Table of Loci for Traits in Grapevine Relevant for Breeding and Genetics:

Update: May 11, 2017

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	Chomosome	Position on chr [Mb]	Parent 1		Parent 2	Population size	Genotype of origin	Original species trait/allele derived from?	Reference	Comment
Be size	berry size (berry weight)	SCC8	18	25.9	MTP2223-27	x	MTP2121-30	139		*V. vinifera*	Doligez et al. (2002)	Only one major QTL for berry size is indicated. There are several other QTLs described in the literature.
		VMC7f2		26.9	Dominga	x	Autumn Seedless	118			Cabezas et al. (2006)	
					Ruby Seedless	x	Thompson Seedless	144			Mejia et al. (2007)	
					Italia	x	Big Perlon	163			Costantini et al. (2008)	
Mtc	monoterpene content	DXS1	5	3.8	Italia	x	Big Perlon	163		*V. vinifera*	Battilana et al. (2009)	
					Moscato Bianco	x	*V. riparia*	174				
					Muscat Ottonel	x	Muscat Ottonel	121		*V. vinifera*	Duchene et al. (2009)	
					Gewürztraminer	x	Gewürztraminer	115		*V. vinifera*		
Lin	Linalool content	cnd41	10		Italia	x	Big Perlon	163		*V. vinifera*	Battilana et al. (2009)	
		VrZAG67/VVIH01			Moscato Bianco	x	*V. riparia*	174				
		VrZAG64		13.4	Muscat Ottonel	x	Muscat Ottonel	121		*V. vinifera*	Duchene et al. (2009)	
		VMC3d7		10.8	Gewürztraminer	x	Gewürztraminer	115		*V. vinifera*		
Flb	Fleshless berry	VMC2A3	18	0.9	Chardonnay	x	Ugni Blanc Mutant	71	Ugni Blanc	*V. vinifera*	Fernandez et al. (2006)	Mutant
MybA	berry skin colour		2	14.2						*V. vinifera*		
Pdr1	Pierce's disease	VMCNg3h8	14	25.3	*V. rupestris*	x	*V. arizonica*	181		*V. arizonica*	Riaz et al. (2006)	
		VVIn64		26.6							Riaz et al. (2008)	
		UDV-095		26.1								
Rda1	*Diaporthe ampelina (Phomopsis viticola)*										Barba et al. (in preparation)	
Rda2	*Diaporthe ampelina (Phomopsis viticola)*										Barba et al. (in preparation)	
Rdv1	*Daktulosphaira vitifoliae*	Gf13_9	13	21.9	Gf.V3125	x	Börner	188	Börner	*V. cinerea*	Zhang et al. (2009)	
		VMC8e6		22.5								
Rpv1	*Plasmopara viticola*	VVIb32	12	10.3	Syrah	x	28-8-78		28-8-78	*M. rotundifolia*	Merdinoglu et al. (2003)	
Rpv2	*Plasmopara viticola*		18		Cabernet Sauvignon	x	8624	129	8624	*M. rotundifolia*	Wiedemann-Merdinoglu et al. (2006)	
Rpv3	*Plasmopara viticola*	UDV-112	18		Regent	x	Lemberger	153	Regent		Welter et al. (2007)	
		UDV-305		24.9	Chardonnay	x	Bianca	116	Bianca		Bellin et al. (2009)	Regent and Bianca descend from Seibel 4614 (=*Rpv3* $^{299-279}$ = *Rpv3-1*)
		VMC7f2		26.9								
		VMC7f2		26.9	Regent	x	RedGlobe	206	Regent		van Heerden et al. (2014)	
Rpv3-1 (=*Rpv3* $^{299-279}$)		UDV305		24.9					'Seibel 4614'	*V. rupestris*	Di Gaspero et al. (2012)	Pedigree analysis
		UDV737		26.1								
		GF18-06		25.9	GF.GA-47-42	x	Villard blanc	151	'Villard blanc'	*V. rupestris*	Zyprian et al. (2016)	
		GF18-08		26.9								
Rpv3-2 (=*Rpv3* $^{null-297}$)		UDV305		24.9					'Munson' (Jaeger 70)	*V. rupestris* or *V. lincecumii*	Di Gaspero et al. (2012)	Pedigree analysis
		UDV737		26.1								
		GF18-06		25.9	GF.GA-47-42	x	Villard blanc	151	GF.GA-47-42	*V. rupestris* or *V. lincecumii*	Zyprian et al. (2016)	
		GF18-08		26.9								
Rpv3-3 (=*Rpv3* $^{null-271}$)		UDV305		24.9					'Noah'	*V. labrusca* or *V. riparia*	Di Gaspero et al. (2012)	
		UDV737		26.1								
					Merzling	x	Teroldego		S.V. 5-276		Vezzulli et al. (in preparation)	
Rpv3 $^{321-312}$		UDV305		24.9					'Noah'	*V. labrusca* or *V. riparia*	Di Gaspero et al. (2012)	Pedigree analysis
		UDV737		26.1								
Rpv3 $^{361-299}$		UDV305		24.9					*V. rupestris* Ganzin	*V. rupestris*		
		UDV737		26.1								
Rpv3 $^{299-314}$		UDV305		24.9					*V. rupestris* Ganzin	*V. rupestris*	Di Gaspero et al. (2012)	Pedigree analysis
		UDV737		26.1								
Rpv3 $^{null-287}$		UDV305		24.9					'Bayard' (Couderc 28-112)	*V. rupestris* or *V. labrusca*		
		UDV737		26.1								

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Rpv4	*Plasmopara viticola*	VMC7h3	4	4.7	Regent	x	Lemberger	153	Regent		Welter et al. (2007)	
		VMCNg2e1		5.2								
Rpv5	*Plasmopara viticola*	VVIo52b	9	4.0	Cabernet Sauvignon	x	Gloire de Montpellier	138	Gloire de Montpellier	*V. riparia*	Marguerit et al. (2009)	
Rpv6	*Plasmopara viticola*	VMC8G9	12	20.4	Cabernet Sauvignon	x	Gloire de Montpellier	138		*V. riparia*	Marguerit et al. (2009)	
Rpv7	*Plasmopara viticola*	UDV-097	7	11.4	Chardonnay	x	Bianca	116	Bianca		Bellin et al. (2009)	
Rpv8	*Plasmopara viticola*	Chr14V015	14	6.6	*V. amurensis* 'Ruprecht'	x	*V. amurensis* 'Ruprecht'	232	V. amurensis 'Ruprecht'	*V.amurensis*	Blasi et al. (2011)	
Rpv9	*Plasmopara viticola*	CCoAOMT	7	16.6	Moscato Bianco	x	*V. riparia*	174	Wr63	*V.riparia*	Moreira et al. (2011)	CCoAOMT is the candidate gene from which the marker IN0006 was derived
Rpv10	*Plasmopara viticola*	GF09-46	9	3.7	Gf.Ga-52-42	x	Solaris	256	Solaris	*V. amurensis*	Schwander et al. (2012)	
Rpv11	*Plasmopara viticola*	VVMD27	5	4.5	Regent	x	Lemberger	153	Regent		Fischer et al. (2004)	
		CS1E104J11F			Chardonnay	x	Bianca	116	Chardonnay		Bellin et al. (2009)	
		VCHR05C		4.1	Gf.Ga-52-42	x	Solaris	256	Solaris		Schwander et al. (2011)	
Rpv12	*Plasmopara viticola*	UDV-014	14	8.0	99-1-48	x	Pinot noir	180	99-1-48	*V. amurensis*	Venuti et al. (2013)	
		UDV-304		9.3	Cabernet Sauvignan	x	20/3		20/3	*V. amurensis*		
		rgvvin180										
		UDV-370		10.1								
Rpv13	*Plasmopara viticola*	VMC1G3.2	12	10.0	Moscato Bianco	x	*V. riparia*	174	Wr63	*V.riparia*	Moreira et al. (2011)	
Rpv14	*Plasmopara viticola*	GF05-13	5	20.2	Gf.V3125	x	Börner	202	Börner	*V. cinerea*	Ochssner et al. (2016)	
Rpv15	*Plasmopara viticola*		18		*V. piasezkii* (DVIT2027)	x	F2-35	94	*V. piasezkii* (DVIT2027)	*V. piasezkii*	Pap et al. (in preparation)	
Rpv16	*Plasmopara viticola*										Pap et al. (in preparation)	
Rcg1	*Agrobacterium spec.*	UDV-015	15	7.1	Kunbarát	x	Sárfehér	272	Kunbarát	*V. amurensis*	Kuczmog et al. (2012)	
		9M3-3		9.3								
Rgb1	*Guignardia bidwellii*	Gf14-42	14	26.7	V3125	x	Börner	202	Börner		Rex et al. (2014)	
Rgb2	*Guignardia bidwellii*	VChr16c	16	15.3	V3125	x	Börner	202	Börner		Rex et al. (2014)	
Ren1	*Erysiphe necator*	UDV-020	13		Nimrang	x	Kishmish vatkana	310	Kishmish vatkana	*V. vinifera*	Hoffmann et al. (2008)	
		VMC9h4-2		18.4								
		VMCNg4e10.1		18.4								
Ren2	*Erysiphe necator*	CS25	14	26.9	Horizon	x	Illinois 547-1	58	Illinois 547-1		Dalbo et al. (2001)	
Ren3	*Erysiphe necator*	UDV-015b	15	7.1	Regent	x	Lemberger	153	Regent		Welter et al. (2007)	
		VViv67		10.9								
		ScORA7-760			Regent	x	Lemberger	152	Regent		Akkurt et al. (2007)	
		VChr15CenGen02		4.9	Regent	x	RedGlobe	206	Regent		van Heerden et al. (2014)	
		GF15-28 / VViv67		10.9	GF.GA-47-42	x	Villard blanc	151			Zyprian et al. (2016)	
		GF15-42		9.3	Regent	x	Lemberger	132	Regent		Zendler et al. (2017)	
Ren4	*Erysiphe necator*	VMC7f2	18	26.9	C166-043	x	F8909-08	42	C166-043	*V. romanetii*	Riaz et al. (2012)	
		SNPs		26.9	C87-41	x	B70-57	57	C87-41	*V. romanetii*	Mahanil et al. (2012)	
Ren5	*Erysiphe necator*		14	4.8						*M. rotundifolia*	Blanc et al. (2012)	
Ren6	*Erysiphe necator*	PN9-057	9	8.6	F2-35	x	*V. piasezkii* (DVIT2027)	277	*V. piasezkii* (DVIT2027)	*V. piasezkii*	Pap et al. (2016)	
		PN9-068		9.1								
Ren7	*Erysiphe necator*	VVIp17.1	19	0.2	F2-35	x	*V. piasezkii* (DVIT2027)	277	*V. piasezkii* (DVIT2027)	*V. piasezkii*	Pap et al. (2016)	
		VMC9a2.1		0.9								
Ren8	*Erysiphe necator*		18		GF.GA-47-42	x	Villard blanc	151			Zyprian et al. (2016)	
Ren9	*Erysiphe necator*	CenGen6	15	1.4	Regent	x	Lemberger	153	Regent		Zendler et al. (2017)	
Ren10	*Erysiphe necator*	S2_17854965	2	79.0	MN1264	x	MN1214	147	Seyval blanc		Teh et al. (2017)	
		Haploblock validation	2		MN1264	x	MN1246	125				

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Run1	*Erysiphe* (*Uncinula*) *necator*	VMC4f3.1	12	13.1	VRH3082-1-42	x	Cabernet Sauvignon	161	VRH3082-1-42	*M. rotundifolia*	Barker et al. (2005)	powdery mildew resistance originating from *Muscaninia* should be named as
		VMC8g9		20.4								
Run2.1	*Erysiphe* (*Uncinula*) *necator*	VMC7f2	18	26.9	JB81-107-11	x	Chenin Blanc	97	Magnolia	M. rotundifolia	Riaz et al. (2011)	resistant tissue: Cane
		VMCNg1e3		20.9								Rachis
		VVIn16		23.4	JB81-107-11	x	Tokay	47				Rachis
		VMC7f2		26.9								Fruit
		VMC7f2		26.9	A90-71	x	Flame Seedless	80				Leaf, Cane, Rachis, Fruit
Run2.2	*Erysiphe* (*Uncinula*) *necator*	VMC7f2	18	26.9	e2-9	x	Malaga Rosada	255	Trayshed	*M. rotundifolia*	Riaz et al. (2011)	
SdI	seed development inhibitor	SCC8	18	25.9	MTP2223-27	x	MTP2121-30	139			Doligez et al. (2002)	
	seedlessness	VMC6f11		23.2	Dominga	x	Autumn Seedless	118	Autumn Seedless		Cabezas et al. (2006)	
		VMC7f2		26.9				118				
					Italia	x	Big Perlon	163	Big Perlon		Costantini et al. (2008)	
Sen1	*Erysiphe necator*	S8_19258484	9	13.6 - 18.0	*V. rupestris* B38	x	Chardonnay	85	Chardonnay	*V. vinifera*	Barba et al. (2014)	
Sex	sex	VVMD34	2	3.7	Horizon	x	Illinois 547-1	58			Dalbó et al. (2000)	
		VVS3		4.2	Ramsey	x	Riparia Gloire	188			Lowe and Walker (2006)	
		VVIb23		4.9	*V. rupestris*	x	*V. arizonica*	181			Riaz et al. (2006)	
		APT3		5.0	V3125	x	Börner	202			Fechter et al. (2012)	
		SNP4C_1		4.7	Moscato Bianco	x	Vr	340			Battilana et al. (2013)	
		Vvib23		4.9	Muscat Ottonel	x	*Malvasia aromatica di Candia*	91				
Ufgt		UFGT	16	2.3	Regent	x	Lemberger	153			Fischer et al. (2004)	
Ver	véraison	VMC1E11	16	13.7	Regent	x	Lemberger	153	Regent		Fischer et al. (2004)	For véraison (begin of ripening) several QTLs are published. This list here is still incomplete.
					Italia	x	Big Perlon	163			Costantini et al. (2008)	
Ver1	véraison	UDV52	16	15.8	GF.GA-47-42	x	Villard blanc	151	GF.GA-47-42		Zyprian et al. (2016)	
		SNP1092P11R										
Ver2	véraison	SPS_P_SNP632GF	18		GF.GA-47-42	x	Villard blanc	151			Zyprian et al. (2016)	
Vvgai1	GA insensitive dwarf mutant		1	4.9					Pinot Meunier		Boss & Thomas (2002)	
VvOMT3	Isobutyl-methoxypyrazine (IBMP)	VvOMT3	3	2.2	(Cabernet Sauvignon x Pinot Meunier)	x	self pollinated	64	Cabernet Sauvignon		Dunlevy et al. (2013)	F2 population
					Cabernet Sauvignon	x	Gloire de Montpellier	138	Cabernet Sauvignon		Guillaumie et al. (2013)	3 significant QTLs for IBMP content
Xir1	Xiphinema index	VMC5a10	19	20.9	*V. rupestris*	x	*V. arizonica*	185		*V. arizonica*	Xu et al. (2008)	
		1N2R3b		20.9							Hwang et al. (2010)	
		M4F3R										
5-gt	anthocyanin 3,5-diglucosides	Gf09_01	9	6.5	Regent	x	Lemberger	153	Regent		Hausmann et al. (2009)	