Supplemental Material

This file contains Supplemental Figures 1-3 and Supplemental Tables 1, 4 and 5.

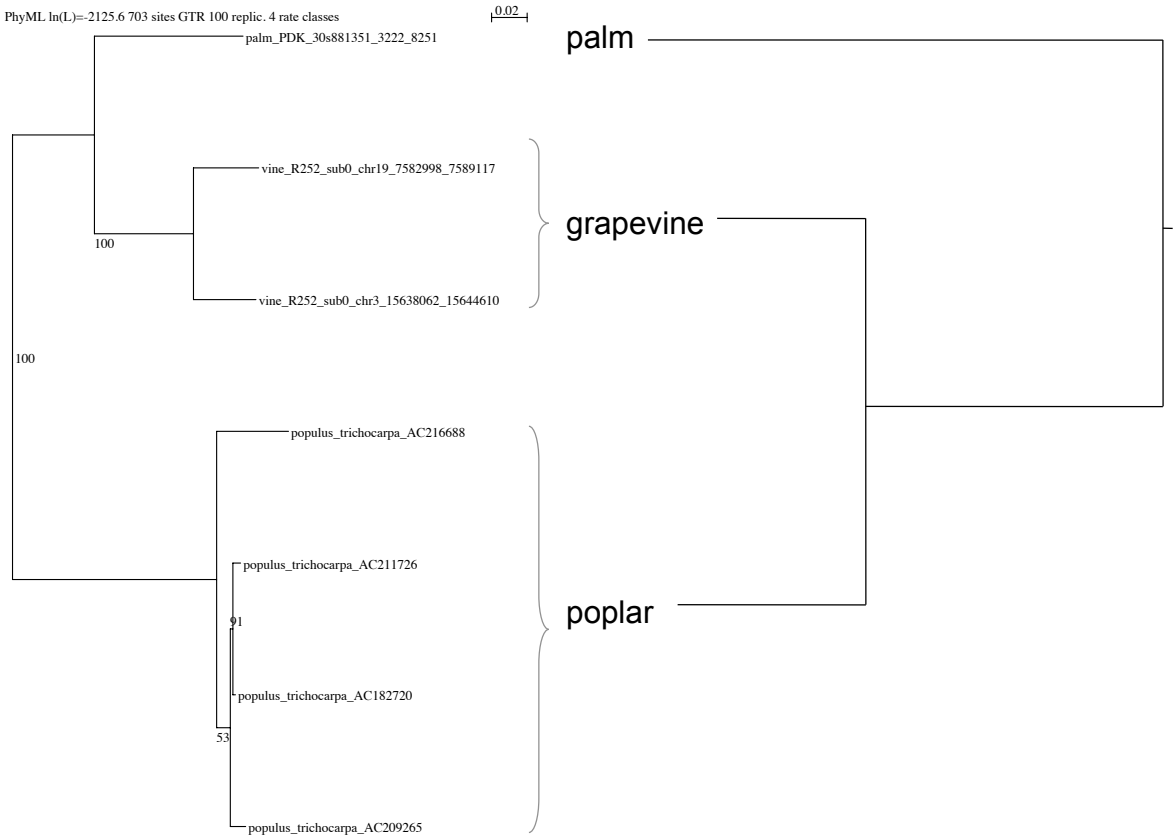
Supplemental Legends

Supplemental Fig. 1. Phylogenetic incongruences between horizontally transferred LTR-RTs and species trees. For each transferred element, the reverse transcriptase domain was used as a query for a homology search against the NCBI nr nucleotide database using the blastN algorithm and excluding the species involved in the transfer. Sequences were aligned using Muscle and a phylogenetic tree was built using a maximum likelihood method with 100 bootstrap replicates. Both the alignments and the phylogenetic analyses were performed using SeaView software on a LINUX platform. Left : TE tree; Right : species tree.

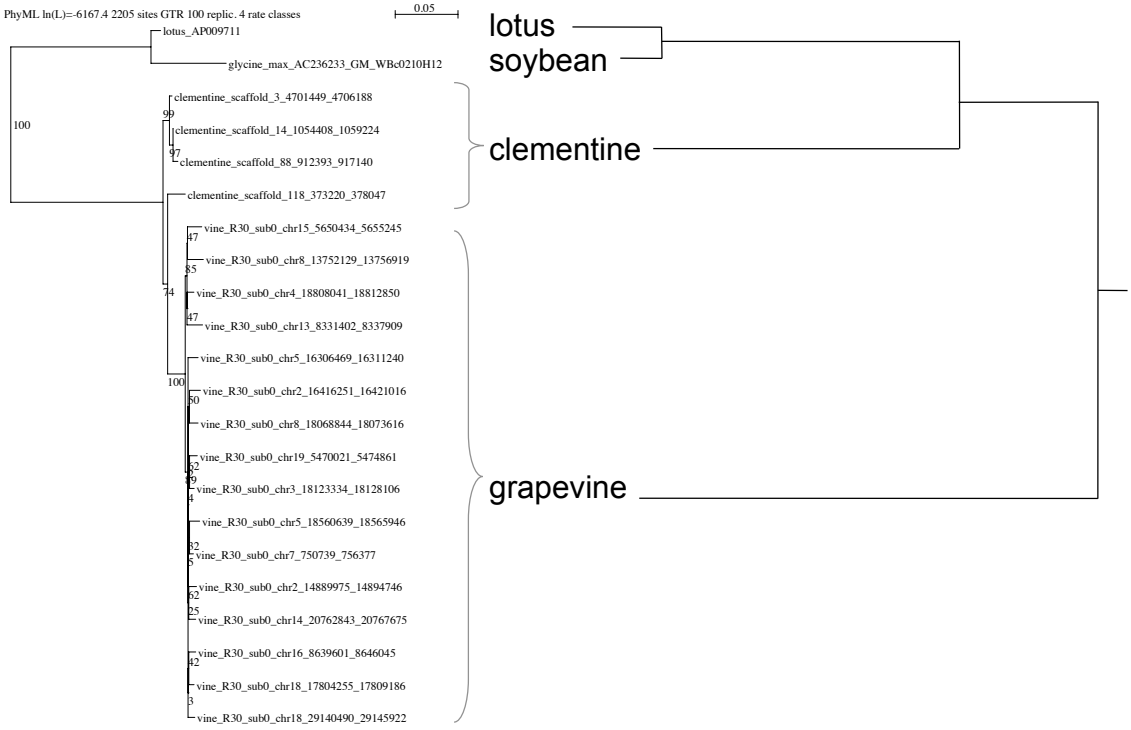
Supplemental Fig. 2. Wet lab validation of the HTTs. For each analyzed HTT (see Table 1), a picture of the electrophoresis of PCR amplification of LTR-RTs using DNA material of the species involved in the transfer (see Supplemental Table 4), a schematic view of the LTR-RT with the location of the region that was amplified, and a snapshot of the multiple alignments of the sequenced PCR products together with the sequences that were mined out from the genome sequence are provided. Asterisks indicate the positions that are diagnostic for species identification.

Supplemental Fig. 3. Functional annotation of the LTR-RT families involved in HTTs. For each HTT one element per species was selected for the presence of functional domains. Long terminal repeats (LTR), open reading frames (ORF) and non coding regions are represented as blue arrows, dark gray boxes, and light gray boxes, respectively. The domains represented include GAG (for UBN2 superfamily domain, pfam14223), pre-INT (for GAG-pre-integrase domain, pfam13976), INT (for integrase core domain, pfam00665), RVT (for reverse transcriptase domain, pfam07727) and RNase H (for Ribonuclease H domain, cd09272). BG12 is not included because it was previously described in ref. 14.

BC1 : grapevine / palm

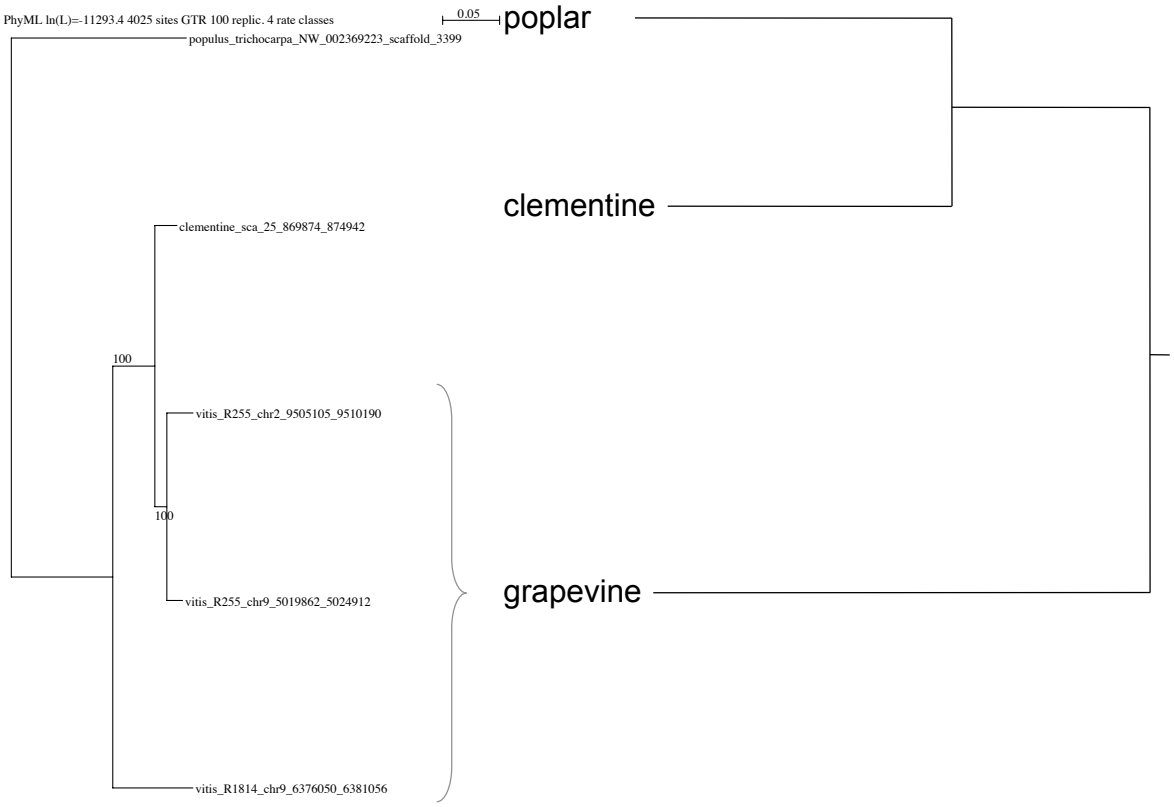


BO1 : clementine / grapevine

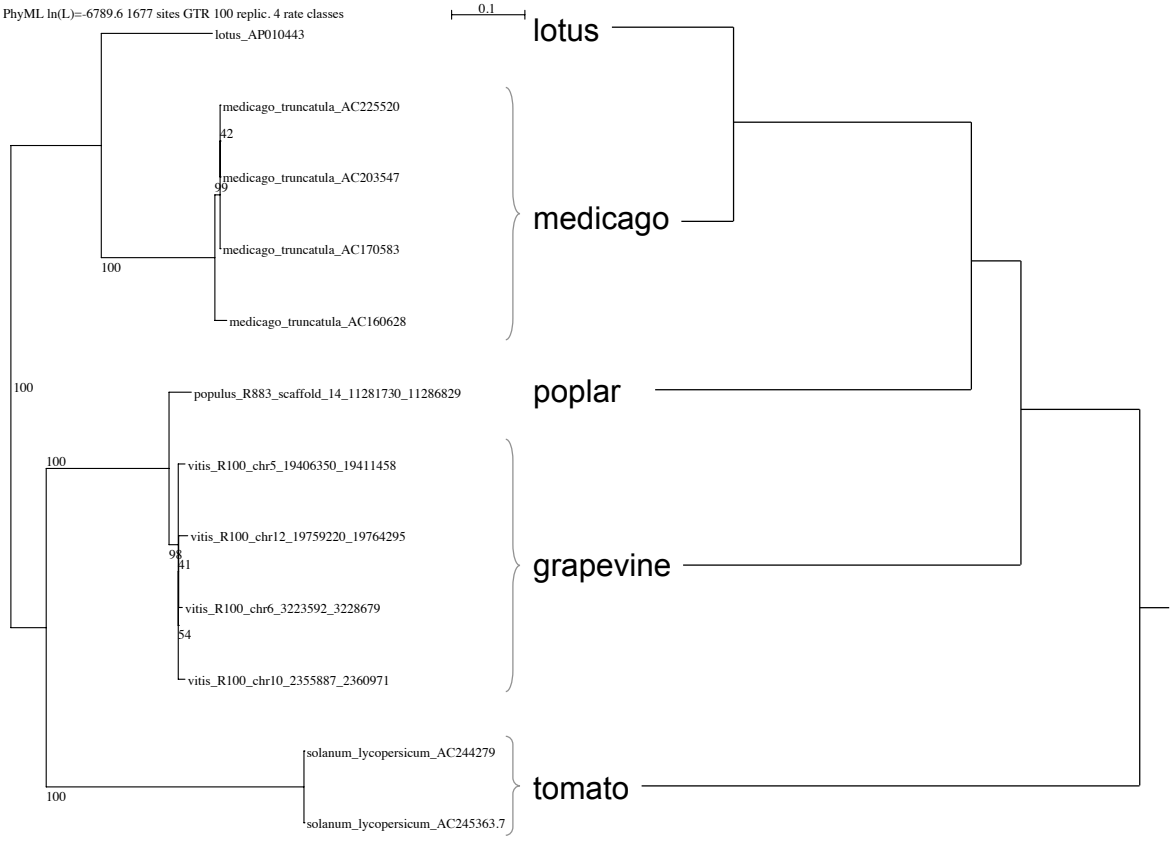


Supplemental Figure 1

BO2 : clementine / grapevine

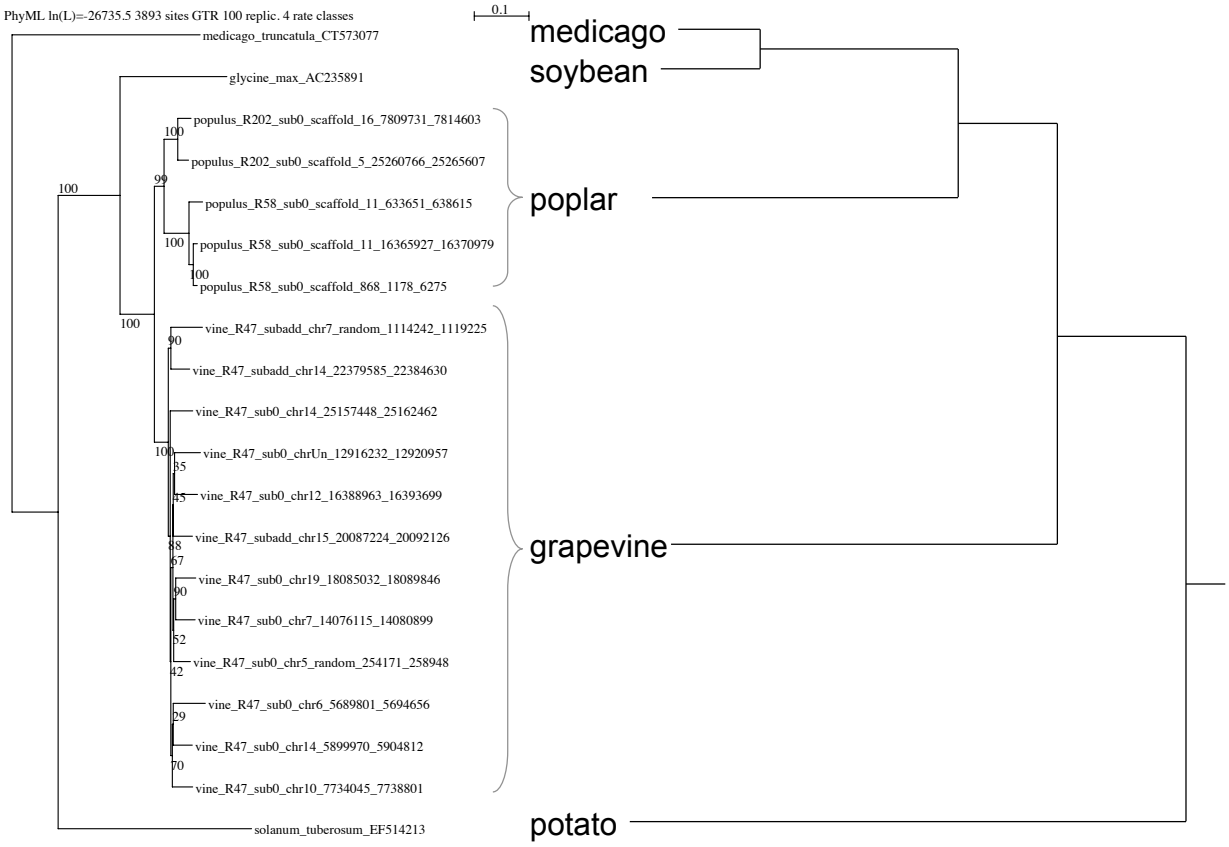


BO3 : poplar / grapevine

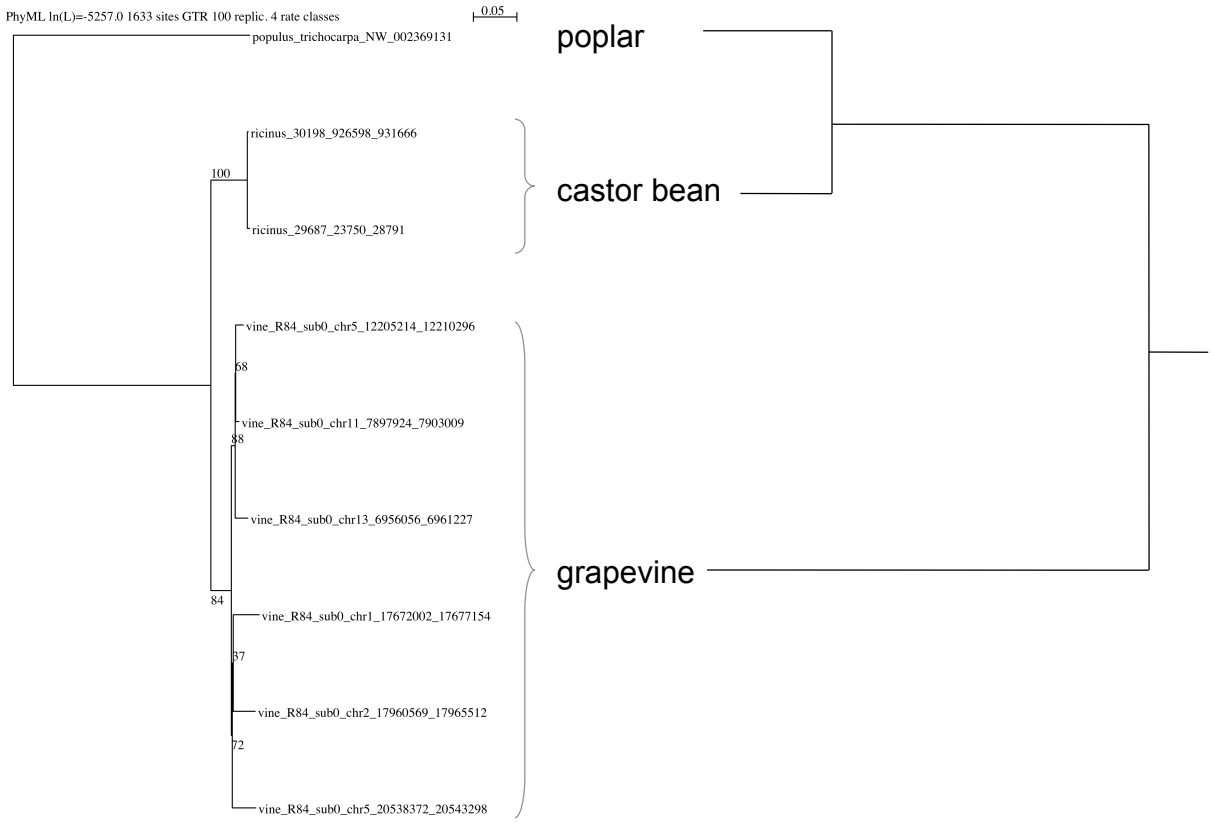


Supplemental Figure 1

BO4 : poplar / grapevine

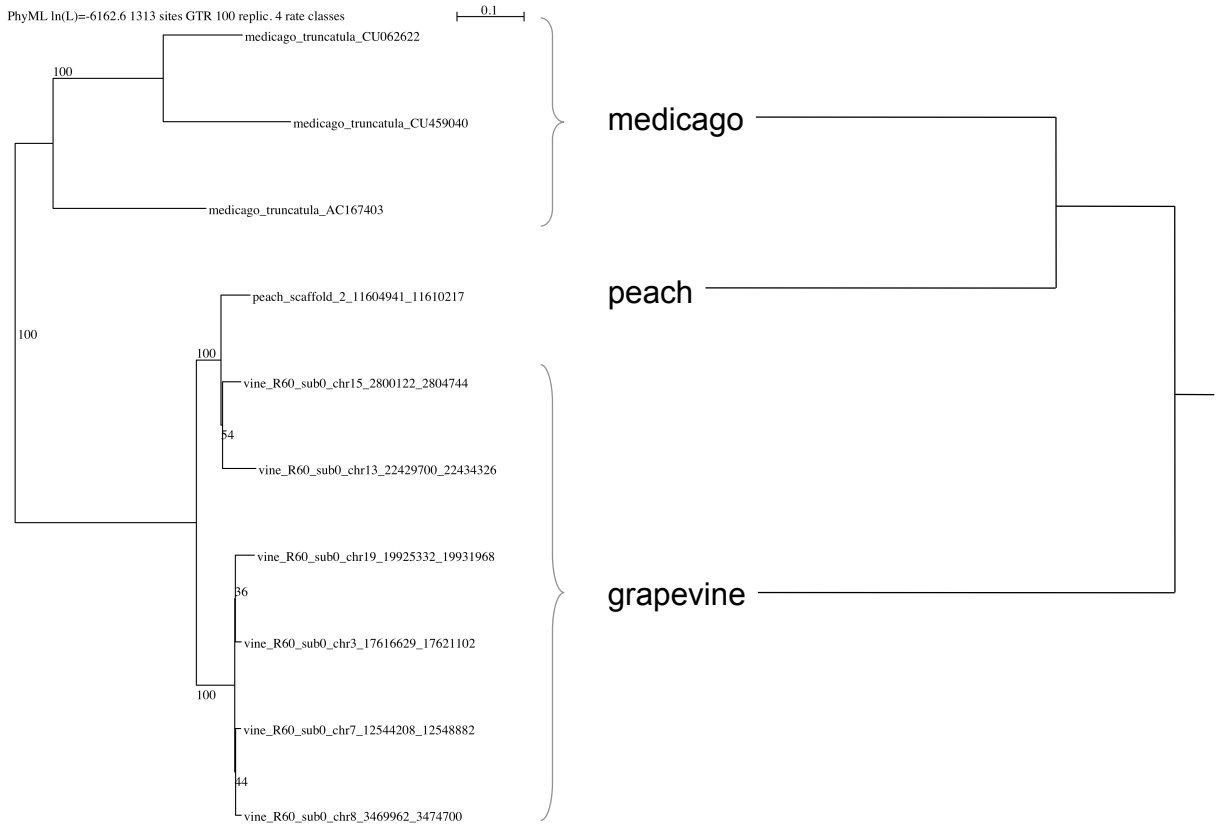


BO5 : castor bean / grapevine

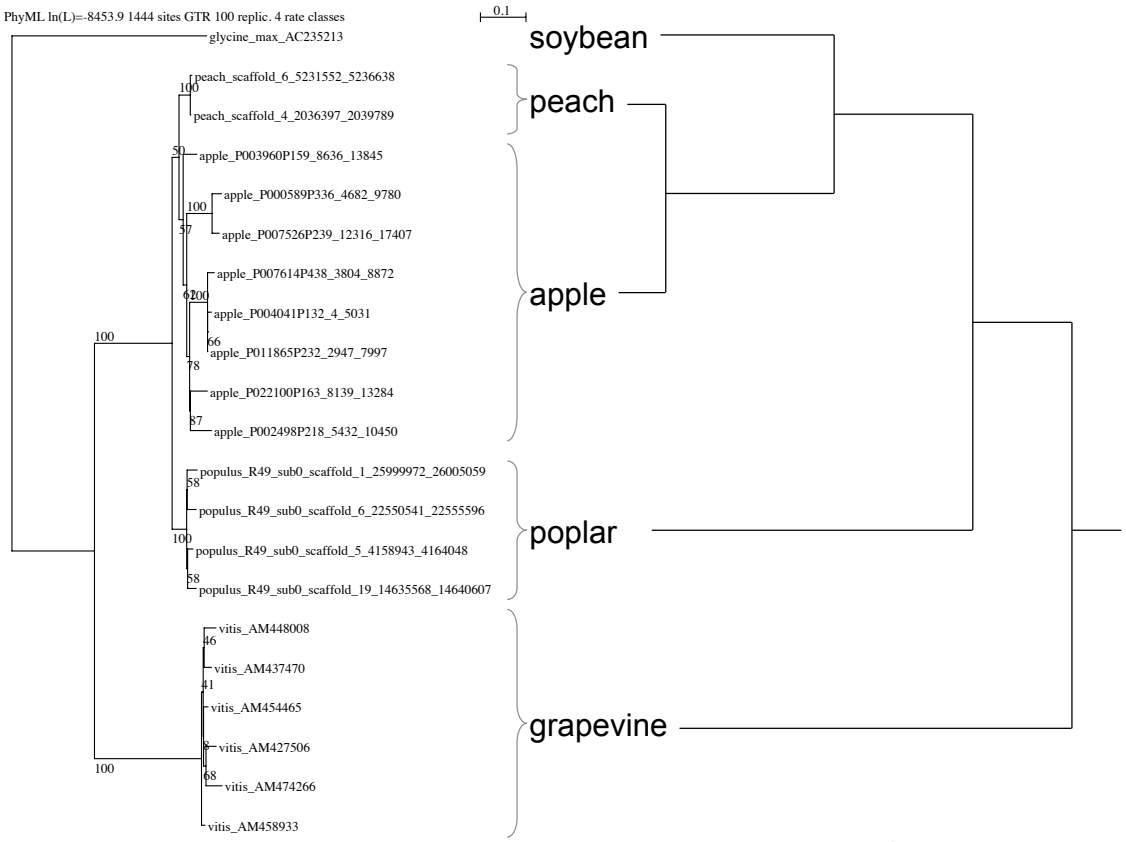


Supplemental Figure 1

BO6 : grapevine / peach

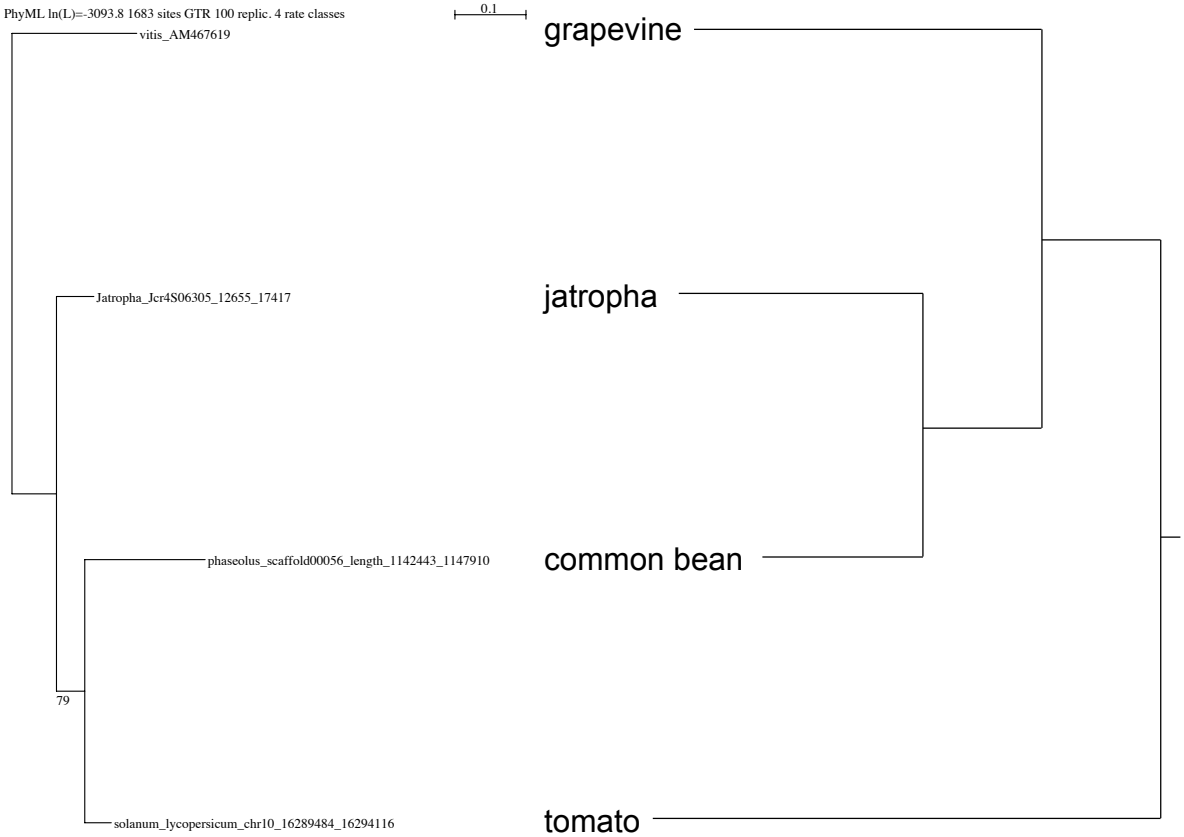


BO7 : peach / poplar

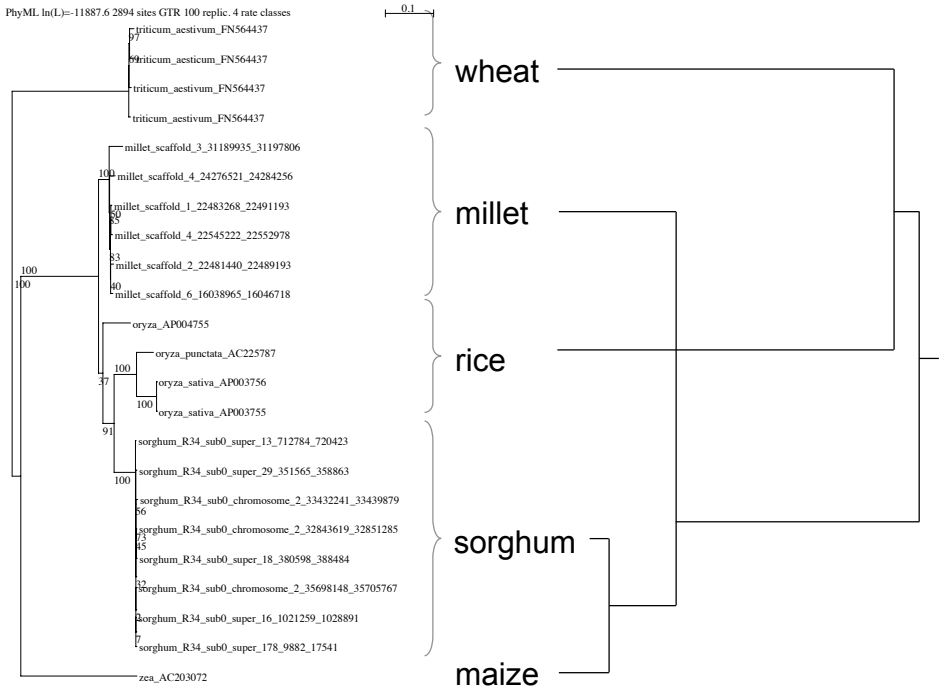


Supplemental Figure 1

BO8 : common bean / tomato

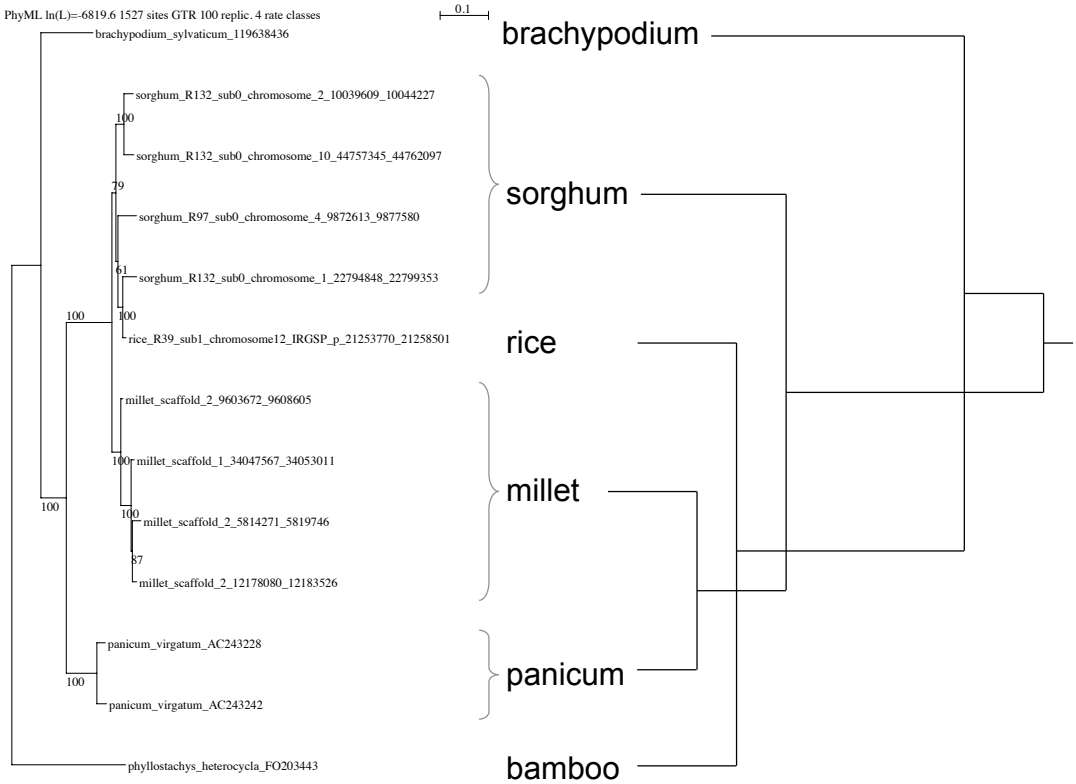


BG4 : millet / sorghum

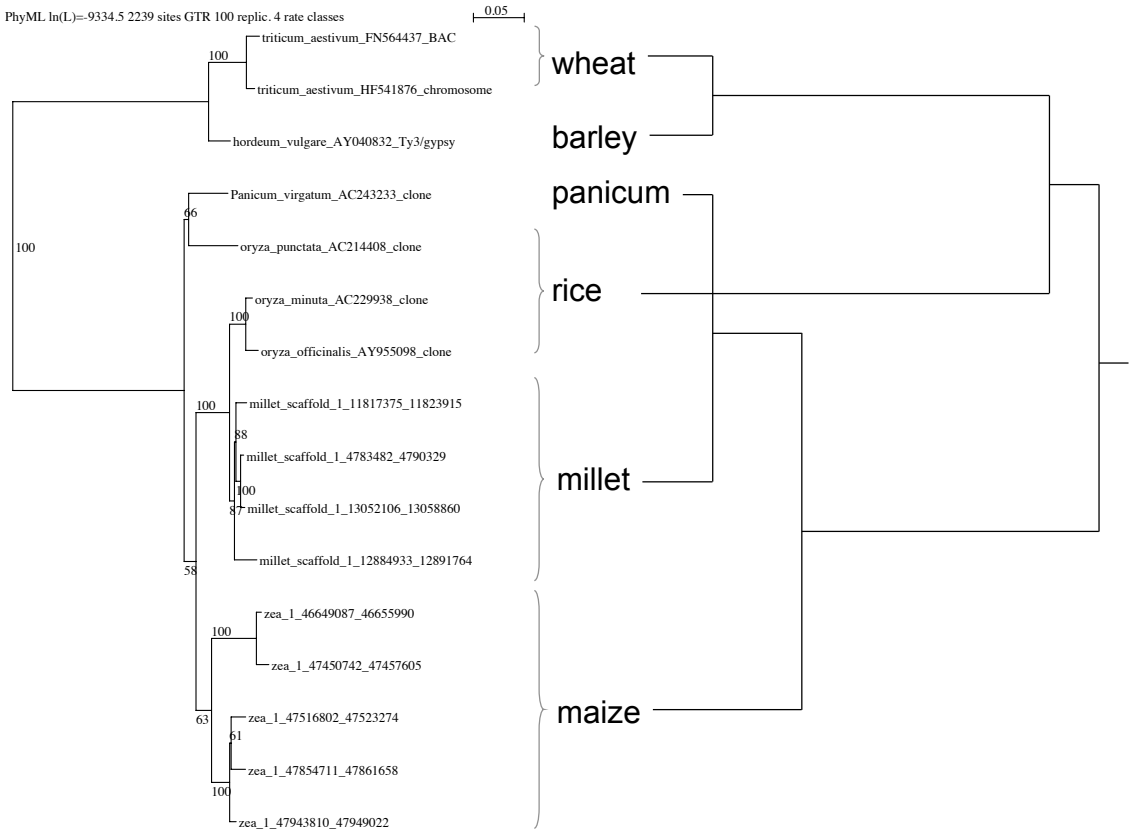


Supplemental Figure 1

BG8 : millet / sorghum / rice

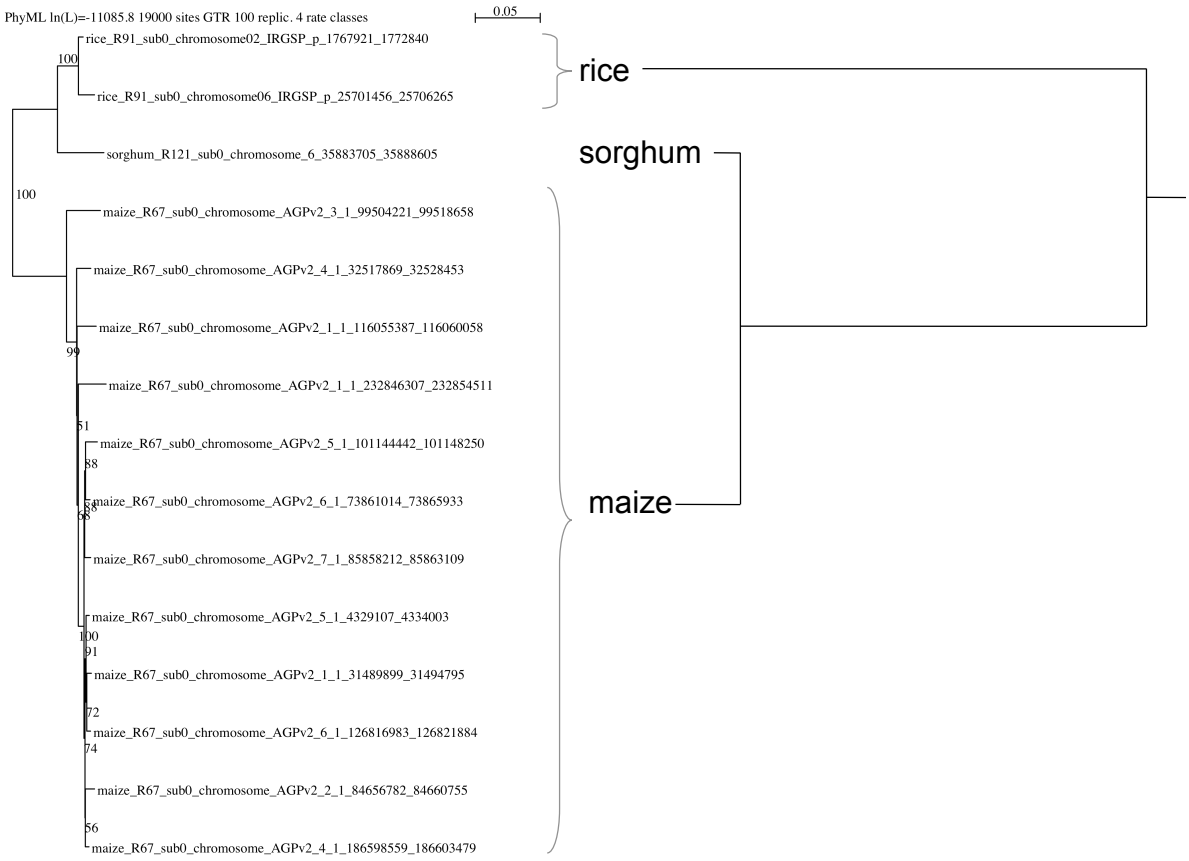


BG11 : millet / maize

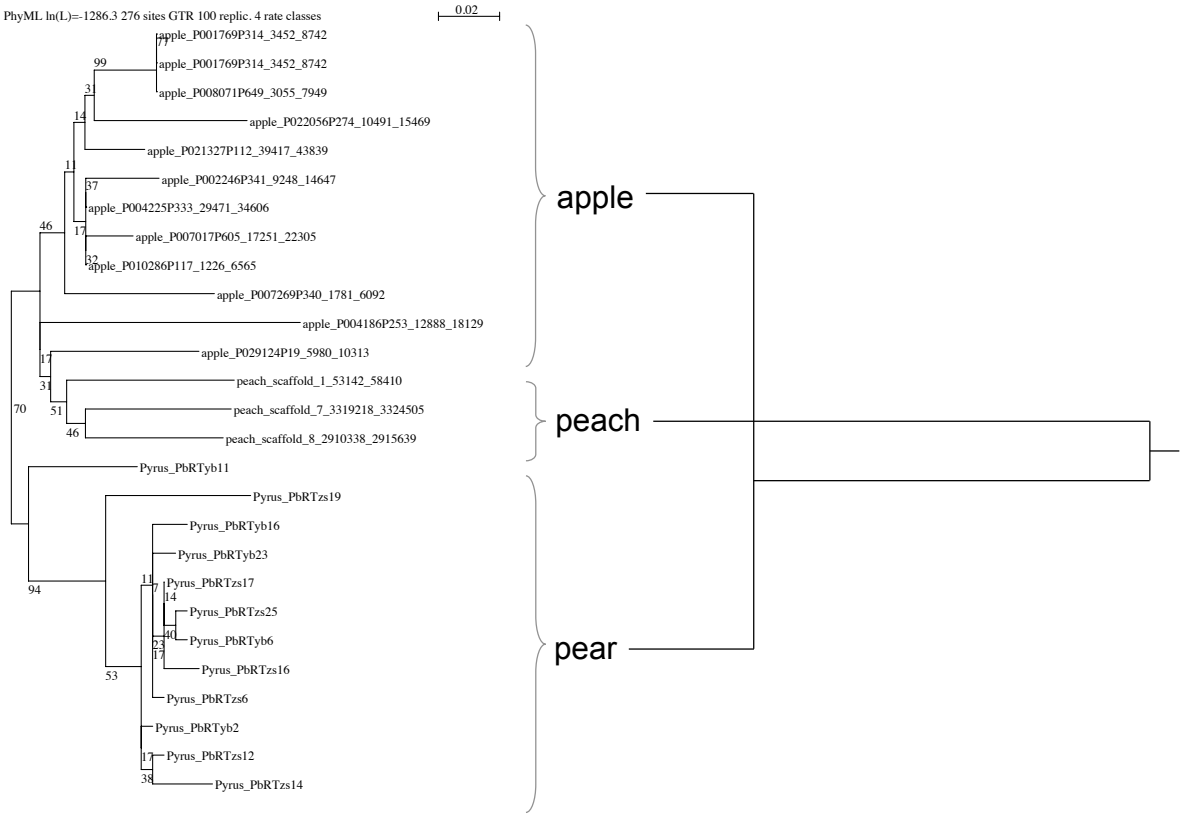


Supplemental Figure 1

BG12 : rice / sorghum / maize (*Route66*)

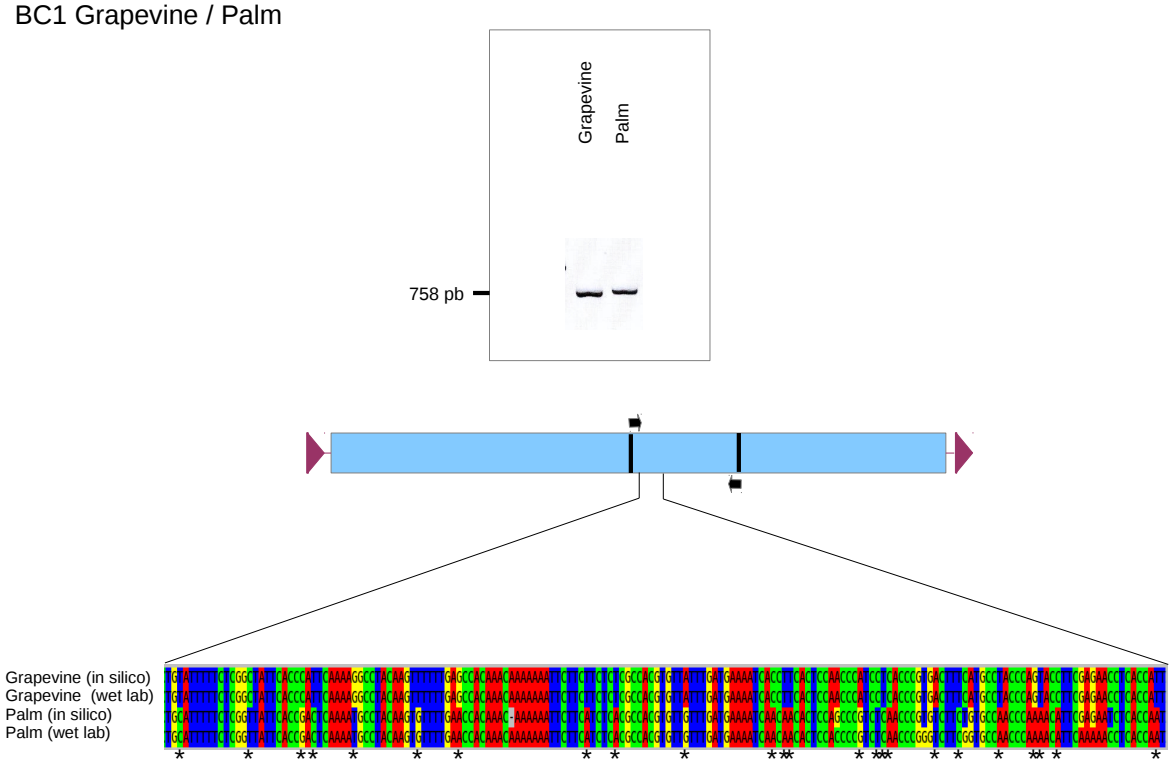


BG19 : apple / peach

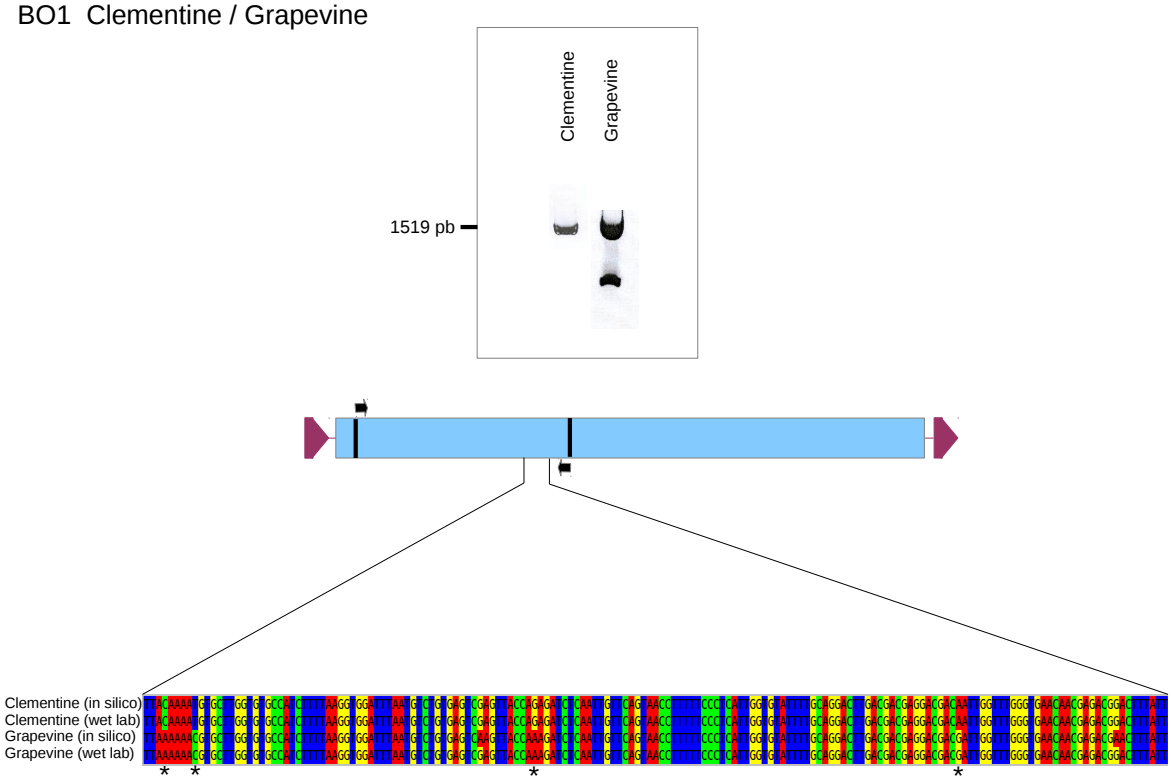


Supplemental Figure 1

BC1 Grapevine / Palm

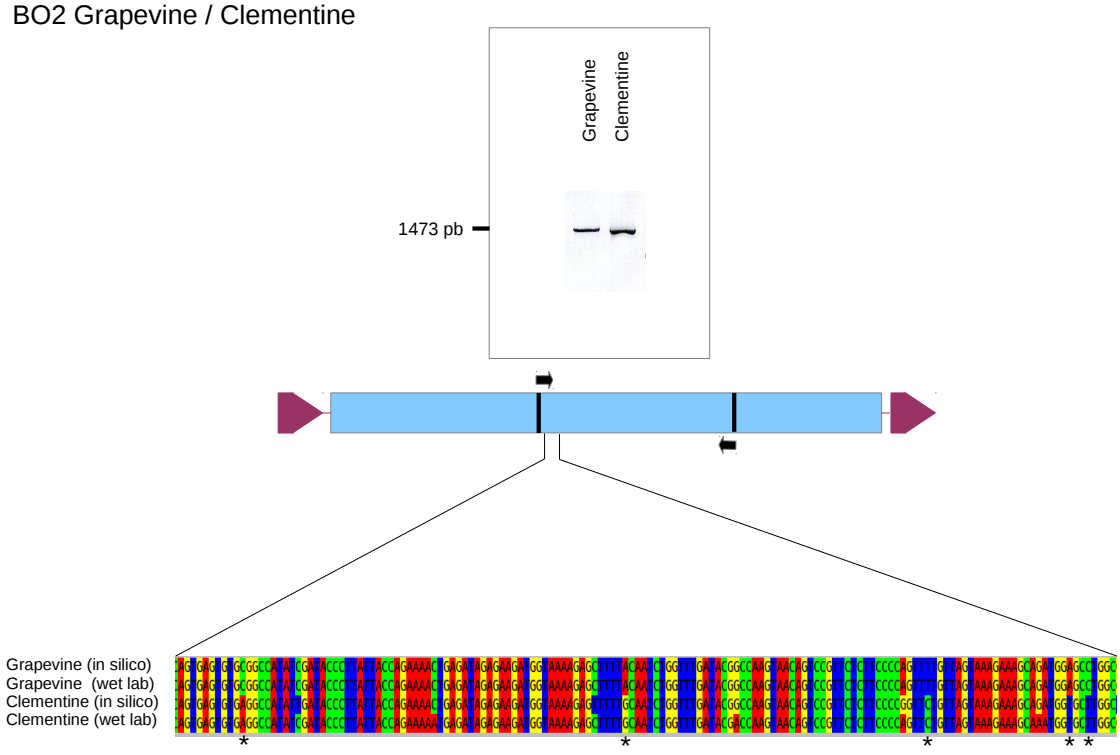


BO1 Clementine / Grapevine

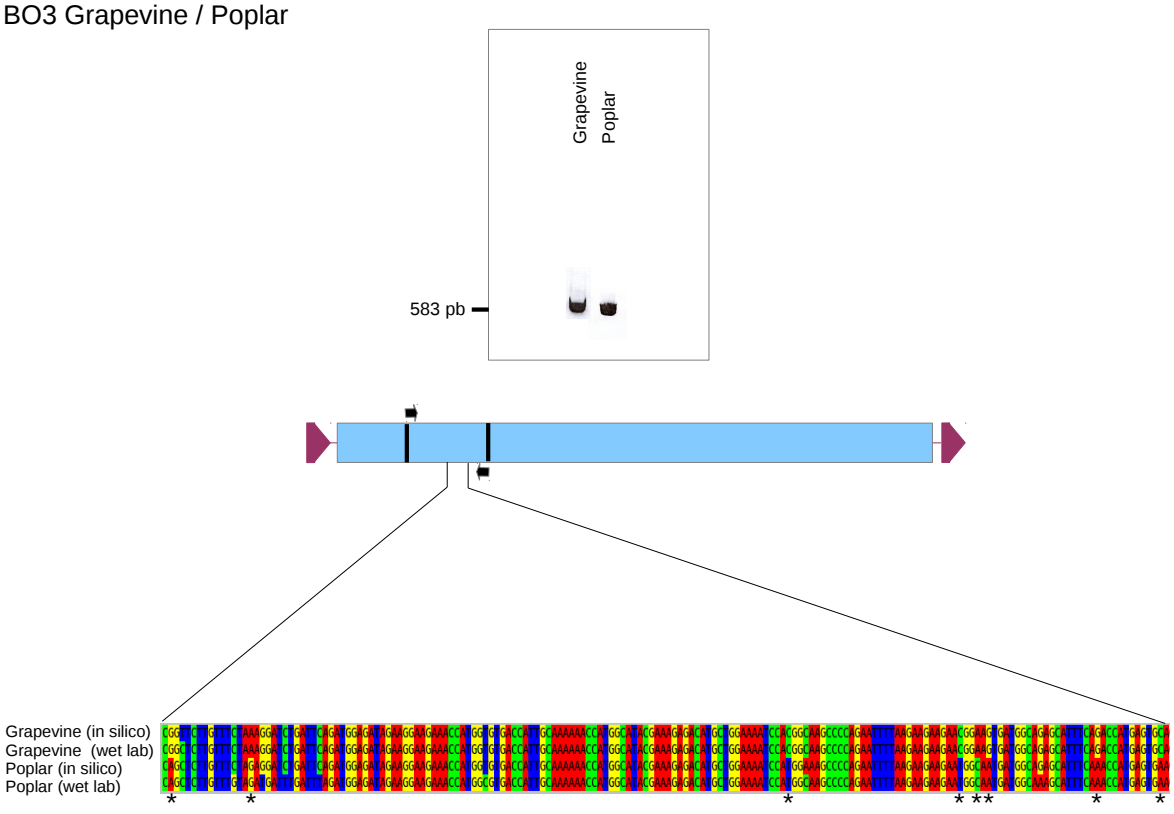


Supplemental Figure 2

BO2 Grapevine / Clementine

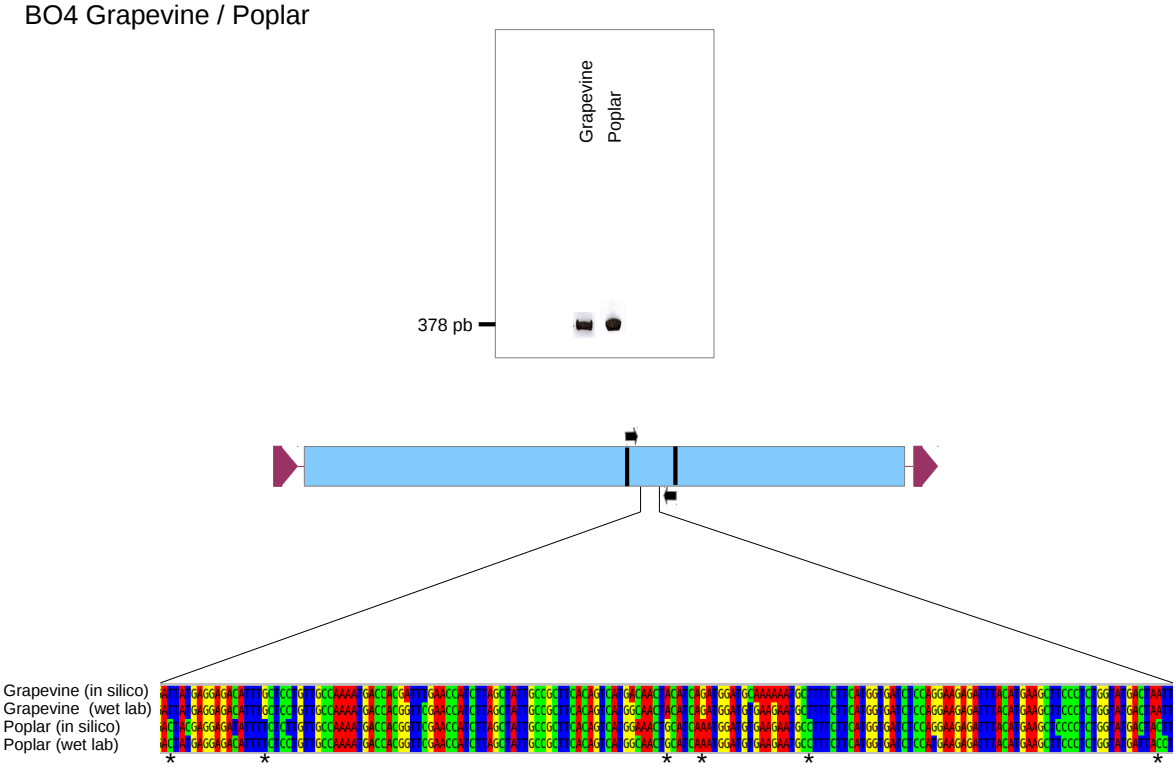


BO3 Grapevine / Poplar

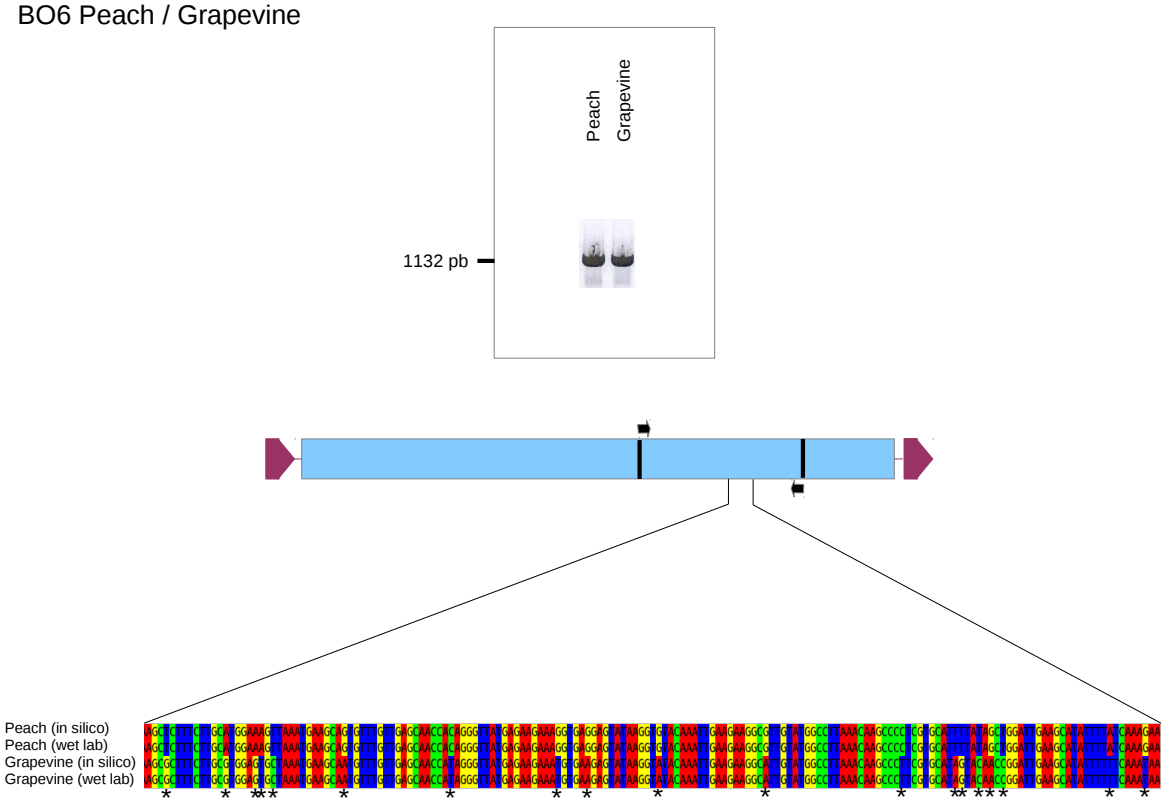


Supplemental Figure 2

BO4 Grapevine / Poplar

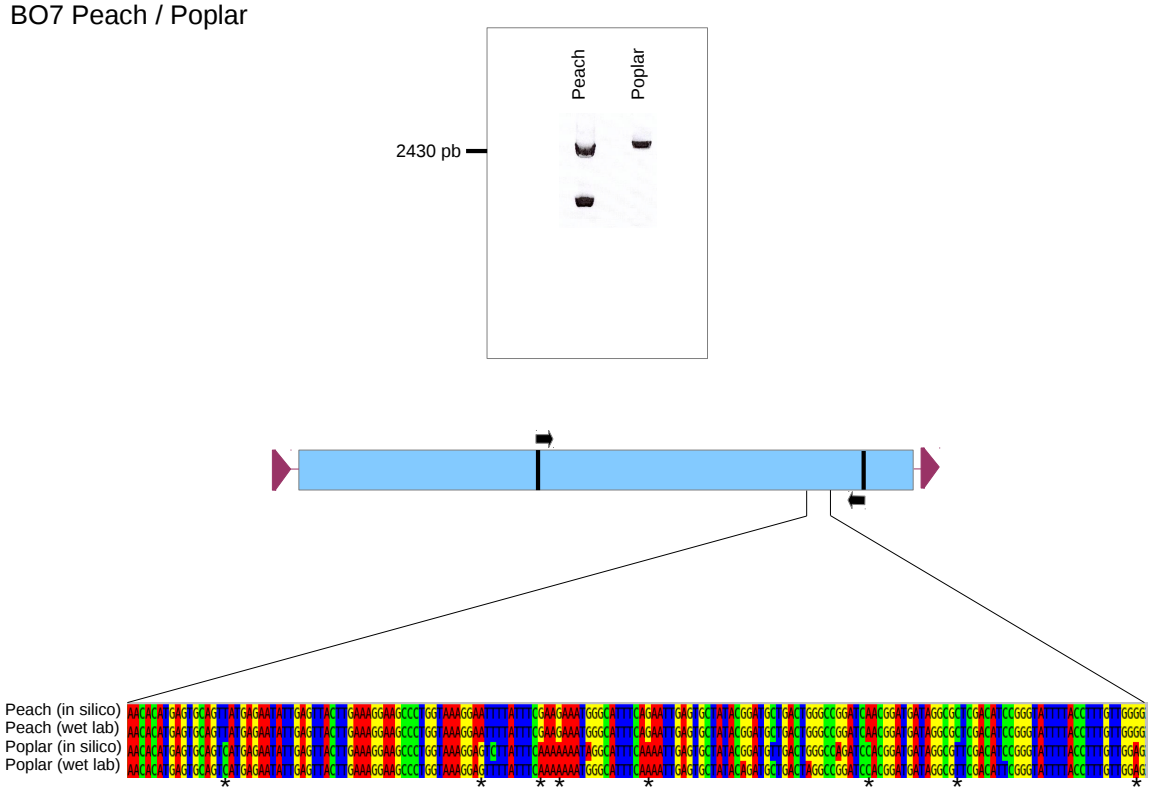


BO6 Peach / Grapevine

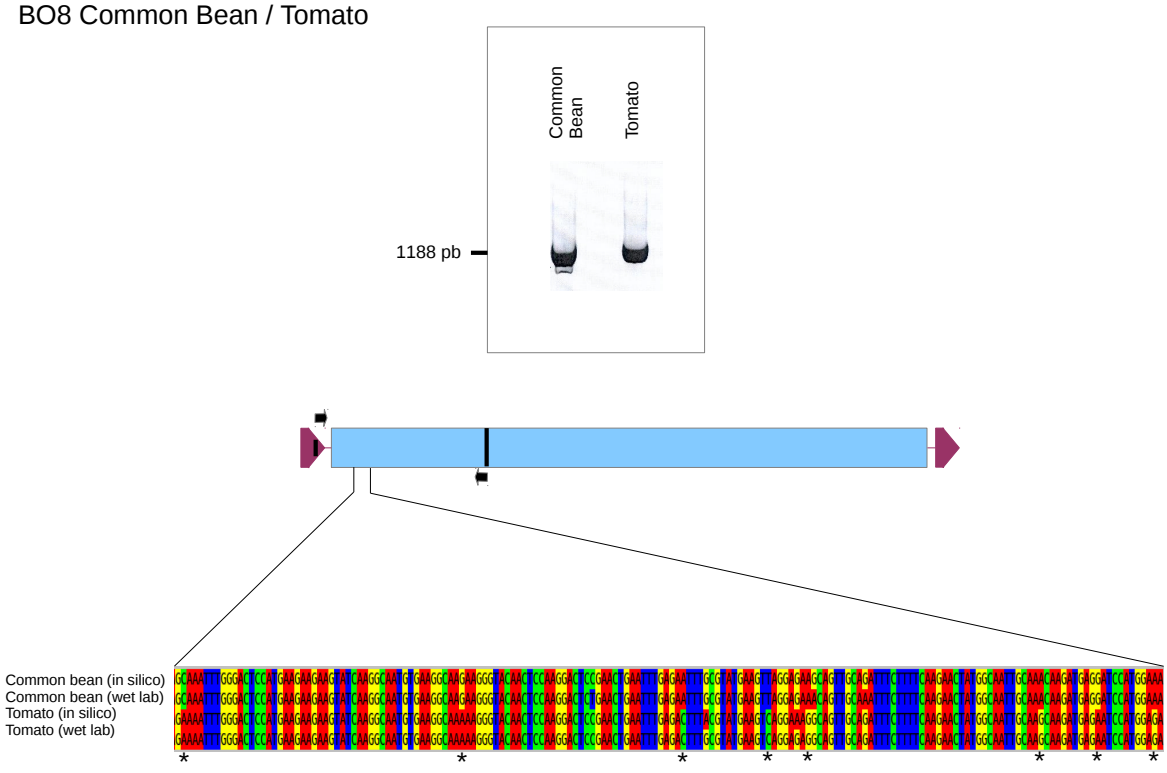


Supplemental Figure 2

BO7 Peach / Poplar

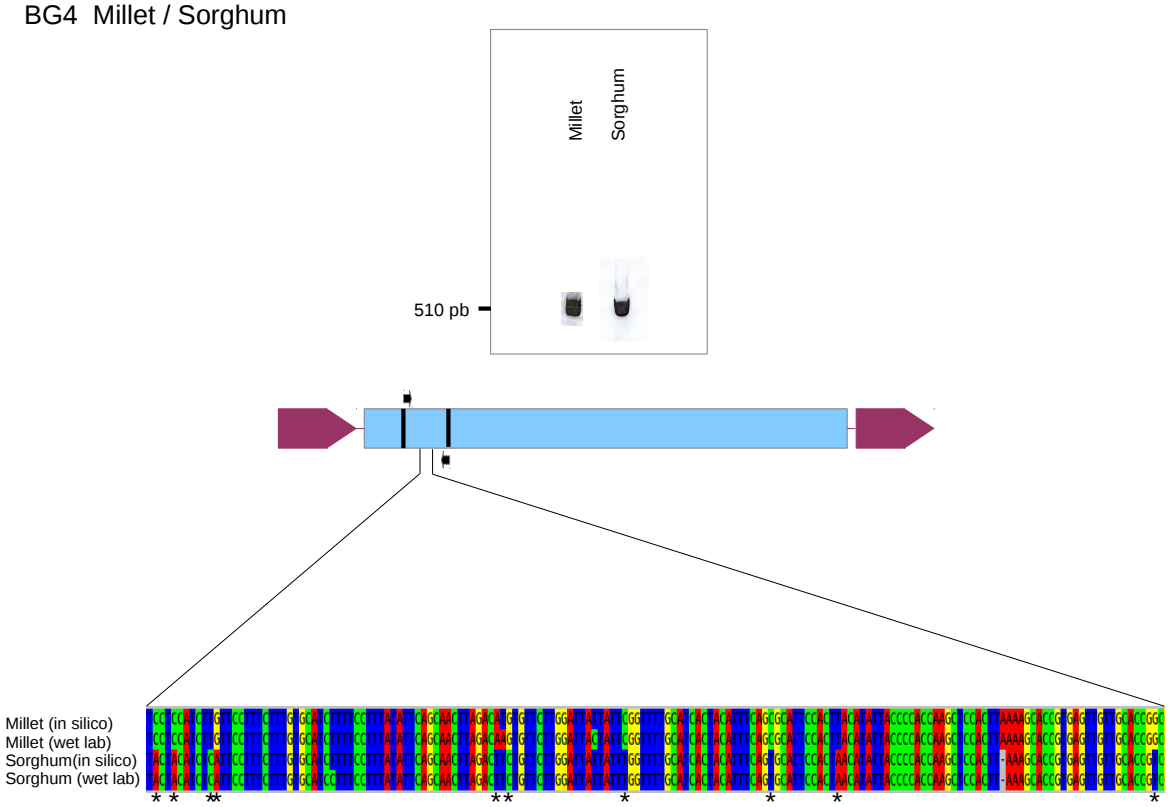


BO8 Common Bean / Tomato

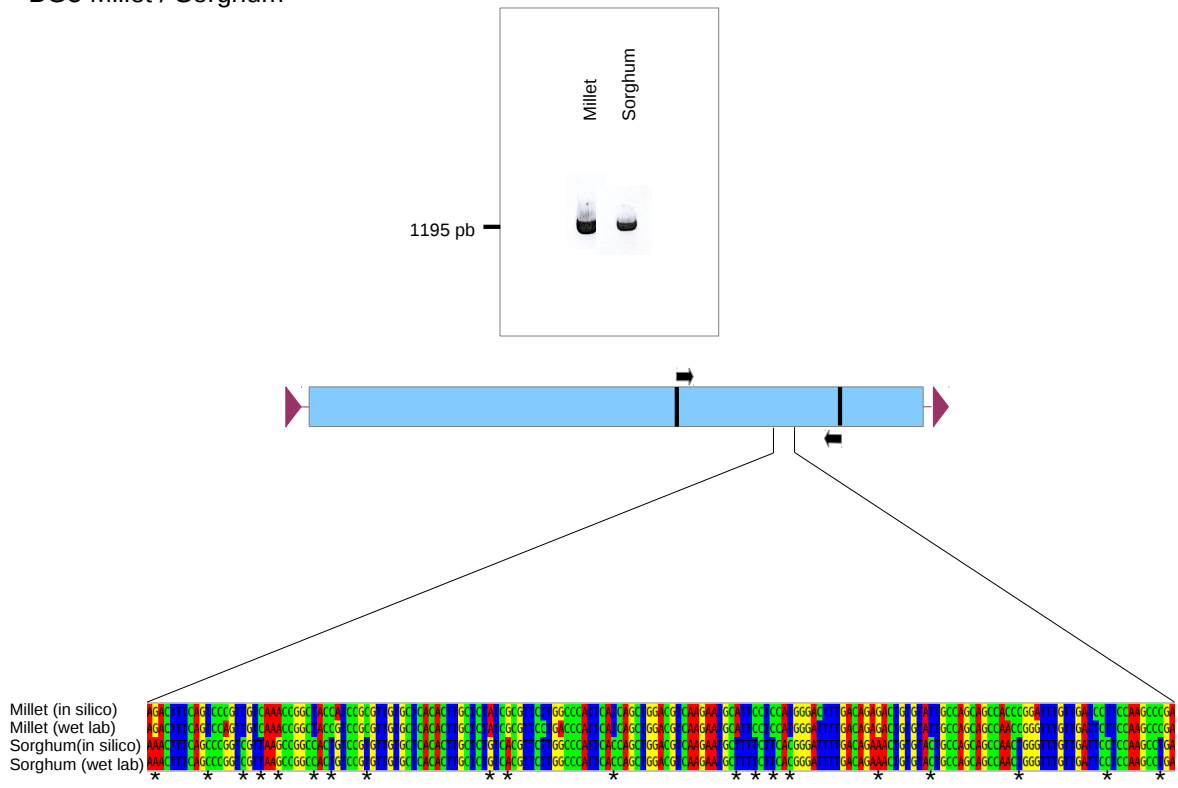


Supplemental Figure 2

BG4 Millet / Sorghum

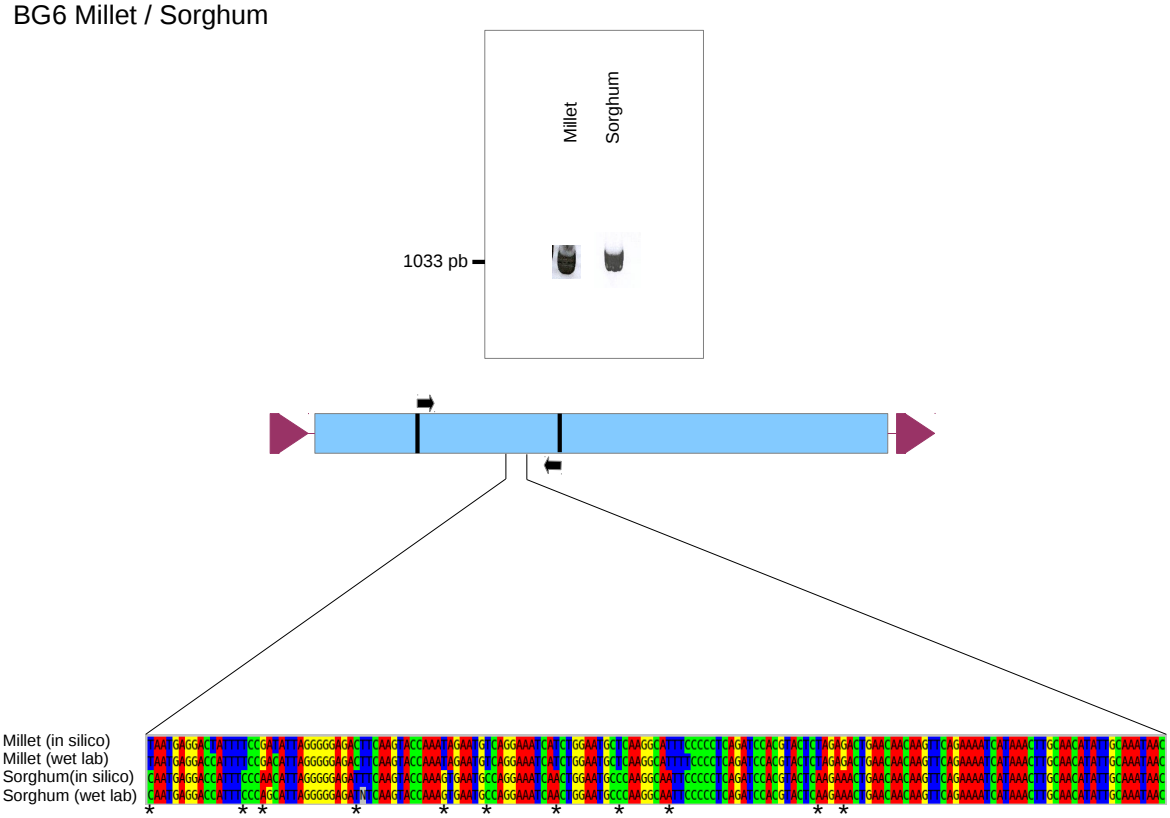


BG5 Millet / Sorghum

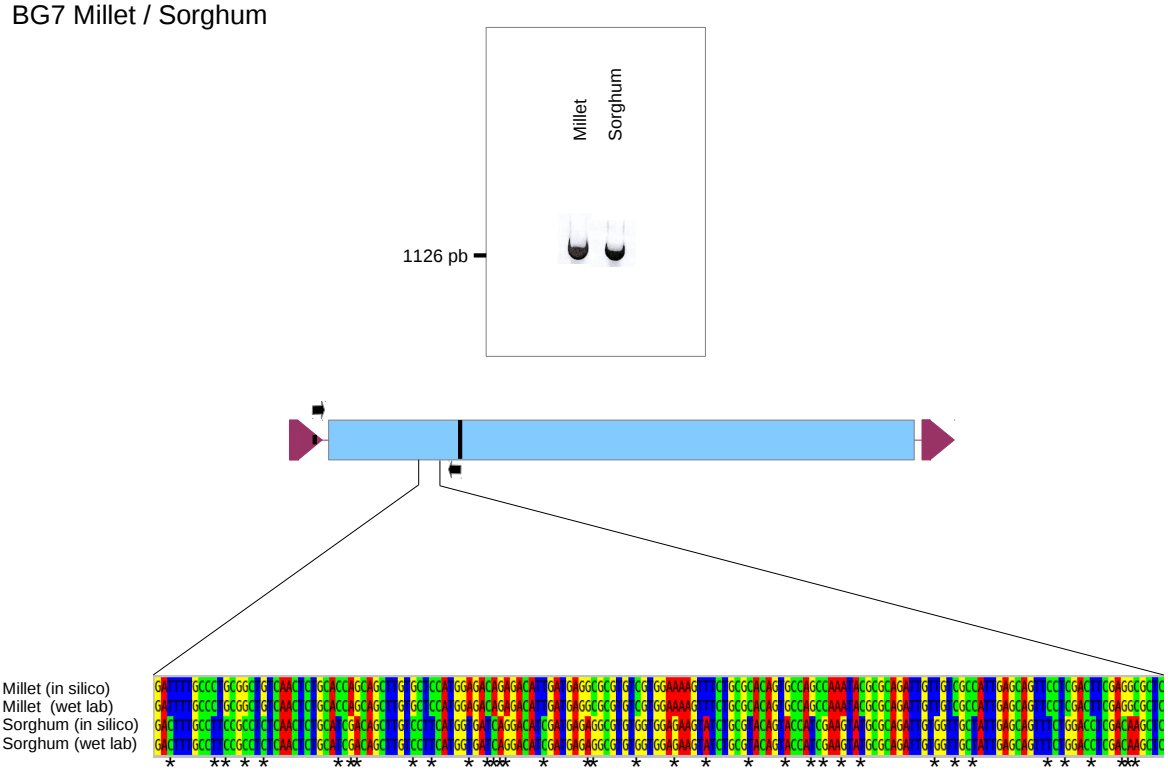


Supplemental Figure 2

BG6 Millet / Sorghum

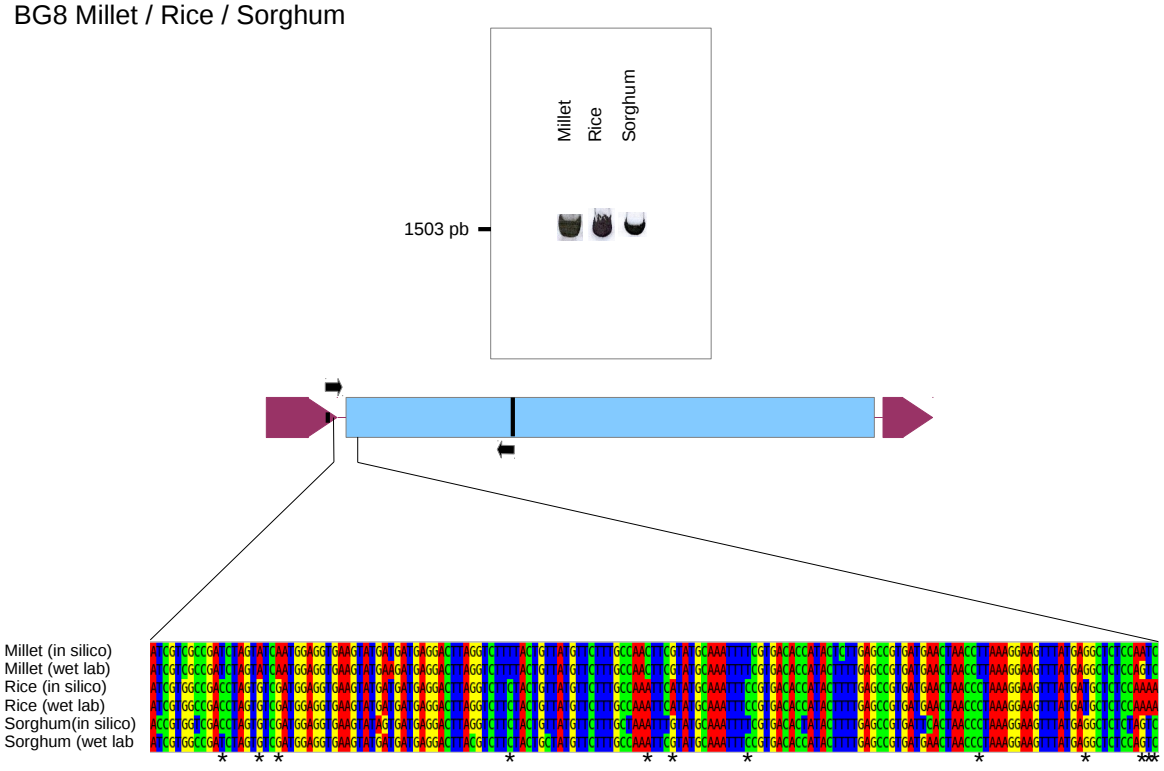


BG7 Millet / Sorghum

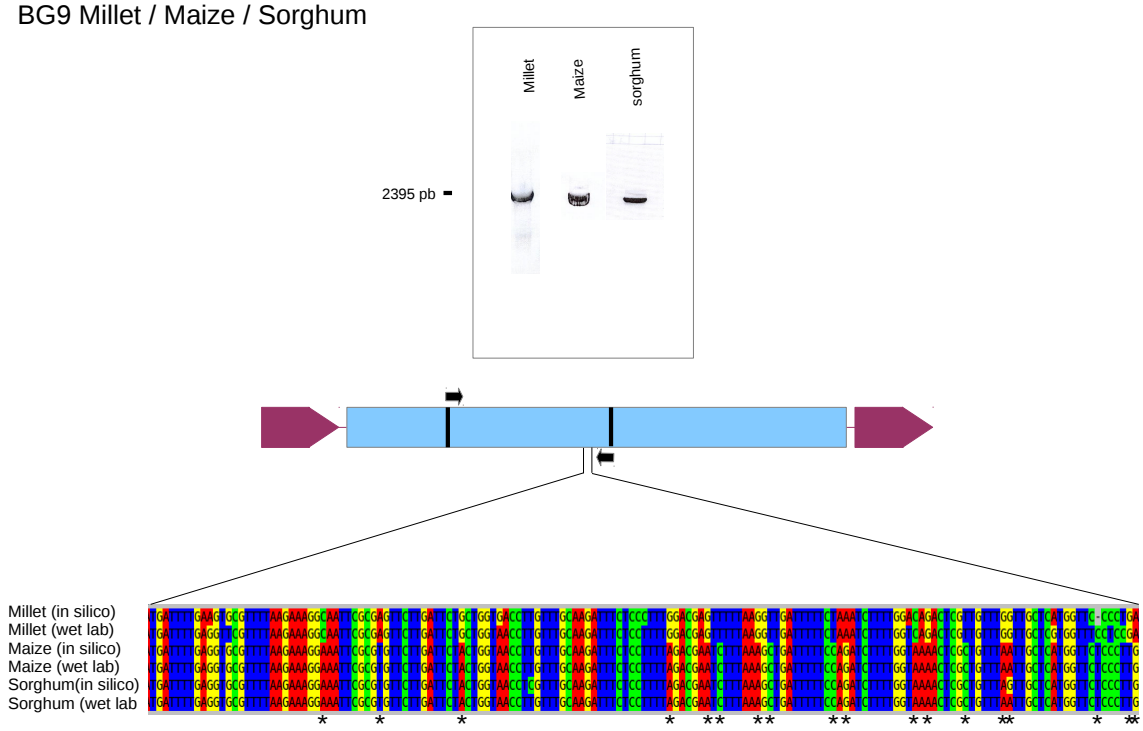


Supplemental Figure 2

BG8 Millet / Rice / Sorghum

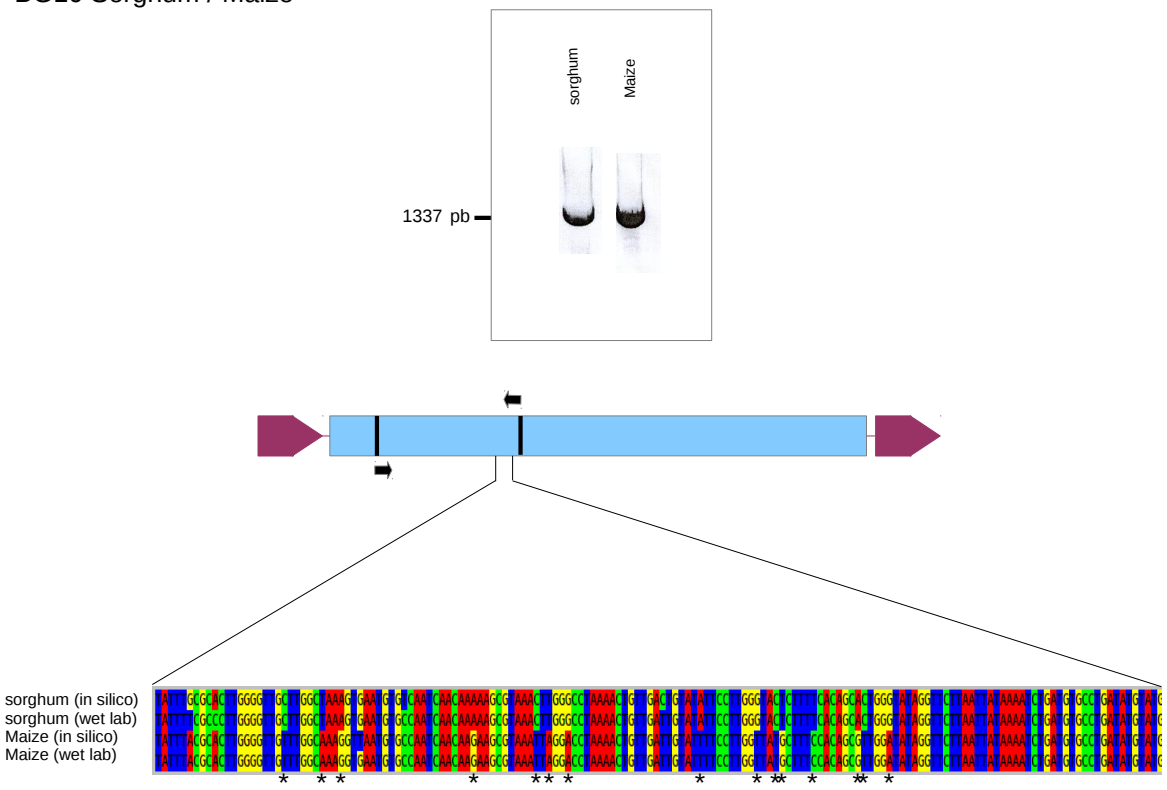


BG9 Millet / Maize / Sorghum

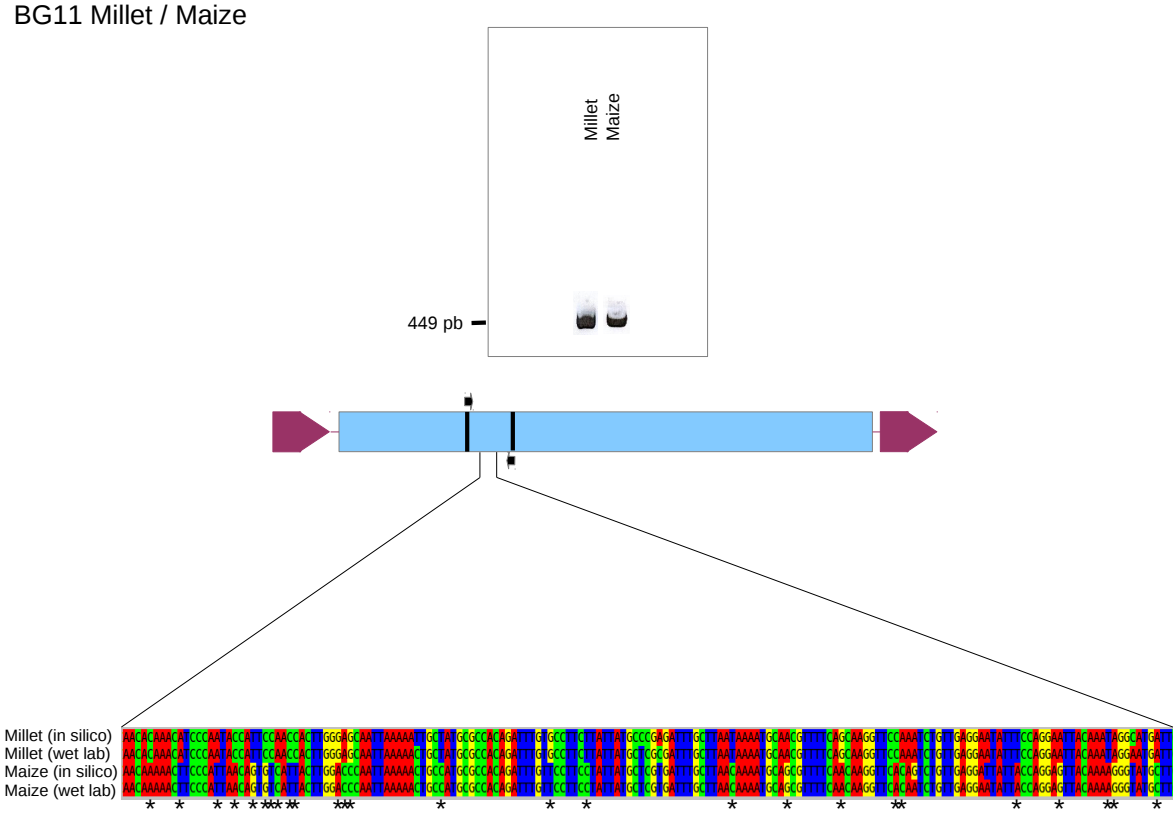


Supplemental Figure 2

BG10 Sorghum / Maize

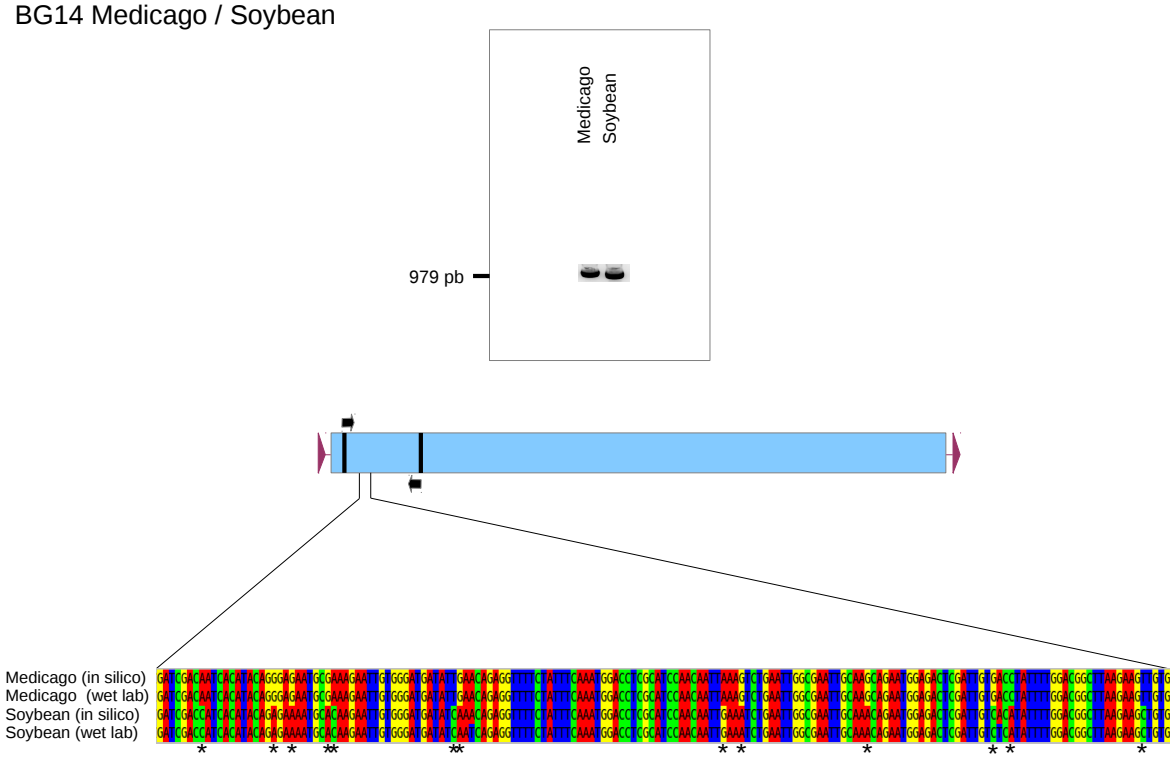


BG11 Millet / Maize

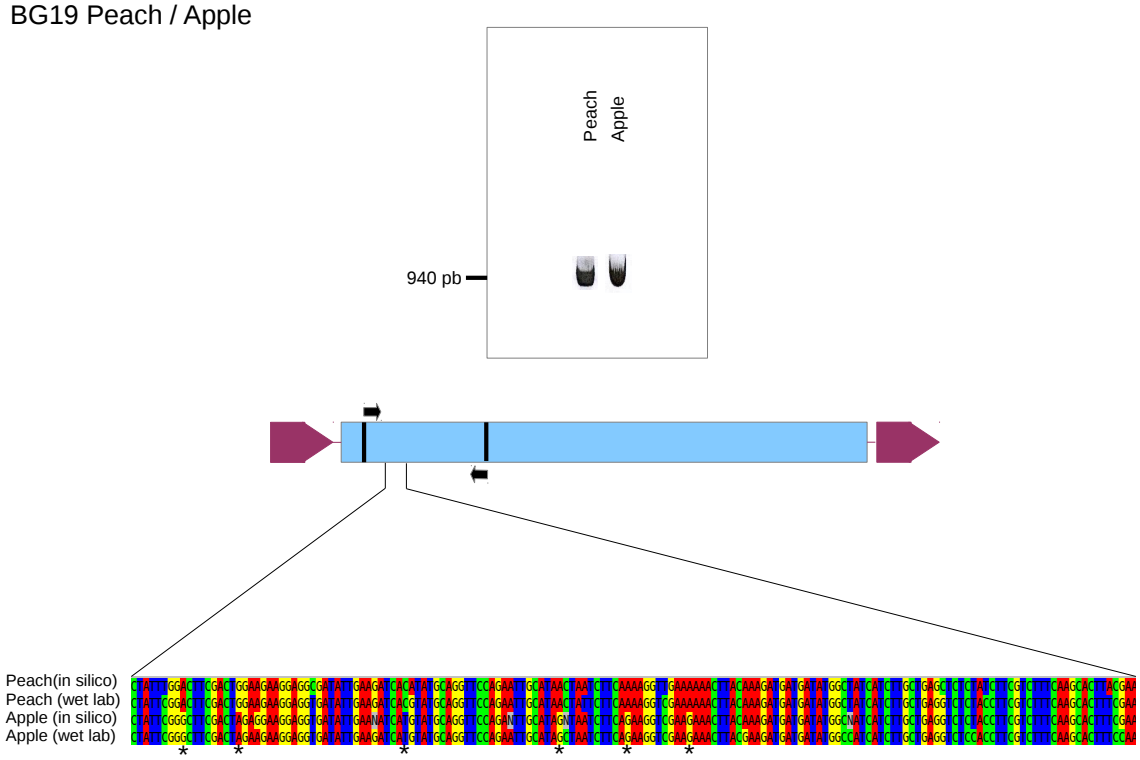


Supplemental Figure 2

BG14 Medicago / Soybean

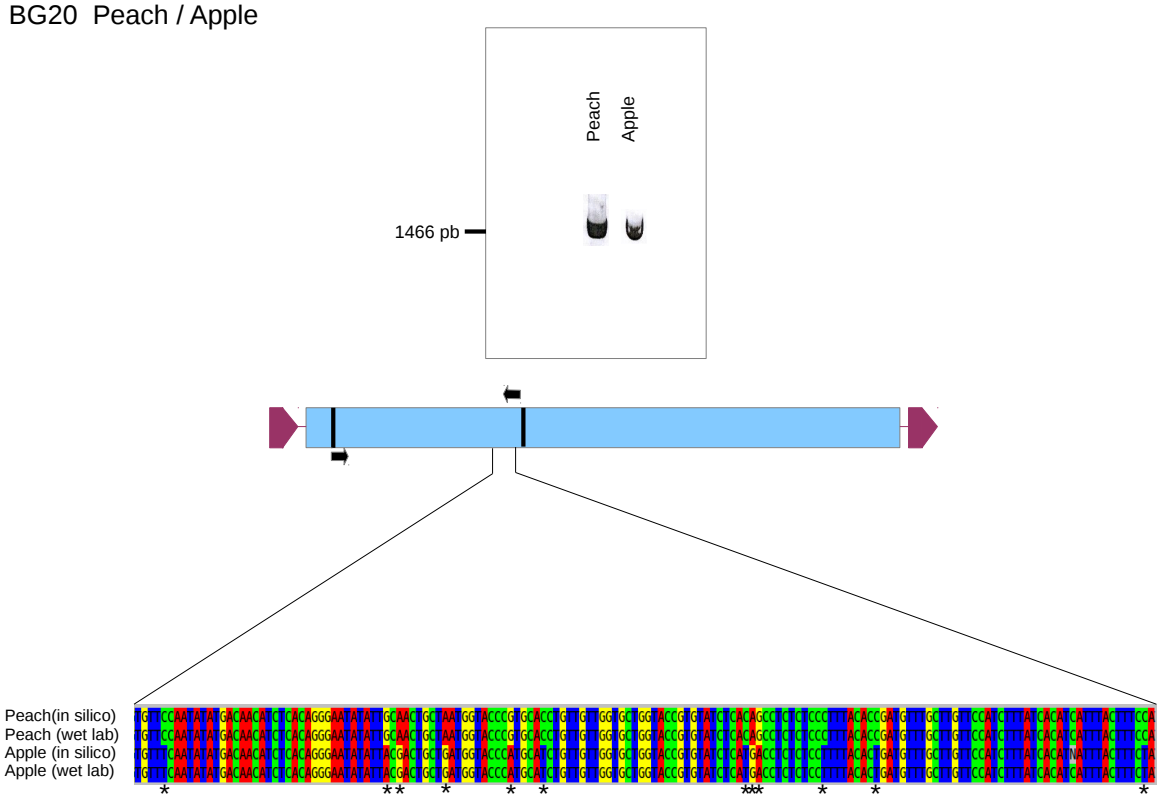


BG19 Peach / Apple

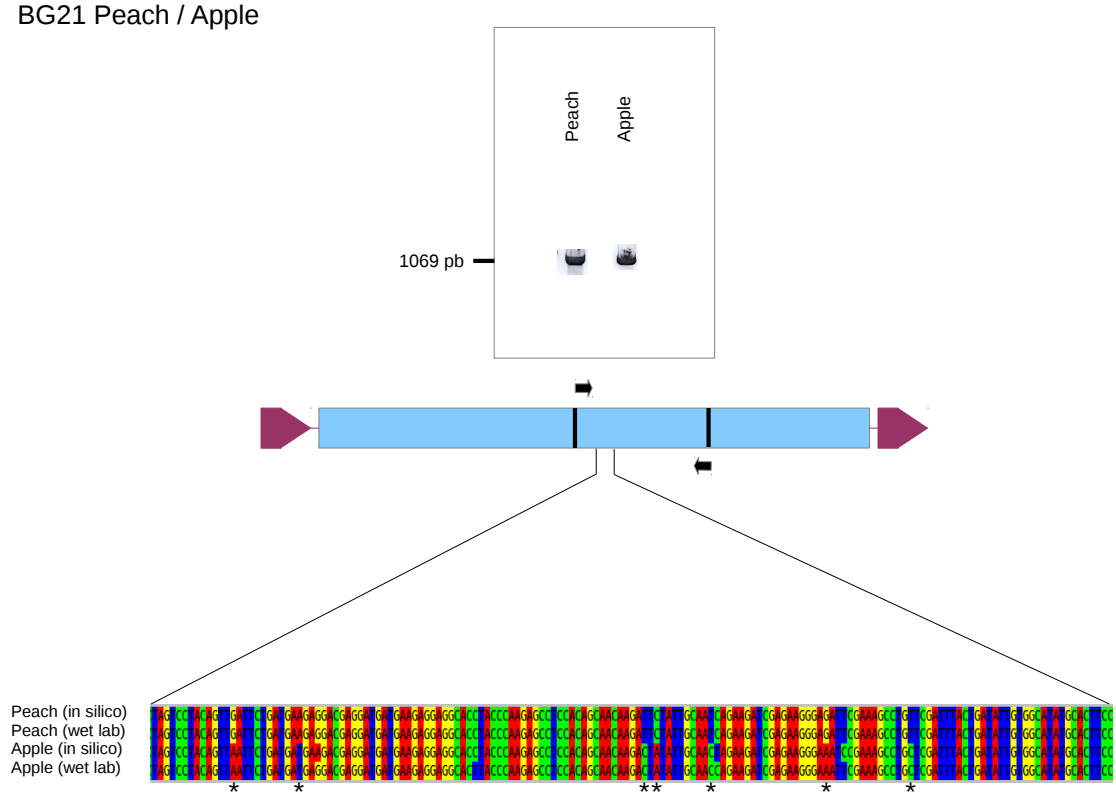


Supplemental Figure 2

BG20 Peach / Apple

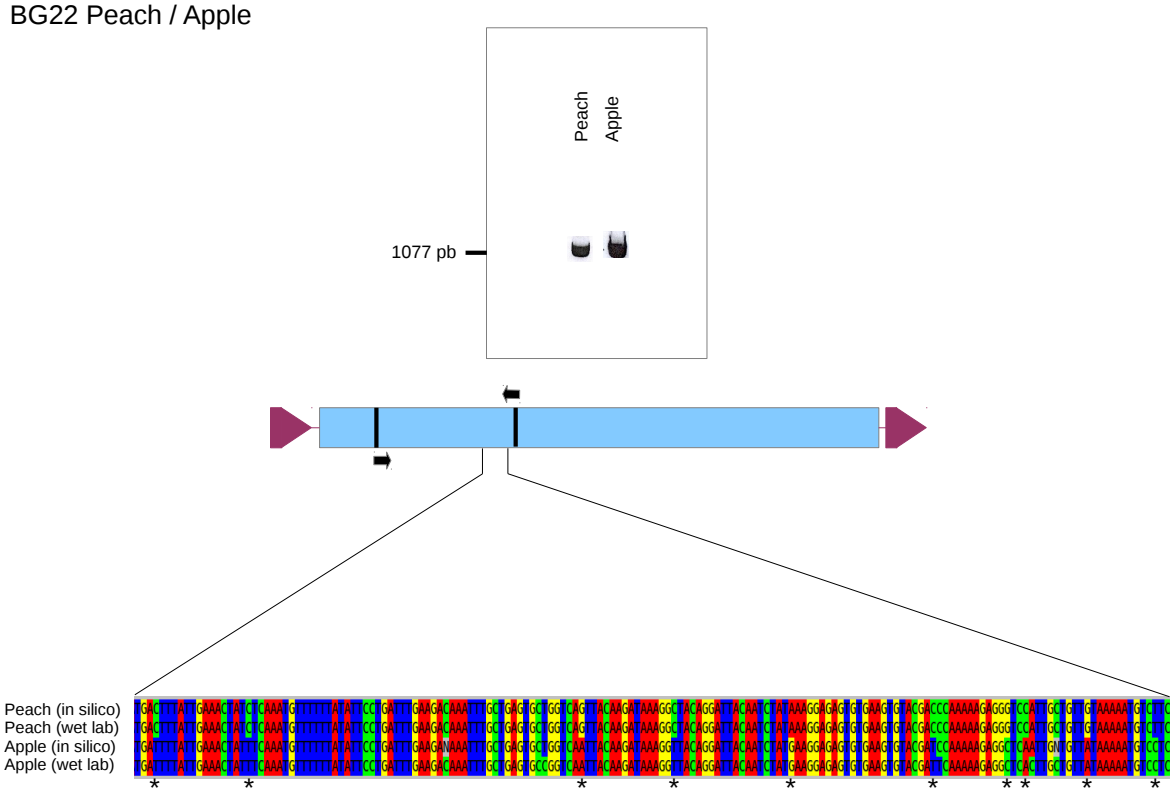


BG21 Peach / Apple

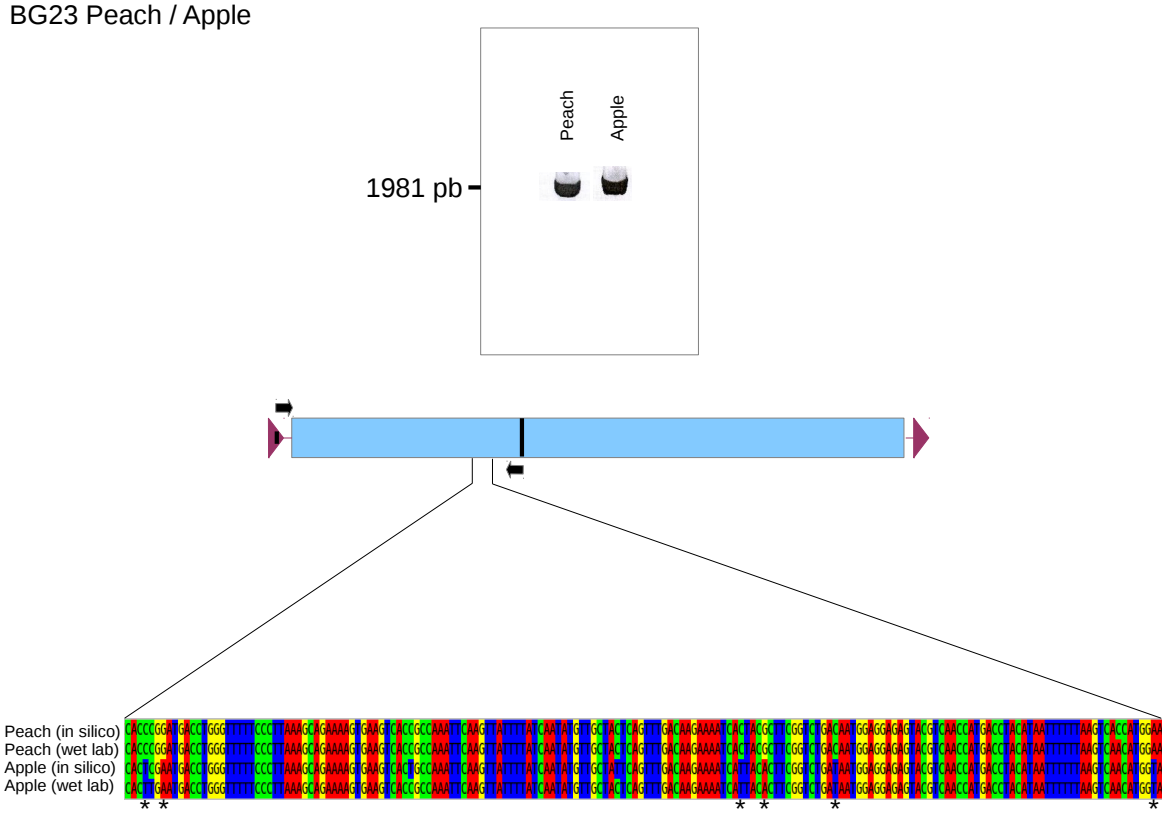


Supplemental Figure 2

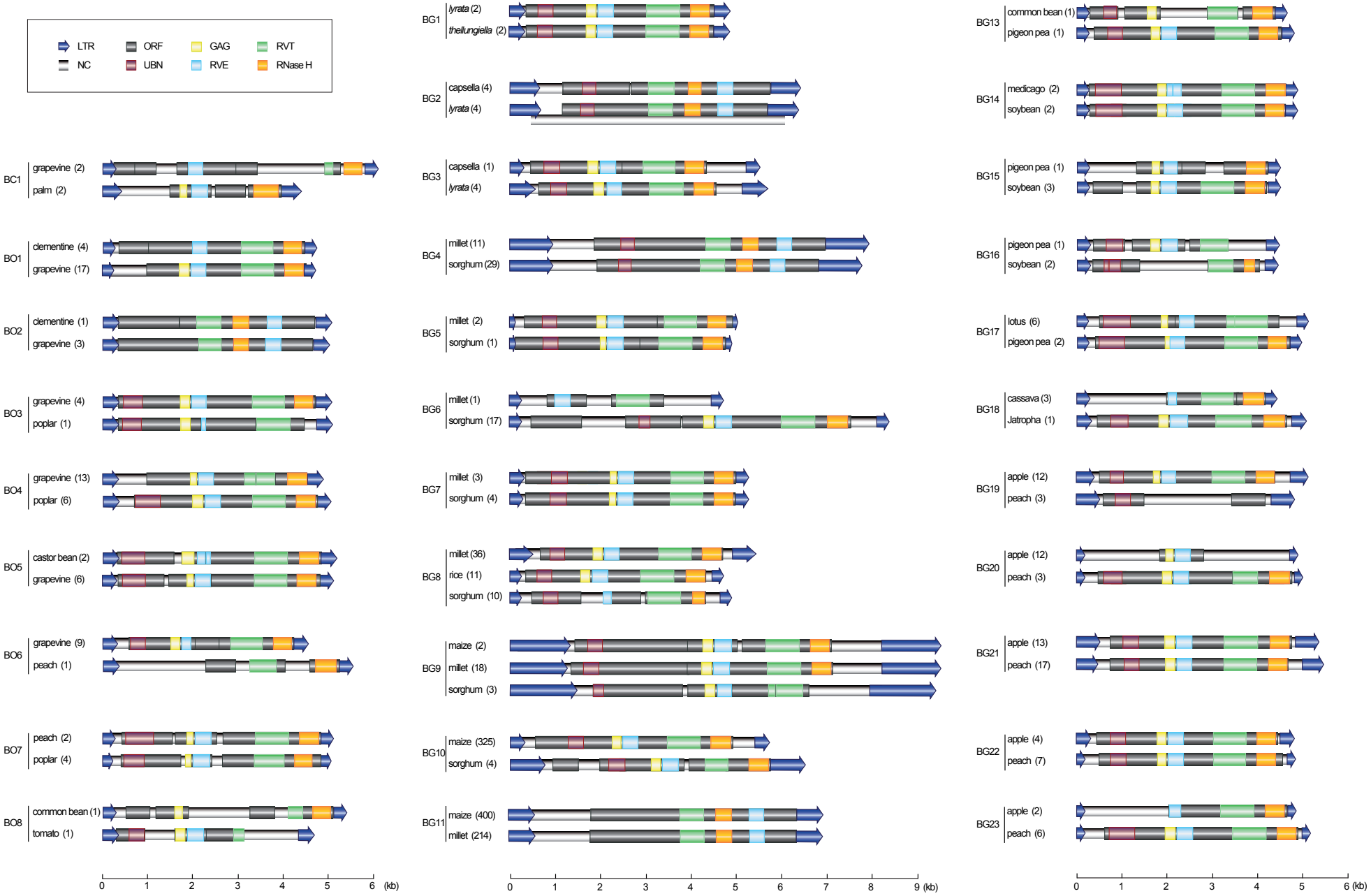
BG22 Peach / Apple



BG23 Peach / Apple



Supplemental Figure 2



Supplemental Figure 3

Supplemental Table 1. List of the 40 species used in our comparative genomics survey.

Species	Monocot/Dicot	URL Link
Manihot esculenta	Eudicot	http://www.phytozome.net
Ricinus communis	Eudicot	http://www.phytozome.net
Jatropha curcas	Eudicot	http://www.kazusa.or.jp/jatropha/
Linum usitatissimum	Eudicot	http://www.phytozome.net
Populus trichocarpa	Eudicot	http://www.phytozome.net
Medicago truncatula	Eudicot	http://www.phytozome.net
Lotus japonicus	Eudicot	http://www.kazusa.or.jp/lotus/
Phaseolus vulgaris	Eudicot	http://www.phytozome.net
Glycine max	Eudicot	http://www.phytozome.net
Cajanus cajan	Eudicot	http://www.icrisat.org/gt-bt/iipg/Genome_Sequencing.html
Cucumis sativus	Eudicot	http://www.phytozome.net
Cucumis melo	Eudicot	http://melonomics.net/
Prunus persica	Eudicot	http://www.phytozome.net
Malus x domestica	Eudicot	http://www.phytozome.net
Fragaria vesca	Eudicot	http://www.phytozome.net
Cannabis sativa	Eudicot	http://csativa.elasticbeanstalk.com
Arabidopsis thaliana	Eudicot	http://www.phytozome.net
Arabidopsis lyrata	Eudicot	http://www.phytozome.net
Capsella rubella	Eudicot	http://www.phytozome.net
Brassica rapa	Eudicot	http://www.phytozome.net
Thellungiella halophila	Eudicot	http://www.phytozome.net
Carica papaya	Eudicot	http://www.phytozome.net
Gossypium raimondii	Eudicot	http://www.phytozome.net
Theobroma cacao	Eudicot	http://www.phytozome.net
Citrus sinensis	Eudicot	http://www.phytozome.net
Citrus clementina	Eudicot	http://www.phytozome.net
Eucalyptus grandis	Eudicot	http://www.phytozome.net
Vitis vinifera	Eudicot	http://www.phytozome.net
Solanum tuberosum	Eudicot	http://www.phytozome.net
Solanum lycopersicum	Eudicot	http://www.phytozome.net
Mimulus guttatus	Eudicot	http://www.phytozome.net
Aquilegia coerulea	Eudicot	http://www.phytozome.net
Musa acuminata	Monocot	http://banana-genome.cirad.fr/
Sorghum bicolor	Monocot	http://www.phytozome.net
Zea mays	Monocot	http://www.phytozome.net
Setaria italica	Monocot	http://www.phytozome.net
Oryza sativa	Monocot	http://www.phytozome.net
Brachypodium distachyon	Monocot	http://www.phytozome.net
Hordeum vulgare	Monocot	http://www.barleygenome.org
Phoenix dactylifera	Monocot	http://qatar-weill.cornell.edu/research/datepalmGenome/

Supplemental Table 4. Description of the DNA material used for wet lab validations.

DNA Sample	Genus	Species	Source/Origin
apple	*Malus*	*domestica*	cv. Royal Gala, commercial variety
bean	*Phaseolus*	*vulgaris*	cv. Regalia
clementine	*Citrus*	*reticulata*	commercial Corsica variety
grapevine	*Vitis*	*vinifera*	TLH11 clone, provided by Patrice This, INRA Montpellier, France
maize	*Zea*	*maize*	B73, IRD Montpellier, France
medicago	*Medicago*	*truncatula*	provided by Christophe Roux, University of Toulouse, France
millet	*Setaria*	*italica*	cv. B100, University of Orsay, France
palm	*Phoenix*	*dactylifera*	cv. Medjoul Ilicitan, provided by Norbert Billotte, CIRAD, Montpellier, France
peach	*Prunus*	*persica*	sampled in a local orchard, Perpignan, France
poplar	*Populus*	*nigra*	sampled from a single tree, University of Perpignan campus, France
rice	*Oryza*	*sativa*	Nipponbare, provided by Emmanuel Guiderdoni, CIRAD, France
sorghum	*Sorghum*	*halepense*	BTx623, provided by Angélique D'Hont, CIRAD, Montpellier, France
soybean	*Glycine*	*max*	cv. William 82, provided by Jennifer Wood, University of Georgia, Athens, USA
tomato	*Solanum*	*lycopersicon*	cv. Marmande, commercial variety

Supplemental Table 5. Primers used for wet lab validations.

HTT	Forward primer sequence	Reverse primer sequence	Amplicon size (bp)
BC1	TGGGTGTATTTGTTATCCTCTC	GTCCCATGTTTCATTAGAGCAG	758
BO1	TTCTGATCATCCAGGAATGGT	TCTAGAGGAAGACAAATGCCC	1519
BO2	ATGTATTTGAATCACCCACCAG	TTTCCCTTGAACCATACTCCA	1473
BO3	GAAGTCACGACATACTACAACC	GAAGGATTTGAGAATTGTGGAG	583
BO4	GTCAAACCTATTGGGAGTAAATGG	GAATTGTACTGCGAAACTTCTC	378
BO6	GAAGAAGCAAGACTTGATATCC	CATCCTTCATTAGTCTAACGCC	1132
BO7	TGTTAGAAATGGTTCGTGCT	TCAACCTCTACATGCTTGGTC	2430
BO8	ATGTTGTTGAATCTGGAGTAGC	TAACTTGAGCAATCAAACCC	1188
BG4	CCTTTAGTTGAAAGTTGTGCTG	ATATGTGGAATCACTCCCTC	510
BG5	TCTTGACTTCTTGAGCGAGG	CTGAAGGAAACTCTGTGACGA	1195
BG6	GCATTCAAGGAGATATTTGTGG	TGGATTTACTGATTTGGAGG	1033
BG7	TCTGTACCTCCAACAATTGG	CTAGAGCCAGCAGAATCATCC	1126
BG8	TGTATGTCCAAGGATCTAACCA	ATTCTGTTGTGGAGTATGGG	1503
BG9	CACTTTGCTGCTGATTGCCC	AGCACATACCACTTCCCACC	2395
BG10	CTGGGTATGGTAATTCTTTACC	GTGTATTCTTCATGGGAAACTC	1337
BG11	GCTGCATATCTTGATTGGGA	CACTTCACGTTCAGCTTTGC	449
BG14	CCCAGGTACAATTGAAGGGT	GCATTCCACTGCTTTGAACTC	979
BG19	CAGCATGGACTAAGGTTCTC	GACCTCATCTAAAGTACCCA	940
BG20	CTGTGCACTGTAAGATAGGA	TCCTTGGTCTGAATATCCTG	1466
BG21	TTGTTGTAAGCAGAGATGTGAC	CGCTCTATCTCTTTCAATTTCC	1069
BG22	GTGCTTCAAACTCTAACAAGGG	CATATCTGTAGTGCCATCTCCA	1077
BG23	CATAGAGATGAAGATAGCTGGG	GTGGTTCGAGATTTGGTGTG	1981