

Supplemental Table S1: Accession numbers used for phylogenetic analysis

Virus name	Abbreviation	Genbank Accession numbers
fig mosaic virus	FMV	RdRP: QBH72679; GPP: CAR95645; NC: AEI98678; MP: CAX32469
rose rosette virus	RRV	RdRP: ADZ54688; GPP: ADZ54689; NC: ADZ54690; MP: ADZ54691
pigeonpea sterility mosaic virus 1	PPSMV-1	RdRP: CUR49050; GPP: CUR49051; NC: CUR49052; MP: CUR49053
pigeonpea sterility mosaic virus 2	PPSMV-2	RdRP: CCV01186; GPP: CCV01187; NC: CDX09883; MP: CCV01189
blackberry leaf mottle associated virus	BLMaV	RdRP: AQX45473; GPP: AQX45474; NC: AQX45475; MP: AQX45476
Pistacia virus B	PiVB	RdRP: QAR18002; GPP: QAR18003; NC: QAR18004; MP: QAR18005
Actinidia chlorotic virus 2	AcV-2	RdRP: QEE82886; GPP: QEE82887; NC: QEE82888; MP: QEE82889
aspen mosaic-associated virus	AsMaV	RdRP: CAA0079389; GPP: CAA0079597; NC: CAA0079646; MP: CAA0079685
maple mottle-associated virus	MaMaV	RdRP: QOI17315; GPP: QOI17316; NC: QOI17317; MP: QOI17318
Vitis emaravirus	VEV	RdRP: BCS90314; GPP: BCS90315; NC: BCS90316; MP: BCS90323
grapevine emaravirus	GEVA	RdRP: QVW29591; GPP: QVW29592; NC: QVW29593; MP: QVW29594
ash shoestring-associated virus	ASaV	RdRP: OU466880; GPP: OU466881; NC: OU466882; MP: OU466883
pea associated emaravirus	PaEV	NC: QJX15717
Pueraria lobata-associated emaravirus	PlOAEV	RdRP: UQV97405; GPP: UQV97406; NC: UQV97407; MP: UQV97408
European mountain ash ringspot-associated virus	EMARaV	RdRP: AAS73287; GPP: AAS73288; NC: ACJ68824; P5 MP: VFU05382
Actinidia chlorotic ringspot-associated virus	AcCRaV	RdRP: ALX00127; GPP: ALX00128; NC: ALX00129; MP: ALX00130
redbud yellow ringspot-associated virus	RYRaV	RdRP: AEO95760; GPP: AEO95761; NC: AEO95762; MP: AEO95763
lilac chlorotic ringspot-associated virus	LiCRaV	RdRP: QIN85945; GPP: QIN85946; NC: QIN85947; MP: QIN85948
High Plains wheat mosaic virus	HPWMoV	RdRP: AIK23031; GPP: AIK23032; NC P3a: AIK23033; NC P3b: AIK23034; MP: AIK23035
raspberry leaf blotch virus	RLBV	RdRP: CBZ42024; GPP: CBZ42025; NC: CBZ42026; MP: CBZ42027
palo verde broom virus	PVBV	RdRP: AWH90163; GPP: AWH90168; NC: AWH90173; MP: AWH90182
jujube yellow mottle-associated virus	JYMaV	RdRP: QDM38999; GPP: QDM39000; NC: QDM39001; MP: QDM39002
ti ringspot-associated virus	TiRSaV	RdRP: QAB47307; GPP: QAB47308; NC: QAB47309; MP: QAB47310
common oak ringspot-associated virus	CORaV	RdRP: CAD0281685; GPP: CAD0281686; NC: CAD0281687; MP: CAD0281688
alfalfa ringspot-associated virus	ARaV	NC: QGX86471

Arceuthobium sichuanense virus 1	ArSaV1	RdRP: DAZ87272; GPP: DAZ87273; NC: DAZ87274; MP: DAZ87275
Camellia japonica-associated virus 1	CjaV-1	RdRP: QGX73503; GPP: QGX73504; NC: QGX73505; MP: QGX73506
Camellia japonica-associated virus 2	CjaV-2	RdRP: QGX73507; GPP: QGX73508; NC: QGX73509; MP: QGX73510
Camellia chlorotic ringspot virus 1	CaCRSV-1	RdRP: QID58973; GPP: QID58975; NC: QID58977; MP: QID58979
Camellia chlorotic ringspot virus 2	CaCRSV-2	RdRP: QID58974; GPP: QID58976; NC: QID58978; MP: QID58980
pear chlorotic leaf spot-associated virus	PCLSaV	RdRP: QEE82892; GPP: QEE82893; NC: QEE82894; MP: QEE82895
Chrysanthemum mosaic-associated virus	ChMaV	RdRP: BCK60941; GPP: BCK60942; NC P3a: BCK60943; NC P3b: BCK60944; MP: BCK60945
Perilla mosaic virus	PerMV	RdRP: BBM96177; GPP: BBM96178; NC P3a: BBM96179; NC P3b: BBM96180; MP: BBM96181
Karaka Okahu purepure virus	KOPV	RdRP: QZN83753; GPP: QZN83754; NC: QZN83755; MP: QZN83756
Japanese star anise ringspot-associated virus	JSARaV	RdRP: BCO17108; GPP: BCO17109; NC: BCO17110; MP: BCO17111
Artemisia fimovirus 1	ArtV1	RdRP: USL90372; GPP: USL90373; NC: USL90374; MP: USL90375
rice grassy stunt virus	RGSV	RdRP: BAA89602; GPP: AIK24705; NC: AAK85272; MP: AIK24724
tomato spotted wilt virus	TSWV	RdRP: NP_049362
impatiens necrotic spot virus	INSV	RdRP: AWK77935
tomato chlorotic spot virus	TCSV	RdRP: ASJ77182
zucchini lethal chlorosis virus	ZLCV	RdRP: AOZ65576

Table S2: Accession numbers of emaraviral proteins containing the CTR region

Virus name and protein name	Abbreviation	Genbank Accession number
fig mosaic virus P5	FMV	CCH27326.2
rose rosette virus P7	RRV	AJW66847.1
Pistacia virus B P5A	PiVB	QAR18006.1
Pistacia virus B P5B	PiVB	QAR18007.1
Pistacia virus B P7	PiVB	QAR18009.1
rose rosette virus P5	RRV	AJW66844.1
maple mottle-associated virus P5	MaMaV	QOI17319.1
pigeonpea sterility mosaic virus 2 P5	PPSMV-2	CCW28369.2
Actinidia virus 2 P5	AcV-2	QEE82890.1
Chrysanthemum mosaic-associated virus P6	ChMaV	BCK60947.1

High Plains wheat mosaic virus P6	HPWMoV	YP_009237260.1
High Plains wheat mosaic virus Cophil P6	HPWMoV	QQO58781.1
raspberry leaf blotch virus P5	RLBV	CBZ42028.1
High Plains wheat mosaic virus P5	HPWMoV	YP_009237259.1
High Plains wheat mosaic virus Cophil P5	HPWMoV	QQO58783.1

Table S3: Accession numbers of viral proteins containing the Glu2-Pro domain

Family, genus	Virus name	Protein name	Abbreviation	Genbank Accession number
<i>Fimoviridae</i> , emaravirus	High Plains wheat mosaic virus	P7	HPWMoV	YP_009237261.1
	High Plains wheat mosaic virus CoPhil	P7	HPWMoV	QQO58779.1
	Perilla mosaic virus	P5	PerMV	BBM96182.1
	pear chlorotic leaf spot virus	P5	PCLSaV	QEE82896.1
	Camellia japonica-associated virus 1	P8	CjaV-1	QHG11080.1
	Camellia japonica-associated virus 1	P7	CjaV-1	QHG11079.1
	Chrysanthemum mosaic-associated virus	P5	ChMaV	BCK60946.1
<i>Phenuiviridae</i> , tenuivirus	rice grassy stunt virus	P1	RGSV	AIK24670.1
<i>Secoviridae</i> , sadwavirus	strawberry mottle virus	Polyprotein 2	SMoV	AWK49425.1
<i>Closteroviridae</i> , crinivirus	potato yellow vein virus	Minor coat protein CPm	PYVV	AMR69011.1
<i>Closteroviridae</i> , crinivirus	cucurbit yellow stunting disorder virus	p22	CYSDV	ABQ41110.1
<i>Closteroviridae</i> , crinivirus	beet pseudoyellows virus	Minor coat protein CPm	BPYV	NP_940793.1
<i>Closteroviridae</i> , crinivirus	sweet potato chlorotic stunt virus	Minor coat protein CPm	SPCSV	NP_689405.1
<i>Closteroviridae</i> , ampelovirus	little cherry virus 2	p55	LChV-2	ATB18129.1
<i>Closteroviridae</i> , ampelovirus	grapevine leafroll-associated virus 1	Coat protein duplicate 2	GLRaV-1	AXL94962.1
<i>Closteroviridae</i> , velarivirus	Cordyline virus 1	Minor coat protein CPm	CV1	YP_009506350.1
<i>Closteroviridae</i> , velarivirus	Malus domestica virus A	Minor coat protein CPm	MdoV1	QGA73181.1

Table S4: Accession numbers of orphan sequences

Name	Genbank Accession numbers
Yunnan emara-like virus	MW896848- MW896854
Illicium anisatum ringspot-associated virus	LC578480