

Supplementary Table 1. Marker identification and characteristics.

Linkage group	Marker name	Primers 5' → 3'	Annealing temperature ¹ (°C)	Marker type	Aprox. marker/s size in bp ²	Source (name in the GLIP project)
1	GL-P18	TCCGTCTCTGGTTCTAGCGT GAAGAGGTGATGTGGGGCTA	td55-40	SSR	370 / 400	GLIP (Pis_PR_79_1)
1	SSR-TFL1	TGGTGTCTGACATGAGATCCT ACATCGGGGTCTGTCACTCA	56	SSR	198 / 184	This work
1	SSR-L52	TCGACCCAGAGAATCCTACAT GCTTCCTTTGACCCTTCATCA	td55-40	SSR	170 / 190	This work
1	GL-P15	CAGACGTGGTTGTGGATTGT AAAAGCAAGTGCCTCTCCAA	td55-40	ALP	1200 / 1400	GLIP (Pis_PR_89_1)
1	dSSR-L42 ³	CATAACCCAACATACAATA GGGATTTCTTAGCAAGTCT	td55-40	P/A	- / 130	This work
1	K510	GCATTGGAACAAGGTGAA AGGGGGACCACCACGTAG	td55-40	P/A	- / 510	Fayyaz <i>et al.</i> , 2007
1	GL-P11al	ATGATGACATGCAGACCCAA CCTGCTCCATTAATCGCTTC	td60-45	CAPS (<i>Aha</i> I)	800 / 350 + ²	GLIP (psmt_EST_00199_05_1)
1	GL-M24	TGGTGGTCATGCTAGTTGGA GGACAGAAATTGGTGGCAGT	td60-45	ALP	570 / 600	GLIP (mtca_EST_00216_01_1)
2	GL-P10hh	TGGGAATGTTCTGCATTTGA TCCACTGTCCCAGCATTGTA	td55-40	CAPS (<i>Hha</i> I)	1150 / 960 + 250	GLIP (Pis_GEN_25_2-3_1)
2	SSR-113	CCGTAAGAATTAGGTGTC GGAAAATAGGGTGGAAAG	51	SSR	220 / 240	Hamwieh <i>et al.</i> , 2005
2	SSR-119	GAATCAGTTTCTCATTG GAACATATCCAATTATCATC	49	SSR	290 / 270	Hamwieh <i>et al.</i> , 2005
2	SSR-323	AGTGACAACAAAATGTGAGT GTACCTAGTTTCATCATTG	51C	SSR	310 / 200	Hamwieh <i>et al.</i> , 2005
2	GL-P19	TTTCACAAAAGGGTTCCTGG CAAAAGGCTGAAAGACCAGC	td55-40	SSR	150 / 200	GLIP (Pis_PR_117_1)
3	SSR-154	GGAATTTATCACACTATCTC GACTCCCAACTTGTATG	51	SSR	270 / 250	Hamwieh <i>et al.</i> , 2005 (SSR)

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4	UCB227_450	CTAGAGGTCC	36	RAPD	- / 450	Taran <i>et al.</i> , 2003
4	GL-P17	CGCTTTCCAAGATGCTTTTC AAGGAGGGCGAATGATTTCT	td55-40	ALP	1200 / 350	GLIP (Pis_PR_39_1)
4	SSR-LCB111	TCCTTCTCGAATTATCTTCCTA AAGCAATGGAACAGTATTGG	56	SSR	130 / 110	This work
5	LG093tq	GCATTGGATTATACCGACATTCCTG GCTTCTTGCAATGAATTGAGTTGGG	td57-55	CAPS (<i>Xho</i> I)	720 / 410 + 310	Phan <i>et al.</i> , 2007 Ellwood <i>et al.</i> , 2008
5	GL-M21al	GGGACCTTATTCCACAAGCA GCTCCTCCTGCATCATTTGT	td55-40	CAPS (<i>Alu</i> I)	220 + 180 / 400	GLIP (mtmt_GEN_00098_02_1)
5	GL-M23	GTCCTGCCATTATTGTGCCT GACGAACAGGATCATGCCTT	td60-45	P/A	220 / -	GLIP (mtca_EST_00220_01_1)
5	AA505	ATTCACACGCGCCCA CAATTAAGCCCTCATCCAGA	50	SSR	300/500	Reddy <i>et al.</i> , 2010
5	GL-P16	GGCACAACCTTGTCCACTTT GCTCCAACAACACCAACCTT	td55-40	SSR	380 / 350	GLIP (Pis_PR_127_1)
5	OP06_490	CCACGGGAAG	36	RAPD	490 / -	Taran <i>et al.</i> , 2003
5	dSSR-107	GCGGCGAGCAAATAAAT GGAGAATAAGAGTGAAATG	51	P/A	100 / -	Hamwieh <i>et al.</i> , 2005
5	PSBLOX2	CTGCTATGCTATGTTTCACATC CTTTGCTTGCAACTTAGTAACAG	56	SSR	100 / 120	Reddy <i>et al.</i> , 2010
5 ⁴	SSR-L34	ACCATAGACAATCATAAGAATG ATCTCTTTTTTCCACTCCATCC	td55-40	SSR	180 / 200	This work
5 ⁴	dSSR-154	GGAATTTATCACACTATCTC GACTCCCAACTTGTATG	51	P/A	370 / -	Hamwieh <i>et al.</i> , 2005 (SSR)
5 ⁴	SSR-336	GTGTAACCCAACTGTTCC GGCCGAGGTTGTAACAC	54	SSR	250 / 220	Hamwieh <i>et al.</i> , 2005
5 ⁴	SSR-317-2	CACGTAACATCTTGCTTATG GTAGCAATAATTACACCCAC	53	SSR	130 / 110	Hamwieh <i>et al.</i> , 2005
6	SSR-66	GGTAGTGGTGAGGAATGAC GCATCACTGCAACAGACC	55	SSR	220 / 300	Hamwieh <i>et al.</i> , 2009

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6	me11em5_460	TGAGTCCAAACCGGAAC GACTGCGTACGAATTAAC	35-50 ⁵	SRAP	460 / -	This work ⁶
6	GL-P13hh ⁷	ACCTGGAGATTCAATGGCTG TAAGCCCACGGAATACGTTC	td60-45	CAPS (<i>HhaI</i>)	1250 / 810 +440	GLIP (psat_EST_00164_02_1)
6	GL-P13hp ⁷	ACCTGGAGATTCAATGGCTG TAAGCCCACGGAATACGTTC	td60-45	CAPS (<i>HapII</i>)	1140 + 110 / 1250	GLIP (psat_EST_00164_02_1)
7	SSR-L51	GGAGCCACTGACATACTACTTG CAGAGTGTTGAGAGTTGGATAAT	td55-40	SSR	290 / 300	This work
7	me5R7_490	TGAGTCCAAACCGGAAG GACTGCGTACGAATTCAA	35-50 ⁵	SRAP	490 / -	This work ⁶
7	RCS2196	CAACGCGTTTTCTTCTCCTC TACCCTGCAAAACAAAAGGG	55	SSR	300 / 260	Reddy <i>et al.</i> , 2010
unlinked	AD160	ACCAGTCAAATGGTTAGAAAGT GAATGGAAAAGAGAATCAAGTT	52	SSR	140 / 160	Reddy <i>et al.</i> , 2010
unlinked	GL-M13	TTGCmTTGGCTAAGGAACAA GAACCGAGATGACGyGAAAG	td55-40	SNP- CEL	1099→381 + 718 ²	GLIP (mtmt_DEG_05184_02_1)
unlinked	GL-M16	TGCCCCAATGCTACCTTATC AACTCTTGGCGCTTAGGACA	td55-40	SNP- CEL	307→210 + 97 ²	GLIP (mtmt_GEN_00599_04_1)
unlinked	GL-P14xs	ACTGGAAAAGGCTCGGAAAT GTTGCACCTTTCTCTTTCGC	td55-40	CAPS (<i>XspI</i>)	600 + 290 / 500 + 390	GLIP (Pis_GEN_5_4-5_1)
unlinked	Lup172	ATTATCTTAGCTATCTCTCCCG CATCAACAGCATTAGTTCCT	td57-55	P/A	- / 800	Phan <i>et al.</i> , 2007 Ellwood <i>et al.</i> , 2008
unlinked	me7R8_300	TGGTCCAAACCGGACG GACTGCGTACGAATTCAC	35-50 ⁵	SRAP	300 / -	This work ³
unlinked	me10em3_850	TGAGTCCAAACCGGAAA GACTGCGTACGAATTGAC	35-50 ⁵	SRAP	- / 850	This work ⁶
unlinked	me11em5_900	TGAGTCCAAACCGGAAC GACTGCGTACGAATTAAC	35-50 ⁵	SRAP	900 / -	This work ⁶
unlinked	SSR-LCD2	ATGGTGGGCTTGGTGTAG GCACAATCATCATCATTATCG	55	SSR	150 / 180	This work

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unlinkek	SSR-L2	AAGTTGTAGGTAGCAGGTT GAGAGGAAGAAAGTAGAGA	td55-40	SSR	300 / 280	This work
unlinked	SSR-L44	TTCCAATTCCTCAGCCAAACA GCCATAACCCTGCAAAACAGA	td55-40	SSR	260 / 290	This work
unlinked	SSR-90	CCGTGTACACCCCTAC CGTCTTAAAGAGAGTGACAC	55	SSR	190 / 210	Hamwieh <i>et al.</i> , 2009
unlinked	SSR-132N	CCAGAACAAACGTAAACC CTATCGCATATGAGTGAAC	52	SSR	320 / 340	Hamwieh <i>et al.</i> , 2009
unlinked	SSR-317-1	GTGGGTGTAATTATTGCTAC GTATCAAACCTTATGGTGAAATC	53	SSR	230 / 215	Hamwieh <i>et al.</i> , 2005

¹ td = touch down technique, starting at the first temperature and decreasing 2°C each third cycle, plus 21 cycles at the second temperature indicated.

² The first value corresponds to the *culinaris* parent and the second to the *orientalis* one; - denotes no amplification; + not followed by a number indicated that several additional faint and small bands were hardly observed after nuclease digestion, thus they were not scored. GL-M13 381+718 and GLM16 210+97 denoted the two fragments generated by the CEL 1 from the respective heteroduplex DNAs.

³ dSSR denotes polymorphisms observed here as presence-absence but generated by primers which in other segregant populations generated SSRs.

⁴ These markers were consistently associated to GL 5 but loosely located at one or other extreme and with long distances.

⁵ Five initial cycles at the first temperature and 35 at the second.

⁶ New primer combinations from primers previously used by Li & Quiros (2001); Budak *et al.* (2004) and Gao *et al.* (2008)

⁷ Allelic alternatives generated by different endonucleases.