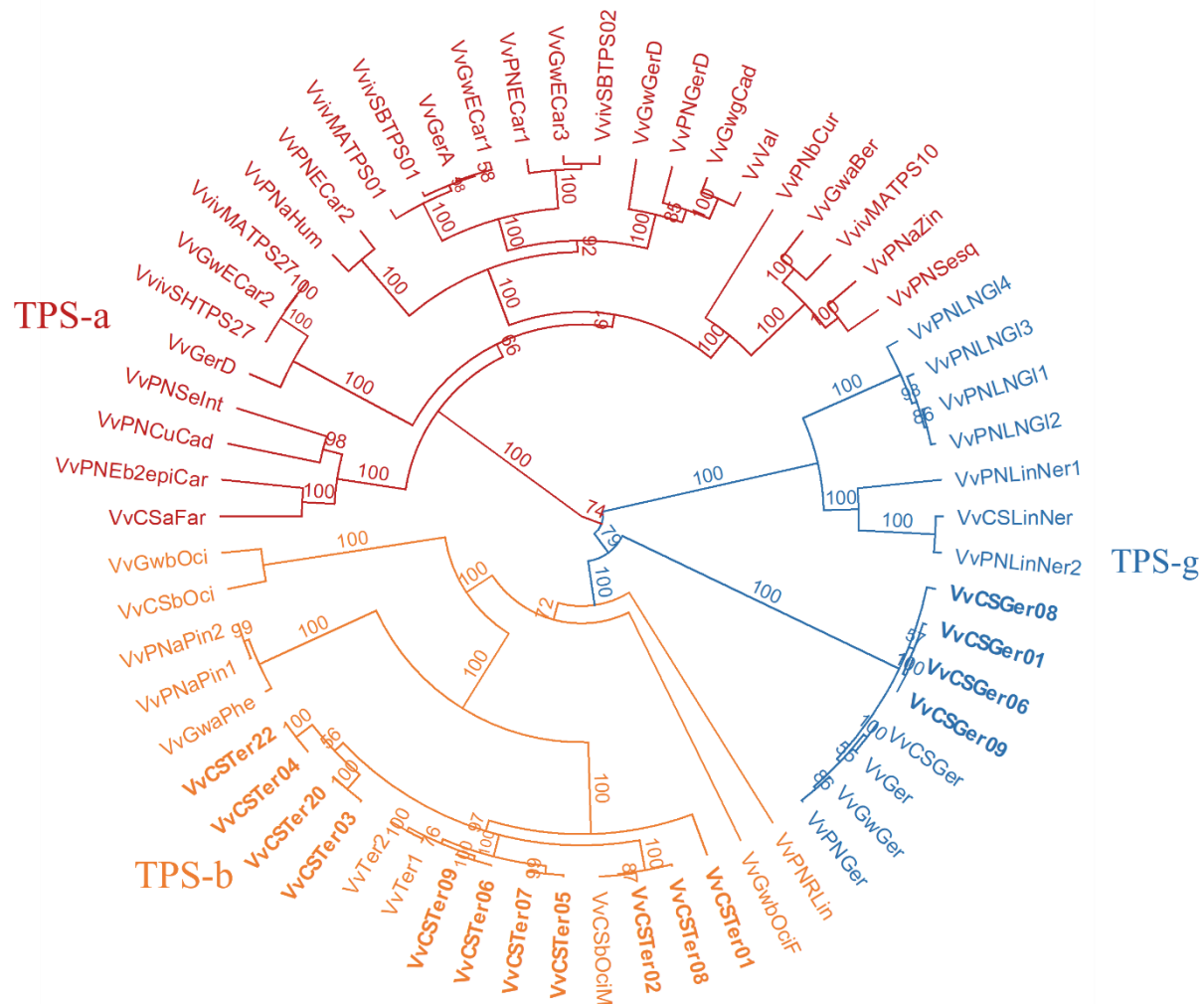
Consensus	TGTTGATAAGCTTGATTTTGCTCGAGACCGCCGATGGAGTGCTTCTTATGGACAGTGGGGATATTTCCAGATCCCAGGCATTCAAGCTGCCGCATCGAA	975
G1Ger01	.....	975
G1Ger03	.....	975
G1Ger06	.....	975
G1Ger04	G.....	975
G1Ger11	.....	975
G1Ger08	.....	975
G1Ger17	.....	975
G1Ger14	A.....	975
G1Ger02	.....	975
G1Ger09	.....	975
G1Ger15	.....	975
G1Ger07	.....	975
G1Ger18	.....	975
DRGer01	.....	975
DRGer09	.....	975
DRGer03	.....	975
DRGer02	.....	975
DRGer04	.....	975
DRGer08	.....	975
G1Ger12	.....	975
G1Ger05	.....	975
G1Ger16	.....	1000
G1Ger13	.....	975
DRGer06	A.....	975
DRGer07	A.....	975
DRGer13	A.....	975
DRGer14	A.....	975
DRGer05	A.....	975
DRGer12	.....	975
DRGer11	A.....	975
DRGer10	C.....	975
G1Ger10	.....	975
Consensus	TTAACCAAGGCCATTGCTATCTTACTAGTTATTGATGATATTACGACTCTTATGGATCTTTGGACGAGCTTGCTCTCTTCACTGATGCAGTAAAGAT	1075
G1Ger01	.....	1075
G1Ger03	.....	1075
G1Ger06	.....	1075
G1Ger04	.....	1075
G1Ger11	.....	1075
G1Ger08	.....	1075
G1Ger17	A.....	1075
G1Ger14	.....	1075
G1Ger02	.....	1075
G1Ger09	.....	1075
G1Ger15	.....	1075
G1Ger07	.....	1075
G1Ger18	T.....T.G.....	1075
DRGer01	T.....G.....	1075
DRGer09	T.....G.....A.....	1075
DRGer03	T.....G.....	1075
DRGer02	T.....G.....	1075
DRGer04	T.....G.....G.....	1075
DRGer08	T.....G.....	1075
G1Ger12	T.....G.....	1075
G1Ger05	.....	1075
G1Ger16	.....	1100
G1Ger13	.....	1075
DRGer06	.....	1075
DRGer07	.....	1075
DRGer13	.....	1075
DRGer14	.....	1075
DRGer05	.....	1075
DRGer12	T.....G.....	1075
DRGer11	.....	1075
DRGer10	T.....G.....	1075
G1Ger10	.....	1075
Consensus	GGGATCTTGGTGCAATGGATCAGCTCCCTGAGTACATGAAGATATGTTACATGGCATTGTACAACACTACTAATGACATTGCATACAGGATCTTGAAGGA	1175
G1Ger01	.....	1175
G1Ger03	.....	1175
G1Ger06	.....	1175
G1Ger04	.....	1175
G1Ger11	T.....	1175
G1Ger08	G.....	1175
G1Ger17	.....	1175
G1Ger14	.....	1175
G1Ger02	.....	1175
G1Ger09	.....	1175
G1Ger15	.....	1175
G1Ger07	.....	1175
G1Ger18	.....	1175
DRGer01	.....	1175
DRGer09	.....	1175
DRGer03	.....	1175
DRGer02	C.....	1175
DRGer04	.....	1175
DRGer08	.....	1175
G1Ger12	.....	1175
G1Ger05	.....	1175
G1Ger16	.....	1200
G1Ger13	.....	1175
DRGer06	.....	1175
DRGer07	T.....	1175
DRGer13	.....	1175
DRGer14	.....	1175
DRGer05	G.....	1175
DRGer12	.....	1175
DRGer11	G.....	1175
DRGer10	.....	1175
G1Ger10	.....	1175

Consensus	GCATGGATGGAGCGTCATAGAAGACCTAAAACGAACGTGGATGGACATCTTTGGAGCTTTCCTAGCTGAAGCCCATTTGTTCAAAGGTGGCCATGTACCC	1275
G1Ger01	.....	1275
G1Ger03	.....	1275
G1Ger06	.....	1275
G1Ger04	.....	1275
G1Ger11	.....	1275
G1Ger08	.....	1275
G1Ger17	.....	1275
G1Ger14	A.....	1275
G1Ger02	.....	1275
G1Ger09	.....	1275
G1Ger15	.....	1275
G1Ger07	.....	1275
G1Ger18	.....	1275
DRGer01	.....	1275
DRGer09	.....	1275
DRGer03	.....	1275
DRGer02	.....	1275
DRGer04	.....	1275
DRGer08	-----	1270
G1Ger12	.....	1275
G1Ger05	T.....C.....	1275
G1Ger16	T.....	1300
G1Ger13	T.....C.....	1275
DRGer06	C.....T.....C.....	1275
DRGer07	C.....T.....C.....	1275
DRGer13	C.....T.....C.....	1275
DRGer14	C.....T.....C.....	1275
DRGer05	C.....T.....C.....	1275
DRGer12	T.....GC.....	1275
DRGer11	C.....T.....C.....	1275
DRGer10	.....	1275
G1Ger10	-----	1241
Consensus	TCATGAGAGGTATCTAAATATGCAGTTACCACTGGAGGCACATACATGGCCTTGGTGCATGCCTTTTTCCTATGGGGCAAGGTGTTACTAGGGAAA	1375
G1Ger01	C.....	1375
G1Ger03	C.....	1375
G1Ger06	C.....G.....	1375
G1Ger04	C.....	1375
G1Ger11	CG.....	1375
G1Ger08	.....	1375
G1Ger17	.....	1375
G1Ger14	.....	1375
G1Ger02	.....	1375
G1Ger09	.....	1375
G1Ger15	.....	1375
G1Ger07	T.....	1375
G1Ger18	.....	1375
DRGer01	.....	1375
DRGer09	.....	1375
DRGer03	.....	1375
DRGer02	.....	1375
DRGer04	.....	1375
DRGer08	.....	1370
G1Ger12	.....	1375
G1Ger05	.....	1375
G1Ger16	C.....	1400
G1Ger13	C.....T.....	1375
DRGer06	C.....T.....C.....	1375
DRGer07	C.....T.....	1375
DRGer13	C.....T.....	1375
DRGer14	C.....T.....	1375
DRGer05	C.....T.....	1375
DRGer12	C.....T.....	1375
DRGer11	G..G.....C.....-	1374
DRGer10	.....	1375
G1Ger10	-----	1241
Consensus	ATATGGCCATGTTGAAGCCCTATCCCAACATCTTCTCCTGTTTCAGGGAAAATCTTCGGCTATGGGATGACTTGGGAACGCAAGGGAGGAGCAAGAACG	1475
G1Ger01	G.....	1475
G1Ger03	.....	1475
G1Ger06	.....	1475
G1Ger04	.....	1475
G1Ger11	.....	1475
G1Ger08	.....	1475
G1Ger17	T.....	1475
G1Ger14	T.....	1475
G1Ger02	T.....C.....G.....	1475
G1Ger09	T.....	1475
G1Ger15	T.....	1475
G1Ger07	T.....	1475
G1Ger18	G.....	1475
DRGer01	.....	1475
DRGer09	.....	1475
DRGer03	.....	1475
DRGer02	G.....	1475
DRGer04	.....	1475
DRGer08	G.....	1470
G1Ger12	T.....G.....	1475
G1Ger05	G.....T.....	1475
G1Ger16	G.....	1500
G1Ger13	C.....T.....A.....GA.....	1475
DRGer06	C.....T.....A.....GA.....	1475
DRGer07	C.....T.....A.....GA.....	1475
DRGer13	C.....T.....A.....GA.....	1475
DRGer14	C.....T.....A.....GA.....	1475
DRGer05	C.....T.....A.....GA.....	1475
DRGer12	C.....T.....A.....GA.....	1475
DRGer11	C.....T.....A.....GA.....	1474
DRGer10	-----	1475
G1Ger10	-----	1329

Consensus	AGGAGATAACGCGTTCGAGTATAGAATGCTACAAGCGAGAGCGAGAGATGGATACTGTGTTGGATGATGAAGCCTGCAGGAAACACATAAGGCAG	1575
G1Ger01	.....	1575
G1Ger03	.....	1575
G1Ger06	.....	1575
G1Ger04	.....	1575
G1Ger11	.....	1575
G1Ger08	.....	1575
G1Ger17	.....	1575
G1Ger14	G.....	1575
G1Ger02	.....	1575
G1Ger09	G.....	1575
G1Ger15	G.....	1575
G1Ger07	A.....	1575
G1Ger18	.....	1575
DRGer01	.....	1575
DRGer09	.....	1575
DRGer03	.....	1575
DRGer02	.....	1575
DRGer04	.....	1575
DRGer08	.....	1570
G1Ger12	.....	1575
G1Ger05	.....	1575
G1Ger16	.....	1600
G1Ger13	A.....-----.....A.....	1569
DRGer06	-----.....A.....	1569
DRGer07	-----.....A.....	1569
DRGer13	-----.....A.....	1569
DRGer14	-----.....A.....	1569
DRGer05	-----.....A.....	1569
DRGer12	-----.....A.....	1569
DRGer11	-----.....G.....A.....	1568
DRGer10	-----.....	1517
G1Ger10	-----.....	1429
Consensus	ATGATCCAGAGCTTGTGGGTAGAGCTCAATGGGGAGCTGGTTGCTTCGTCTGCATTGCTCTTTCAATCATCAAGCTGCCTTTAACTCTCAAGAACTGC	1675
G1Ger01	G.....	1675
G1Ger03	.....	1675
G1Ger06	.....	1675
G1Ger04	.....	1675
G1Ger11	.....	1675
G1Ger08	.....	1675
G1Ger17	.....	1675
G1Ger14	.....	1675
G1Ger02	.....	1675
G1Ger09	.....	1675
G1Ger15	C.....	1675
G1Ger07	.....	1675
G1Ger18	.....	1675
DRGer01	.....	1675
DRGer09	.....	1675
DRGer03	.....	1675
DRGer02	.....	1675
DRGer04	.....	1675
DRGer08	C.....	1670
G1Ger12	C.....T.....	1675
G1Ger05	.....	1675
G1Ger16	.....	1700
G1Ger13	.....	1669
DRGer06	.....	1669
DRGer07	.....	1669
DRGer13	.....	1669
DRGer14	.....	1669
DRGer05	.....	1669
DRGer12	.....	1669
DRGer11	.....	1668
DRGer10	.....	1597
G1Ger10	.....	1529
Consensus	CACAAGTCATTTACCAGCATGGAGATGATAACAAGACTTCTAGTGTGAAGATCATGTACAAGCATTGCTCTTTAGGCCTGTTTCTCTTAATGGGCATGC	1775
G1Ger01	C.....	1775
G1Ger03	C.....A.....	1775
G1Ger06	.....	1775
G1Ger04	.....	1775
G1Ger11	.....	1775
G1Ger08	.....	1775
G1Ger17	.....	1775
G1Ger14	.....	1775
G1Ger02	.....	1775
G1Ger09	.....	1775
G1Ger15	G.....	1775
G1Ger07	.....	1775
G1Ger18	G.....	1775
DRGer01	.....	1775
DRGer09	.....	1775
DRGer03	.....	1775
DRGer02	G.....	1775
DRGer04	.....	1775
DRGer08	.....	1770
G1Ger12	.....	1775
G1Ger05	A.....	1775
G1Ger16	C.....	1800
G1Ger13	G.....	1769
DRGer06	.....	1769
DRGer07	.....	1769
DRGer13	.....	1769
DRGer14	.....	1769
DRGer05	.....	1769
DRGer12	.....	1769
DRGer11	.....	1768
DRGer10	.....	1697
G1Ger10	.....	1629

Consensus	TCAAATTACCATGCATTAG	1794
G1Ger01	.....	1794
G1Ger03	.....	1794
G1Ger06	.....	1794
G1Ger04	.....	1794
G1Ger11	.....	1794
G1Ger08	A.....	1794
G1Ger17	.....	1794
G1Ger14	.....	1794
G1Ger02	.....	1794
G1Ger09	.....	1794
G1Ger15	.....	1794
G1Ger07	.....	1794
G1Ger18	.....	1794
DRGer01	.....	1794
DRGer09	.....	1794
DRGer03	.....	1794
DRGer02	.....	1794
DRGer04	.....	1794
DRGer08	.....	1789
G1Ger12	.....	1794
G1Ger05	.....	1794
G1Ger16	.....	1819
G1Ger13	A.....	1788
DRGer06	.....	1788
DRGer07	.....	1788
DRGer13	.....	1788
DRGer14	.....	1788
DRGer05	.....	1788
DRGer12	.....	1788
DRGer11	.....	1787
DRGer10	.....	1716
G1Ger10	.....	1648

Supplementary Figure 6. Alignments of isolated (a) *VvTER* and (b) *VvGER* gene copies from *Vitis vinifera* cDNA. Genes isolated from 'Deckrot' are given the suffix DR, while genes isolated from G1-7720 are given the suffix G1. A consensus sequences is given, with dots indicating identity and letters illustrating divergent sequences.



Supplementary Figure 7. Molecular phylogenetic tree for protein sequences of functionally characterised *V. vinifera* terpene synthases and putative Cabernet Sauvignon VvTer and VvGer genes. Nodes are coloured according to which TPS subfamily the proteins fall under. Putative Cabernet Sauvignon genes are in bold typeface. VvCSTer enzymes are closely related to functionally characterised α -terpineol synthases (VvTer1 and VvTer2), while VvCSGer enzymes are closely related to functionally characterised geraniol synthases (VvGer, VvPNGer and VvGwGer).