

Traits and alleles relevant for breeding and genetics:

Associated markers, their chromosomal localisation, and the donor genotype/species are given. Chromosomal position of a trait/allele is given in megabases according to the 12 x genome sequence of PN40024 (<http://www.genoscope.cns.fr/vitis>).

The symbols were discussed and assigned at the International Conference on Grapevine Breeding and Genetics at Geneva, August 1 - 5, 2010. Follow up information on naming of loci will be provided on VIVC to avoid homonyms.

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Symbol	Trait/Allele	Associated marker	Chromosome	Position on chromosome [Mb]	Parent 1	Parent 2	Population size	Genotype of origin	Original species trait/allele derived from?	Reference	Comment
<i>Be size</i>	berry size (berry weight)	SCC8	18	25.9	MTP2223-27	x MTP2121-30	139		<i>V. vinifera</i>	Doligez et al. (2002)	Only one major QTL for berry size is indicated. There are several other QTLs described in the literature.
		VMC7f2	18	26.9	Dominga	x Autumn Seedless	118			Cabezas et al. (2006)	
					Ruby Seedless	x Thompson Seedless	144			Mejia et al. (2007)	
<i>Mtc</i>	monoterpene content	DXS1	5	3.8	Italia	x Big Perlon	163		<i>V. vinifera</i>	Costantini et al. (2008)	Battilana et al. (2009)
					Moscato Bianco	x <i>V. riparia</i>	174				
					Muscat Ottonel	x Muscat Ottonel	121			Duchene et al. (2009)	
					Gewürztraminer	x Gewürztraminer	115				
<i>Lin</i>	Linalool content	end41	10		Italia	x Big Perlon	163		<i>V. vinifera</i>	Battilana et al. (2009)	
		VrZAG67/VVIH01			Moscato Bianco	x <i>V. riparia</i>	174				
		VrZAG64		13.4	Muscat Ottonel	x Muscat Ottonel	121			Duchene et al. (2009)	
		VMC3d7		10.8	Gewürztraminer	x Gewürztraminer	115				
<i>Fib</i>	Fleshless berry	VMC2A3	18	0.9	Chardonnay	x Ugni Blanc Mutant	71	Ugni Blanc	<i>V. vinifera</i>	Fernandez et al. (2006)	Mutant
<i>MybA</i>	berry skin colour		2	14.2					<i>V. vinifera</i>		
<i>Pdr1</i>	Pierce's disease	VMCNg3h8	14	25.3	<i>V. rupestris</i>	x <i>V. arizonica</i>	181		<i>V. arizonica</i>	Riaz et al. (2006)	
		VVin64		26.6						Riaz et al. (2008)	
		UDV-095		26.1							
<i>Rdv1</i>	<i>Daktulosphaera vitifoliae</i>	Gf13_9	13	21.9	Gf.V3125	x Börner	188	Börner	<i>V. cinerea</i>	Zhang et al. (2009)	
		VMC8e6		22.5							
<i>Rpv1</i>	<i>Plasmopara viticola</i>	VVib32	12	10.3	Syrah	x 28-8-78		28-8-78	<i>M. rotundifolia</i>	Merdinoglu et al. (2003)	
<i>Rpv2</i>	<i>Plasmopara viticola</i>		18		Cabernet Sauvignon	x 8624	129	8624	<i>M. rotundifolia</i>	Wiedemann-Merdinoglu et al. (2006)	
<i>Rpv3</i>	<i>Plasmopara viticola</i>	UDV-112	18		Regent	x Lemberger	153	Regent		Bellin et al. (2009)	
		UDV-305		24.9	Chardonnay	x Bianca	116	Bianca		Welter et al. (2007)	
		VMC7f2		26.9						Bellin et al. (2009)	
<i>Rpv4</i>	<i>Plasmopara viticola</i>	VMC7h3	4	4.7	Regent	x Lemberger	153	Regent		Welter et al. (2007)	
		VMCNg2e1		5.2							
<i>Rpv5</i>	<i>Plasmopara viticola</i>	VVi052b	9	4.0	Cabernet Sauvignon	x Gloire de Montpellier	138	Gloire de Montpellier	<i>V. riparia</i>	Marguerit et al. (2009)	
<i>Rpv6</i>	<i>Plasmopara viticola</i>	VMC8G9	12	20.4	Cabernet Sauvignon	x Gloire de Montpellier	138		<i>V. riparia</i>	Marguerit et al. (2009)	
<i>Rpv7</i>	<i>Plasmopara viticola</i>	UDV-097	7	11.4	Chardonnay	x Bianca	116	Bianca		Bellin et al. (2009)	
<i>Rpv8</i>	<i>Plasmopara viticola</i>	Chr14V015	14	6.6	<i>V. amurensis</i> 'Ruprecht'	x <i>V. amurensis</i> 'Ruprecht'	232	<i>V. amurensis</i> 'Ruprecht'	<i>V. amurensis</i>	Blasi et al. (2011)	
<i>Rpv9</i>	<i>Plasmopara viticola</i>	CCoAOMT	7	16.6	Moscato Bianco	x <i>V. riparia</i>	174	Wr63	<i>V. riparia</i>	Moreira et al. (2011)	CCoAOMT is the candidate gene from which the marker IN0006 was derived
<i>Rpv10</i>	<i>Plasmopara viticola</i>	GF09-46	9	3.7	Gf.Ga-52-42	x Solaris	256	Solaris	<i>V. amurensis</i>	Schwander et al. (2012)	
<i>Rpv11</i>	<i>Plasmopara viticola</i>	VVMD27	5	4.5	Regent	x Lemberger	153	Regent		Fischer et al. (2004)	
		CSIE104J11F			Chardonnay	x Bianca	116	Chardonnay		Bellin et al. (2009)	
		VCHR05C		4.1	Gf.Ga-52-42	x Solaris	256	Solaris		Schwander et al. (2011)	
<i>Rpv12</i>	<i>Plasmopara viticola</i>	UDV-014	14	8.0	99-1-48	x Pinot noir	180	99-1-48	<i>V. amurensis</i>	Venuti et al. (2013)	
		UDV-304		9.3	Cabernet Sauvignan	x 20/3		20/3	<i>V. amurensis</i>		
		rgvvin180									
		UDV-370		10.1							
<i>Rpv13</i>	<i>Plasmopara viticola</i>	VMC1G3.2	12	10.0	Moscato Bianco	x <i>V. riparia</i>	174	Wr63	<i>V. riparia</i>	Moreira et al. (2011)	
<i>Rpv14</i>	<i>Plasmopara viticola</i>									Fechter et al. (in prep.)	
<i>Rpv15</i>	<i>Plasmopara viticola</i>		18		<i>V. piasezkii</i> (DVIT2027)	x F2-35	94	<i>V. piasezkii</i> (DVIT2027)	<i>V. piasezkii</i>	Pap et al. (in preparation)	

Symbol	Trait/Allele	Associated marker	Chromosome	Position on chromosome [Mb]	Parent 1	Parent 2	Population size	Genotype of origin	Original species trait/allele derived from?	Reference	Comment
<i>Rcg1</i>	<i>Agrobacterium spec.</i>	UDV-015 9M3-3	15	7.1 9.3	Kunbarát	x Sárfehér	272	Kunbarát	<i>V. amurensis</i>	Kuczmozg et al. (2012)	
<i>Rgb1</i>	<i>Guignardia bidwellii</i>	Gf14-42	14	26.7	V3125	x Börner	202	Börner		Rex et al. (2014)	
<i>Rgb2</i>	<i>Guignardia bidwellii</i>	VChr16c	16	15.3	V3125	x Börner	202	Börner		Rex et al. (2014)	
<i>Ren1</i>	<i>Erysiphe necator</i>	UDV-020 VMC9h4-2 VMCNg4e10.1	13	18.4 18.4	Nimrang	x Kishmish vatkana	310	Kishmish vatkana	<i>V. vinifera</i>	Hoffmann et al. (2008)	
<i>Ren2</i>	<i>Erysiphe necator</i>	CS25	14	26.9	Horizon	x Illinois 547-1	58	Illinois 547-1		Dalbo et al. (2001)	
<i>Ren3</i>	<i>Erysiphe necator</i>	UDV-015b VViv67	15	7.1 10.9	Regent	x Lemberger	153	Regent		Welter et al. (2007)	
<i>Ren4</i>	<i>Erysiphe necator</i>	VMC7f2 SNPs	18	26.9 26.9	C166-043 C87-41	x F8909-08 x B70-57	42 57	C166-043 C87-41	<i>V. romanetii</i> <i>V. romanetii</i>	Riaz et al. (2012) Mahanil et al. (2012)	
<i>Ren5</i>	<i>Erysiphe necator</i>		14	4.8					<i>M. rotundifolia</i>	Blanc et al. (2012)	
<i>Ren6</i>	<i>Erysiphe necator</i>		9		F2-35	x <i>V. piasezkii</i> (DVIT2027)	288			Pap et al. (in preparation)	Contact: S. Riaz and A. Walker, UC Davis, CA, USA
<i>Ren7</i>	<i>Erysiphe necator</i>		19		F2-35	x <i>V. piasezkii</i> (DVIT2027)	288			Pap et al. (in preparation)	Contact: S. Riaz and A. Walker, UC Davis, CA, USA
<i>Run1</i>	<i>Erysiphe (Uncinula) necator</i>	VMC4f3.1 VMC8g9	12	13.1 20.4	VRH3082-1-42	x Cabernet Sauvignon	161	VRH3082-1-42	<i>M. rotundifolia</i>	Barker et al. (2005)	powdery mildew resistance originating from <i>Muscaninia</i> should be named as <i>Run...</i>
<i>Run2.1</i>	<i>Erysiphe (Uncinula) necator</i>	VMC7f2 VMCNg1e3 VVIn16	18	26.9 20.9 23.4	JB81-107-11	x Chenin Blanc x Tokay	97 47	Magnolia	<i>M. rotundifolia</i>	Riaz et al. (2011)	resistant tissue: Cane Rachis Rachis Fruit Leaf, Cane, Rachis, Fruit
<i>Run2.2</i>	<i>Erysiphe (Uncinula) necator</i>	VMC7f2	18	26.9	A90-71 e2-9	x Flame Seedless x Malaga Rosada	80 255	Trayshed	<i>M. rotundifolia</i>	Riaz et al. (2011)	
<i>Sdl</i>	seed development inhibitor seedlessness	SCC8 VMC6f11 VMC7f2	18	25.9 23.2 26.9	MTP2223-27 Dominga Dominga	x MTP2121-30 x Autumn Seedless x Autumn Seedless	139 118 118	Autumn Seedless		Doligez et al. (2002) Cabezas et al. (2006)	
<i>Sen1</i>	<i>Erysiphe necator</i>	S8_19258484 (SNP)	9	13.6 - 18.0	Italia <i>V. rupestris</i> B38	x Big Perlon x Chardonnay	163 85	Big Perlon Chardonnay	<i>V. vinifera</i>	Costantini et al. (2008) Barba et al. (2014)	
<i>Sex</i>	sex	VVMD34 VVS3 VVib23 APT SNP4C_1 Vvib23	2	3.7 4.2 4.9 5.0 4.7 4.9	Horizon Ramsey <i>V. rupestris</i> V3125 Moscato Bianco Muscat Ottonel	x Illinois 547-1 x Riparia Gloire x <i>V. arizonica</i> x Börner x Vr x <i>Malvasia aromatica di Candia</i>	58 188 181 202 340 91			Dalbó et al. (2000) Lowe and Walker (2006) Riaz et al. (2006) Fechter et al. (2012) Battilana et al. (2013)	
<i>Ufgt</i>		UFGT	16	2.3	Regent	x Lemberger	153			Fischer et al. (2004)	
<i>Ver</i>	véraison	VMC1E11	16	13.7	Regent Italia	x Lemberger x Big Perlon	153 163	Regent		Fischer et al. (2004) Costantini et al. (2008)	For véraison (begin of ripening) several QTLs are published. The locus on LG 16 is the only one which was found in two independent mapping populations.
<i>Vygail</i>	GA insensitive dwarf mutant		1	4.9				Pinot Meunier		Boss & Thomas (2002)	
<i>VvOMT3</i>	Isobutyl-methoxyypyrazine (IBMP)	VvOMT3Afl	3	2.2	(Cabernet Sauvignon x Pinot Meunier) Cabernet Sauvignon	x self pollinated x Gloire de Montpellier	64 138	Cabernet Sauvignon Cabernet Sauvignon		Dunlevy et al. (2013) Guillaumie et al. (2013)	F2 population 3 significant QTLs for IBMP content
<i>Xir1</i>	Xiphinema index	VMC5a10 IN2R3b M4F3R	19 19	20.9 20.9	<i>V. rupestris</i> <i>V. rupestris</i>	x <i>V. arizonica</i> x <i>V. arizonica</i>	185 185		<i>V. arizonica</i> <i>V. arizonica</i>	Xu et al. (2008) Hwang et al. (2010)	
<i>5-gt</i>	anthocyanin 3,5-diglucosides	Gf09_01	9	6.5	Regent	x Lemberger	153	Regent		Hausmann et al. (2009)	