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Supplementary materials

Table 1. Estimated risk categories for the three factors included into the evolutionary potential compound index of viruses and durability of the corresponding resistance gene for virus species-resistance gene combinations not described by García-Arenal and McDonald (2003).

Virus ^a	Host range	Horizontal transmission ^b	Seed transmission	Survival at site	Resistance		Risk categories ^d			EP		Selected references or observations
					Gene	Durability class ^c	A: Population size	B: Gene flow	C: Genetic exchange	A+B+C		
BaYMV	<i>Hordeum vulgare</i>	P, <i>Polymyxa graminis</i> (fungus)	No	High, spores in soil	<i>rym-4</i>	2	2	1	1	4		Adams 2000; Huth 1991; Kühne <i>et al.</i> , 2003.
BNYVV	Few species of Chenopodiaceae	P, <i>Polymyxa betae</i> (fungus)	In infested soil	High, in cystosori	<i>Rz-1</i>	1	2	1	1	4		Acosta-Leal and Rush, 2007; Asher <i>et al.</i> , 2002; Chiba <i>et al.</i> , 2008; Liu and Lewellen, 2007.
BYMV	Legume plants and several non-legumes	NP, more than 20 aphid species	3-6%, but not common	Moderate	<i>wlv</i>	3	3	3	2	8		Bos 1970; Bruun-Rasmussen <i>et al.</i> , 2007; Revers <i>et al.</i> , 1996.
PVY (pepper isolates)	Species of Solanaceae	NP, aphids	No	Moderate	<i>pvr2</i> ¹	2	1	2	3	6		Ben Khalifa and Moury, unpublished data; Moury <i>et al.</i> , 2002; Palloix <i>et al.</i> , 1994.
RYMV	Restricted to Graminaceae: Oryzae and Eragrostideae	SP, by insects: chrysomelid beetles. By contact	No	High in crops	<i>rymv-1</i>	2	2	1	1	4		Bakker 1975; Traore <i>et al.</i> , 2006
SMV	<i>Glycine</i> spp.	NP, aphids	~30%	Low	<i>Rsv-1</i>	2	1	3	3	7		Choi <i>et al.</i> , 2005; Hajimorad <i>et al.</i> , 2006.
TEV	Over 120 species in 19 dicotyledonous families	NP, by over 10 aphid species	No	Moderate	<i>pvr2</i> ²	2	3	2	2	7		Chare and Holmes, 2006; Janzac and Moury, unpublished data. Purcifull and Hiebert, 1982.
ToMV	Few species of Solanaceae	Contact	Yes	Moderate, in plant debris	<i>Tm-2</i> ²	3	2	3	1	6		Aramburu and Galipienso, 2005; Lanfermeijer <i>et al.</i> , 2004; Strasser and Pfitzner, 2007.
ToMV	Few species of Solanaceae	Contact	Yes	Moderate, in plant debris	<i>L</i> ¹	4	2	3	1	6		Isolates virulent towards <i>L</i> ¹ do not belong to ToMV but to <i>Paprika mosaic virus</i> or PMMoV.

^a: BNYVV (beet necrotic yellow vein virus); SMV (soybean mosaic virus); BaYMV (barley yellow mosaic virus); PVY (potato virus Y); RYMV (rice yellow mottle virus); TEV (tobacco etch virus); ToMV (tomato mosaic virus); PMMoV (pepper mild mottle virus); BYMV (bean yellow mosaic virus).

^b: P = persistent; NP = non persistent; SP = semi-persistent.

^c: See Experimental procedures.

^d: Risk categories 1, 2 or 3 as described by García-Arenal and McDonald (2003).

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Supplementary materials (continued)

Table 2. GenBank accession numbers of sequences of avirulence factors and related biological characteristics.

Virus ^a	Avirulence factor / Resistance gene ^a	Accession Number	Geographic origin	Isolate property ^b	Selected references ^c
BaYMV	VPg / <i>rym-4</i>	AF536958	Korea	Unknown	
		AJ132268	China	Unknown	
		AJ515480	United Kingdom	Resistance-breaking isolate (biological data)	Kühne <i>et al.</i> , 2003
		AJ515481	United Kingdom	Resistance-breaking isolate (biological data)	-
		AJ515482	United Kingdom	Resistance-breaking isolate (biological data)	-
		AJ515485	United Kingdom	Avirulent isolate (biological data)	-
		AJ517471	Germany	Avirulent isolate (biological data)	-
		AJ517472	Germany	Avirulent isolate (biological data)	-
		AJ517473	Germany	Avirulent isolate (biological data)	-
		AJ517474	Germany	Avirulent isolate (biological data)	-
		AJ517475	Germany	Resistance-breaking isolate (biological data)	-
		AJ517476	Germany	Resistance-breaking isolate (biological data)	-
		AJ517477	Germany	Resistance-breaking isolate (biological data)	-
		D01091	Japan	Unknown	
		X69757	Germany	Unknown	
BNYVV	P25 / <i>Rz-1</i>	AF197545	France	Resistance-breaking isolate (sequence data)	Acosta-leal and Rush, 2007; Liu and Lewellen, 2007
		AF197549	France	Resistance-breaking isolate (sequence data)	-
		AF197551	Italy	Resistance-breaking isolate (sequence data)	-
		AF197553	Kazakhstan	Resistance-breaking isolate (sequence data)	-
		AF197558	The Netherlands	Resistance-breaking isolate (sequence data)	-
		AJ239200	Unknown	Avirulent isolate (sequence data)	-
		AY696119	USA: Imperial Valley	Resistance-breaking isolate (sequence data)	-
		AY696120	USA: Imperial Valley	Resistance-breaking isolate (sequence data)	-
		AY696121	USA: Imperial Valley	Avirulent isolate (sequence data)	-
		AY696123	Austria	Avirulent isolate (sequence data)	-
		AY696127	USA: Imperial Valley	Resistance-breaking isolate (sequence data)	-
		AY696130	Belgium	Avirulent isolate (sequence data)	-
		AY696136	France	Avirulent isolate (sequence data)	-
		AY696137	France	Avirulent isolate (sequence data)	-
		AY696139	France	Avirulent isolate (sequence data)	-
		AY696141	France	Avirulent isolate (sequence data)	-
		AY696142	France	Avirulent isolate (sequence data)	-
		AY696143	France	Avirulent isolate (sequence data)	-
		AY696147	France	Avirulent isolate (sequence data)	-
		AY696155	Germany	Avirulent isolate (sequence data)	-
		AY696161	Belgium	Avirulent isolate (sequence data)	-
		AY696162	Belgium	Avirulent isolate (sequence data)	-
		AY696163	Japan	Avirulent isolate (sequence data)	-
		AY696169	Spain	Resistance-breaking isolate (sequence data)	-
		AY696170	Spain	Resistance-breaking isolate (sequence data)	-
		AY696171	Spain	Resistance-breaking isolate (sequence data)	-
		AY696172	Spain	Resistance-breaking isolate (sequence data)	-
		AY696173	Spain	Avirulent isolate (sequence data)	-
		AY734499	France	Avirulent isolate (sequence data)	-
		AY734500	France	Avirulent isolate (sequence data)	-
		AY734503	France	Avirulent isolate (sequence data)	-
		AY734505	France	Avirulent isolate (sequence data)	-
		D84412	Japan	Avirulent isolate (sequence data)	-
BYMV	VPg / <i>wlv</i>	AB079886	Japan	Resistance-breaking isolate (sequence data)	Bruun-Rasmussen <i>et al.</i> , 2007
		AB079887	Japan	Resistance-breaking isolate (sequence data)	-
		AY192568	USA	Avirulent isolate (sequence data)	-
		AY373026	Australia	Resistance-breaking isolate (sequence data)	-
		AY376313	Australia	Resistance-breaking isolate (sequence data)	-
		AY376314	Australia	Resistance-breaking isolate (sequence data)	-
		NC003492	Japan	Resistance-breaking isolate (sequence data)	-
		U47033	Australia	Avirulent isolate (biological data)	-
		U78191	Unknown	Resistance-breaking isolate (sequence data)	-
		X63358	Unknown	Resistance-breaking isolate (sequence data)	-
PVX	25 kDa protein / <i>Nb</i>	AB056718	Japan	Avirulent isolate (sequence data)	Malcuit <i>et al.</i> , 1999
		AB056719	Japan	Avirulent isolate (sequence data)	-
		AF111193	United Kingdom	Avirulent isolate (sequence data)	-
		AF272736	Taiwan	Avirulent isolate (sequence data)	-
		AF373782	Korea	Avirulent isolate (sequence data)	-
		D00344	Unknown	Resistance-breaking isolate (sequence data)	-
		M38480	Unknown	Avirulent isolate (sequence data)	-
		M72416	Unknown	Avirulent isolate (sequence data)	-
		M95516	Unknown	Resistance-breaking isolate (sequence data)	-

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Supplemental Table 2 (continued)

Virus ^a	Avirulence factor / Resistance gene ^a	Accession Number	Geographic origin	Isolate property ^b	Selected references ^c
PMMoV	CP / L ³	AB062049	Japan	Resistance-breaking isolate (biological data)	Hamada <i>et al.</i> , 2002
		AB062050	Japan	Resistance-breaking isolate (biological data)	-
		AB062051	Japan	Resistance-breaking isolate (biological data)	-
		AB062052	Japan	Resistance-breaking isolate (biological data)	-
		AB062054	Japan	Avirulent isolate (sequence data)	-
		AB119482	Japan	Avirulent isolate (sequence data)	-
		AB126003	Korea	Avirulent isolate (sequence data)	-
		AB254821	Japan	Avirulent isolate (biological data)	Hamada <i>et al.</i> , 2007
		AB254822	Japan	Resistance-breaking isolate (biological data)	-
		AF103776	Korea	Avirulent isolate (sequence data)	Hamada <i>et al.</i> , 2002
		AF103778	Korea	Avirulent isolate (sequence data)	-
		AF525080	Brazil	Avirulent isolate (biological data)	Eiras <i>et al.</i> , 2004
		AJ308228	Spain	Avirulent isolate (biological data)	Velasco <i>et al.</i> , 2002
		AY632863	China	Avirulent isolate (sequence data)	Hamada <i>et al.</i> , 2002
		AY859497	China	Avirulent isolate (sequence data)	-
		M81413	Spain	Avirulent isolate (biological data)	Velasco <i>et al.</i> , 2002
		M87827	Taiwan	Avirulent isolate (sequence data)	Hamada <i>et al.</i> , 2002
		X72587	Italy	Resistance-breaking isolate (biological data)	García-Luque <i>et al.</i> , 1993
PVX	CP / Rx	AB056718	Japan	Avirulent isolate (sequence data)	Bendahmane <i>et al.</i> , 1995
		AB056719	Japan	Avirulent isolate (sequence data)	-
		AF111193	United Kingdom	Avirulent isolate (sequence data)	-
		AF172259		Avirulent isolate (biological data)	Santa Cruz and Baulcombe, 1995
		AF260640		Avirulent isolate (sequence data)	Bendahmane <i>et al.</i> , 1995
		AF260641		Avirulent isolate (sequence data)	-
		AF272736	Taiwan	Avirulent isolate (sequence data)	-
		AF485891	China	Avirulent isolate (sequence data)	-
		AF493949	Unknown	Avirulent isolate (sequence data)	-
		AF528555	China	Avirulent isolate (sequence data)	-
		AJ505748	Spain	Avirulent isolate (sequence data)	-
		AY763582	Egypt	Avirulent isolate (sequence data)	-
		D00344	Unknown	Avirulent isolate (sequence data)	-
		D87962	Unknown	Avirulent isolate (sequence data)	-
		DQ315386	China	Avirulent isolate (sequence data)	-
		E01310	Unknown	Avirulent isolate (sequence data)	-
		M38655	Unknown	Avirulent isolate (sequence data)	-
		M72416	Unknown	Avirulent isolate (sequence data)	-
		M95516	Unknown	Avirulent isolate (sequence data)	-
PVX	CP / Nx	NC001455	Unknown	Avirulent isolate (sequence data)	-
		X88781	United Kingdom	Avirulent isolate (biological data)	Santa Cruz and Baulcombe, 1995
		X88782	United Kingdom	Avirulent isolate (biological data)	-
		X88783	United Kingdom	Avirulent isolate (biological data)	-
		X88784	The Netherlands	Avirulent isolate (biological data)	-
		X88785	The Netherlands	Avirulent isolate (biological data)	-
		X88788	Unknown	Avirulent isolate (biological data)	-
PVX	CP / Nx	AB056718	Japan	Avirulent isolate (sequence data)	Santa Cruz and Baulcombe, 1995
		AB056719	Japan	Avirulent isolate (sequence data)	-
		AF111193	United Kingdom	Avirulent isolate (sequence data)	-
		AF172259		Resistance-breaking isolate (biological data)	-
		AF260640	Korea	Avirulent isolate (sequence data)	-
		AF260641	Korea	Avirulent isolate (sequence data)	-
		AF272736	Taiwan	Avirulent isolate (sequence data)	-
		AF485891	China	Avirulent isolate (sequence data)	-
		AF493949	Unknown	Avirulent isolate (sequence data)	-
		AF528555	China	Avirulent isolate (sequence data)	-
		AJ505748	Spain	Avirulent isolate (sequence data)	-
		AY763582	Egypt	Avirulent isolate (sequence data)	-
		D00344	Unknown	Avirulent isolate (sequence data)	-
		D87962	Unknown	Avirulent isolate (sequence data)	-
		DQ315386	China	Avirulent isolate (sequence data)	-
		E01310	Unknown	Avirulent isolate (sequence data)	-
		M38655	Unknown	Avirulent isolate (sequence data)	-
		M72416	Unknown	Avirulent isolate (sequence data)	-
		M95516	Unknown	Avirulent isolate (sequence data)	-
		NC001455	Unknown	Avirulent isolate (sequence data)	-

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Virus ^a	Avirulence factor / Resistance gene ^a	Accession Number	Geographic origin	Isolate property ^b	Selected references ^c
PVY	VPg / pvr2 ¹	AF237963	Italy	Unknown	Moury <i>et al.</i> , unpublished
		AJ439544	France	Resistance-breaking isolate (biological data)	Moury <i>et al.</i> , 2004
		AJ439545	Spain	Avirulent isolate (biological data)	-
		AJ507381	Italy	Resistance-breaking isolate (biological data)	Moury <i>et al.</i> , unpublished
		AJ550513	Tanzania	Resistance-breaking isolate (biological data)	Moury <i>et al.</i> , 2004
		AJ550514	Turkey	Resistance-breaking isolate (biological data)	-
		EU334778	Tunisia	Resistance-breaking isolate (biological data)	Moury <i>et al.</i> , unpublished
		EU334779	Tunisia	Avirulent isolate (biological data)	-
		EU334780	Tunisia	Avirulent isolate (biological data)	-
		EU334781	France	Avirulent isolate (biological data)	-
		EU334782	France	Avirulent isolate (biological data)	-
PVY	VPg / pvr2 ²	AF237963	Italy	Avirulent isolate (sequence data)	Moury <i>et al.</i> , 2004
		AJ439544	France	Resistance-breaking isolate (biological data)	-
		AJ439545	Spain	Avirulent isolate (biological data)	-
		AJ507381	Italy	Avirulent isolate (biological data)	-
		AJ550513	Tanzania	Avirulent isolate (biological data)	-
		AJ550514	Turkey	Avirulent isolate (biological data)	-
		EU334778	Tunisia	Avirulent isolate (biological data)	Moury <i>et al.</i> , unpublished
		EU334779	Tunisia	Avirulent isolate (biological data)	-
		EU334780	Tunisia	Avirulent isolate (biological data)	-
		EU334781	France	Avirulent isolate (biological data)	-
		EU334782	France	Avirulent isolate (biological data)	-
PVY	NiaPro / Ry	AF237963	Italy	Avirulent isolate	Resistance-breaking isolates never reported
		AF463399	USA	Avirulent isolate	-
		AJ439544	France	Avirulent isolate	-
		AJ439545	Spain	Avirulent isolate	-
		AJ584851	United Kingdom	Avirulent isolate	-
		AJ585195	United Kingdom	Avirulent isolate	-
		AJ585196	United Kingdom	Avirulent isolate	-
		AJ585197	United Kingdom	Avirulent isolate	-
		AJ585198	United Kingdom	Avirulent isolate	-
		AJ585342	Slovenia	Avirulent isolate	-
		AY166866	USA	Avirulent isolate	-
		AY166867	USA	Avirulent isolate	-
		AY745491	Canada	Avirulent isolate	-
		AY745492	Canada	Avirulent isolate	-
		AY884982	USA	Avirulent isolate	-
		AY884983	USA	Avirulent isolate	-
		AY884984	USA	Avirulent isolate	-
		DQ008213	Unknown	Avirulent isolate	-
		DQ157178	USA	Avirulent isolate	-
		DQ157179	Unknown	Avirulent isolate	-
RYMV	VPg / rymv-1	M95491	Hungarian	Avirulent isolate	-
		NC001616	Unknown	Avirulent isolate	-
		X97895	Switzerland	Avirulent isolate	-
		AJ608206	Ivory Coast	Avirulent isolate (sequence data)	Hebrard <i>et al.</i> , 2008
		AJ608207	Ivory Coast	Avirulent isolate (sequence data)	-
		AJ608208	Mali	Avirulent isolate (sequence data)	-
		AJ608209	Mali	Avirulent isolate (sequence data)	-
		AJ608210	Madagascar	Avirulent isolate (sequence data)	-
		AJ608211	Madagascar	Avirulent isolate (sequence data)	-
		AJ608212	Nigeria	Avirulent isolate (sequence data)	-
		AJ608213	Nigeria	Avirulent isolate (sequence data)	-
		AJ608214	Sierra Leone	Avirulent isolate (sequence data)	-
		AJ608215	Tanzania	Avirulent isolate (sequence data)	-
		AJ608216	Tanzania	Avirulent isolate (sequence data)	-
		AJ608217	Tanzania	Avirulent isolate (sequence data)	-
		AJ608218	Tanzania	Avirulent isolate (sequence data)	-
		AJ608219	Ivory Coast	Avirulent isolate (sequence data)	-
		AJ876793	Tanzania	Avirulent isolate (sequence data)	-
		AJ877020	Tanzania	Avirulent isolate (sequence data)	-
		L20893	Ivory Coast	Avirulent isolate (sequence data)	-
		U23142	Nigeria	Avirulent isolate (sequence data)	-

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SMV	P3-HcPro / Rsv-J	AF241739	Unknown	Unknown	
		AJ310200	China	Unknown	
		AJ312439	China	Resistance-breaking isolate (biological data)	Chen <i>et al.</i> , 2004
		AY216010	USA	Resistance-breaking isolate (biological data)	Hajimorad <i>et al.</i> , 2003
		AY294044	Korea	Unknown	
		AY294045	Korea	Resistance-breaking isolate (biological data)	Lim <i>et al.</i> , 2003
		D00507	Unknown	Unknown	
		S42280	Unknown	Unknown	
TEV	VPg / pvr ²	AF003824	USA	Unknown	
		EU334783	Venezuela	Unknown	
		EU334784	Venezuela	Unknown	
		EU334785	Venezuela	Unknown	
		EU334786	Venezuela	Unknown	
		EU334787	Venezuela	Unknown	
		EU334788	Mexico	Resistance-breaking isolate (biological data)	Janzac <i>et al.</i> , unpublished
		EU334789	Mexico	Avirulent isolate (biological data)	Janzac <i>et al.</i> , unpublished
		EU334790	Mexico	Unknown	
		EU334791	Mexico	Unknown	
		EU334792	Mexico	Unknown	
		EU334793	Mexico	Unknown	
		EU334794	Mexico	Unknown	
		L38714	Unknown	Unknown	
		M11458	Unknown	Unknown	
ToMV	CP / L ¹	AB083196	Japan	Avirulent isolate	Resistance-breaking isolates never reported
		AF012917	Korea	Avirulent isolate	-
		AF062519	Kazakhstan	Avirulent isolate	-
		AF103779	Korea	Avirulent isolate	-
		AF103780	Korea	Avirulent isolate	-
		AF260730	Korea	Avirulent isolate	-
		AJ011934	China	Avirulent isolate	-
		AJ243571	Kazakhstan	Avirulent isolate	-
		AJ310339	Kazakhstan	Avirulent isolate	-
		AJ417701	China	Avirulent isolate	-
		AJ429083	Germany	Avirulent isolate	-
		AJ429085	Germany	Avirulent isolate	-
		AY063743	Brazil	Avirulent isolate	-
		AY313136	China	Avirulent isolate	-
		AY383730	Taiwan	Avirulent isolate	-
		DQ230836	Brazil	Avirulent isolate	-
		Z92909	Kazakhstan	Avirulent isolate	-
ToMV	184 kDa protein / Tm-1	AB083196	Japan	Avirulent isolate (sequence data)	Meshi <i>et al.</i> , 1988
		AF155507	China	Avirulent isolate (sequence data)	-
		AF332868	Australia	Avirulent isolate (sequence data)	-
		AJ132845	China	Avirulent isolate (sequence data)	-
		AJ243571	Kazakhstan	Avirulent isolate (sequence data)	-
		AJ417701	China	Avirulent isolate (sequence data)	-
		X02144	Unknown	Avirulent isolate (sequence data)	-
		Z92909	Kazakhstan	Avirulent isolate (sequence data)	-
ToMV	MP / Tm-2	AB083196	Japan	Avirulent isolate (sequence data)	Meshi <i>et al.</i> , 1989
		AF062519	Kazakhstan	Avirulent isolate (sequence data)	-
		AF332868	Australia	Avirulent isolate (sequence data)	-
		AJ011934	China	Avirulent isolate (sequence data)	-
		AJ132845	China	Avirulent isolate (sequence data)	-
		AJ243571	Kazakhstan	Avirulent isolate (sequence data)	-
		AJ310339	Kazakhstan	Avirulent isolate (sequence data)	-
		AJ417701	China	Avirulent isolate (sequence data)	-
		D17458	Japan	Resistance-breaking isolate (biological data)	-
		X02144	Unknown	Avirulent isolate (sequence data)	-
ToMV	MP / Tm-2 ²	AB083196	Japan	Avirulent isolate (sequence data)	Weber <i>et al.</i> , 1993; Weber <i>et al.</i> , 2004
		AF062519	Kazakhstan	Avirulent isolate (sequence data)	-
		AF332868	Australia	Avirulent isolate (sequence data)	-
		AJ011934	China	Avirulent isolate (sequence data)	-
		AJ132845	China	Avirulent isolate (sequence data)	-
		AJ243571	Kazakhstan	Avirulent isolate (sequence data)	-
		AJ310339	Kazakhstan	Avirulent isolate (sequence data)	-
		AJ417701	China	Avirulent isolate (sequence data)	-
		D17458	Japan	Avirulent isolate (sequence data)	-

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TMV	183 kDa protein / N	AF273221	Unknown	Avirulent isolate	Resistance-breaking isolates never reported
		AF395127	China	Avirulent isolate	
		AF395128	China	Avirulent isolate	
		AF395129	China	Avirulent isolate	
		AJ011933	China	Avirulent isolate	
		D63809	Japan	Avirulent isolate	
		D78608	Japan	Avirulent isolate	
		VO1408	Unknown	Avirulent isolate	
		VO1409	Unknown	Avirulent isolate	
		X68110	Korea	Avirulent isolate	
TSWV	NSs / Tsw	AB190819	Korea	Unknown	Margaria <i>et al.</i> , 2007
		AF020659	USA	Unknown	
		AF020660	The Netherlands	Unknown	
		AJ418777	Bulgaria	Unknown	
		AJ418778	Bulgaria	Unknown	
		AJ418779	Bulgaria	Unknown	
		AY744468	USA	Unknown	
		AY744469	USA	Unknown	
		AY744470	USA	Unknown	
		AY744471	USA	Unknown	
		AY744472	USA	Unknown	
		AY744473	USA	Unknown	
		AY744474	USA	Unknown	
		AY744475	USA	Unknown	
		AY744476	USA	Unknown	
		AY744477	USA	Unknown	
		AY744478	USA	Unknown	
		AY870392	USA	Unknown	
		D13926	Bulgaria	Unknown	
		DQ376178	Italy	Avirulent isolate (biological data)	Margaria <i>et al.</i> , 2007
		DQ376179	Italy	Resistance-breaking isolate (biological data)	
		DQ376180	Italy	Resistance-breaking isolate (biological data)	
		DQ376181	Italy	Resistance-breaking isolate (biological data)	
		DQ376183	Italy	Resistance-breaking isolate (biological data)	
		DQ376184	Spain	Avirulent isolate (biological data)	
		DQ376185	Spain	Resistance-breaking isolate (biological data)	
		DQ431237	Italy	Avirulent isolate (biological data)	
		DQ915948	Brazil	Avirulent isolate (biological data)	
TuMV	CI / TuRB01	AB093596	Italy	Avirulent isolate (sequence data)	Jenner <i>et al.</i> , 2000
		AB093597	Italy	Avirulent isolate (sequence data)	
		AB093598	Italy	Avirulent isolate (sequence data)	
		AB093599	Italy	Avirulent isolate (sequence data)	
		AB093600	Italy	Avirulent isolate (sequence data)	
		AB093601	Italy	Avirulent isolate (sequence data)	
		AB093602	Israel	Avirulent isolate (sequence data)	
		AB093603	Germany	Avirulent isolate (sequence data)	
		AB093604	Germany	Avirulent isolate (sequence data)	
		AB093605	Kenya	Avirulent isolate (sequence data)	
		AB093606	Russia	Avirulent isolate (sequence data)	
		AB093607	Russia	Avirulent isolate (sequence data)	
		AB093608	Czech Republic	Avirulent isolate (sequence data)	
		AB093609	USA	Avirulent isolate (sequence data)	
		AB093610	Canada	Avirulent isolate (sequence data)	
		AB093611	Brazil	Avirulent isolate (sequence data)	
		AB093612	New Zealand	Avirulent isolate (sequence data)	
		AB093613	Japan	Avirulent isolate (sequence data)	
		AB093614	Japan	Avirulent isolate (sequence data)	
		AB093620	Japan	Avirulent isolate (sequence data)	
		AB093621	Japan	Avirulent isolate (sequence data)	
		AB093622	Japan	Avirulent isolate (sequence data)	
		AB093623	Japan	Avirulent isolate (sequence data)	
		AB093624	Japan	Avirulent isolate (sequence data)	
		AB093625	Japan	Avirulent isolate (sequence data)	
		AB093627	China	Avirulent isolate (sequence data)	
		AF169561	United Kingdom	Avirulent isolate (sequence data)	
		AF394602	Taiwan	Avirulent isolate (sequence data)	
		AY090660	China	Avirulent isolate (sequence data)	

^a: See Table 1.

^b: Virulence properties of virus isolates according to published biological data or to mutation(s) in avirulence factor which are involved in resistance breakdown.

^c: Selected references related to biological data or virulence mutations.

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