

Table S1. Information of virus strains used for phylogenetic analysis in Fig. 1.

Organism	Accession	abbreviation
Linepithema humile narna-like virus 1	AXA52546.1	LhuNLV1
Wilkie narna-like virus 2	YP_009388579.1	WkNV2
Wuhan spider virus 7	YP_009344979.1	WhSV7
Hubei narna-like virus 3	YP_009337787.1	HbNLV3
Shahe narna-like virus 7	YP_009336622.1	ShNLV7
Alternaria brassicicola mitovirus	AKN79252.1	AbraMV1
Beihai narna-like virus 23	YP_009333261.1	BhNLV23
Beihai narna-like virus 22	YP_009333139.1	BhNLV22
Wenzhou narna-like virus 1	APG77283.1	WzNLV1
Shahe levi-like virus 1	APG77171.1	ShLLV1
Shahe narna-like virus 4	APG77168.1	ShNLV4
Changjiang levi-like virus 3	APG77119.1	CjLLV3
Cannabis sativa mitovirus 1	DAB41746.2	CasaMV1
Saccharomyces 23S RNA narnavirus	NP_660177.1	ScNV23S
Saccharomyces 20S RNA narnavirus	NP_660178.1	ScNV20S
Dahlia pinnata mitovirus 1	DAB41753.1	DpMV1
Escherichia virus Qbeta	NP_046752.1	EVQβ
Beta vulgaris mitovirus 1	DAB41759.1	BevuMV1
Rhizopus microsporus 20S narnavirus	QBC65280.1	RmV20S
Blechmonas luni narnavirus 1	YP_009553634.1	BlunNV1
Aspergillus fumigatus narnavirus 1	AXE72933.1	AfuNV1
Aspergillus fumigatus narnavirus 2	AXE72934.1	AfuNV2
Botrytis cinerea mitovirus 1	YP_002284334.2	BcMV1
Chenopodium quinoa mitovirus 1	AWL21855.1	CqMV1
Pyricularia oryzae ourmia-like virus 1	BBF90576.1	PoOLV
Sclerotinia sclerotiorum mitovirus 27	AWY10985.1	SsMV27
Sclerotinia sclerotiorum mitovirus 28	AWY10986.1	SsMV28
Sclerotinia sclerotiorum mitovirus 30	AWY10988.1	SsMV30
Sclerotinia sclerotiorum mitovirus 32	AWY10990.1	SsMV32
Phomopsis longicolla RNA virus 1	YP_009345044.1	PLRV1
Agaricus bisporus mitovirus 1	AQM32767.1	AbMV1
Sclerotinia sclerotiorum mitovirus 1 HC025	YP_009121785.1	SsMV1
Sclerotinia sclerotiorum mitovirus 12	AHF48628.1	SsMV12
Sclerotinia sclerotiorum mitovirus 11	AHF48627.1	SsMV11
Sclerotinia sclerotiorum mitovirus 19	ALD89136.1	SsMV19
Cassava virus C	YP_003104770.1	CsVC
Epirus cherry virus	YP_002019754.1	EpCV
Ourmia melon virus	YP_002019757.1	OuMV
Cryphonectria cubensis mitovirus 1a	AAR01970.1	CcMV1a
Enterobacteria phage SP	NP_695028.1	EPSP
Phytophthora infestans RNA virus 4	YP_009241365.1	PiRV4
Fusarium poae narnavirus 1	YP_009272902.1	FpNV1
Fusarium poae mitovirus 4	YP_009272901.1	FpMV4
Fusarium poae mitovirus 3	YP_009272900.1	FpMV3
Fusarium poae mitovirus 2	YP_009272899.1	FpMV2
Fusarium poae mitovirus 1	YP_009272898.1	FpMV1
Alternaria arborescens mitovirus 1	YP_009270635.1	AaMV1
Phytomonas serpens narnavirus 1	YP_009256557.1	PserNV1
Sclerotinia sclerotiorum mitovirus 4	AMT92141.1	SsMV4
Fusarium poae narnavirus 2	YP_009272903.1	FpNV2
Cronartium ribicola mitovirus 1	AMQ67414.1	CrMV1
Botrytis ourmia-like virus	YP_009182165.1	BOLV
Sclerotinia sclerotiorum mitovirus 3	YP_009182164.1	SsMV3
Botrytis cinerea mitovirus 4	YP_009182163.1	BcMV4
Botrytis cinerea mitovirus 3	YP_009182161.1	BcMV3
Botrytis cinerea mitovirus 2	YP_009182160.1	BcMV2
Sclerotinia sclerotiorum ourmia-like virus 2	ALD89139.1	SsOV2
Sclerotinia sclerotiorum ourmia-like virus 1	ALD89138.1	SsOV1
Plasmopara viticola lesion associated orfanplasmovirus 1	QNQ74063.1	PvLaOrfPIV1
Oidiodendron maius splipalmivirus 1	QNN89179.1	OmSPV1
Plasmopara viticola lesion associated narnavirus 40	QIR30319.1	PVaNarna40
Plasmopara viticola lesion associated narnavirus 35	QIR30314.1	PVaNarna35
Plasmopara viticola lesion associated orfanplasmovirus 2	QNQ74064.1	PvLaOrfPIV2
Plasmopara viticola lesion associated narnavirus 31	QIR30310.1	PVaNarna31

Plasmopara viticola lesion associated narnavirus 28	QIR30307.1	PVaNarna25
Plasmopara viticola lesion associated narnavirus 27	QIR30306.1	PVaNarna24
Sclerotinia sclerotiorum mitovirus 39	QUE49178.1	SsMV39
Sclerotinia sclerotiorum ourmia-like virus 11	QUE49164.1	SsOV11
Sclerotinia sclerotiorum ourmia-like virus 15	QUE49163.1	SsOV15
Sclerotinia sclerotiorum ourmia-like virus 10	QUE49124.1	SsOV10
Sclerotinia sclerotiorum ourmia-like virus 8	QUE49115.1	SsOV8
Insect narna-like virus 1	QNS31044.1	INIV1
Plasmopara viticola lesion associated orfanplasmovirus 5	QNQ74067.1	PvLaOrfPIV5
Plasmopara viticola lesion associated orfanplasmovirus 4	QNQ74066.1	PvLaOrfPIV4
Plasmopara viticola lesion associated orfanplasmovirus 3	QNQ74065.1	PvLaOrfPIV3
Escherichia phage MS2	YP_009640127.1	EPMS2
Magnaporthe oryzae ourmia-like virus	YP_009667033.1	MOLV1
Soybean leaf-associated ourmiavirus 1	YP_009666497.1	SlaOurV
Epicoccum nigrum ourmia-like virus 1	QDB75003.1	EnOulV1
Penicillium sumatrense ourmia-like virus 1	QDB75000.1	PmOLV1
Alternaria tenuissima narnavirus 1	QDB74997.1	AtNV1
Cladosporium tenuissimum narnavirus 1	QDB74996.1	CtNV1
Neofusicoccum parvum narnavirus 1	QDB74994.1	NpNV1
Ochlerotatus-associated narna-like virus 1	AGW51766.2	ONLV1
Culex narnavirus 1	QBR53296.1	CxNV1
Combu positive-strand RNA mycovirus	QAB47442.1	CPRMV
Plasmopara viticola lesion associated narnavirus 17	QIR30296.1	PVaNarna17
Plasmopara viticola lesion associated narnavirus 15	QIR30294.1	PVaNarna15
Plasmopara viticola lesion associated narnavirus 13	QIR30292.1	PVaNarna13
Plasmopara viticola lesion associated narnavirus 12	QIR30291.1	PVaNarna12
Plasmopara viticola lesion associated narnavirus 11	QIR30290.1	PVaNarna11
Plasmopara viticola lesion associated narnavirus 10	QIR30289.1	PVaNarna10
Plasmopara viticola lesion associated narnavirus 9	QIR30288.1	PVaNarna9
Plasmopara viticola lesion associated narnavirus 3	QIR30282.1	PVaNarna3
Plasmopara viticola lesion associated narnavirus 1	QIR30280.1	PVaNarna1
Plasmodium vivax Narna-Like virus 1	QHQ74301.1	PvNLV1
Sclerotinia sclerotiorum ourmia-like virus 4	QHG11400.1	SsOV4
Plasmopara viticola lesion associated ourmia-like virus 91	QGY72621.1	PVaOurmia91
Ophiostoma mitovirus 5	CAB42653.1	OMV5
Rhizoctonia solani ourmia-like virus 1	ALD89131.1	RsOV1
Plasmopara viticola lesion associated mitovirus 13	QIR30236.1	PVaMito13
Buergenerula spartinae mitovirus 1	AHY03257.1	BsMV1
Botryosphaeria dothidea mitovirus 1	QMU24933.1	BdMV1
Ophiostoma mitovirus 7	AGT55877.1	OMV7
Leptosphaeria biglobosa mitovirus 1	YP_009553599.1	LbMV1
Soybean leaf-associated mitovirus 5	ALM62240.1	SlaMV5
Fusarium boothii mitovirus 1	BBG56022.1	FbMV1
Soybean leaf-associated mitovirus 1	ALM62241.1	SlaMV1
Plasmopara viticola lesion associated mitovirus 44	QIR30267.1	PVaMito44
Fusarium oxysporum f. sp. dianthi mitovirus 1	QIC51112.1	FoMV1
Entomophthora muscae mitovirus 7	QCF24458.1	EmMV7
Fusarium circinatum mitovirus 1	AHI43533.1	FcirMV1
Fusarium coeruleum mitovirus 1	YP_009126873.1	FcoeMV1
Fusarium globosum mitovirus 1	YP_009126872.1	FgloMV1
Sclerotinia sclerotiorum mitovirus 6	AHX84134.1	SsMV6
Fusarium andiyazi mitovirus 1	QIQ28426.1	FandMV1
Wenzhou narna-like virus 6	APG77281.1	WzNLV6
Hubei narna-like virus 12	APG77197.1	HbNLV12
Changjiang narna-like virus 3	YP_009337343.1	CjNLV3
Wenling narna-like virus 4	YP_009337133.1	WINLV4
Wenling narna-like virus 2	YP_009337193.1	WINLV2
Changjiang narna-like virus 2	YP_009337311.1	CjNLV2
Beihai narna-like virus 9	YP_009333316.1	BhNLV9
Hubei narna-like virus 10	APG77208.1	HbNLV10
Plasmopara viticola lesion associated ourmia-like virus 14	QGY72544.1	PVaOurmia14
Plasmopara viticola lesion associated ourmia-like virus 4	QGY72534.1	PVaOurmia4
Phaeoacremonium minimum ourmia-like virus 3	QDB75009.1	PmOLV3
Botryosphaeria dothidea Ourmia-like virus	QED22728.1	BdOLV
Sclerotinia sclerotiorum mitovirus 2	AHX84129.1	SsMV2
Fusarium asiaticum mitovirus 1	UNG44312.1	FaMV1
Fusarium asiaticum mitovirus 2	UNG44313.1	FaMV2

Fusarium asiaticum mitovirus 3	UNG44314.1	FaMV3
Fusarium asiaticum mitovirus 4	UNG44315.1	FaMV4
Fusarium asiaticum mitovirus 5	UNG44316.1	FaMV5
Fusarium asiaticum mitovirus 6	UNG44317.1	FaMV6
Fusarium asiaticum mitovirus 7	UNG44318.1	FaMV7
Fusarium asiaticum mitovirus 8	UNG44319.1	FaMV8
Fusarium poae mitovirus 1 SZ-4	UNG44320.1	FpMV1 SZ-4
Fusarium asiaticum narnavirus 1	UNG44322.1	FaNV1
Fusarium asiaticum ourmiavirus 1	UNG44324.1	FaOV1
Fusarium asiaticum ourmiavirus 2	UNG44321.1	FaOV2
Sclerotinia sclerotiorum narnavirus 3	QZE12022.1	SsNV3
Sclerotinia sclerotiorum narnavirus 4	QZE12024.1	SsNV4
Beihai levi-like virus 1	APG77061.1	BhLLV1

Table S2 Primers were used in this study.

Primer name	Sequence	Purpose
M-TF/TR	CTCAGCCCTACACAAAGACC	FaMBV1 full length detection
AC Primer	ACACAAAGACC	Reverse transcription
BL-F	GGCTACAGGTTTGTGCAACG	247bp, L segment detection
BL-R	TGTTGGGCAGTGCACACTTA	247bp, L segment detection
BS-F	GCACTTGCTGTAGGGTGAGAT	241bp, S segment detection
BS-R	CCTGGGTCTGGAGTTTCCTT	241bp, S segment detection
FaMYBV1-MFR	ctcagcACACAAAGACCACCTCCACAC	345bp, M1 region of M segment
M5TI	TCACATTGACCAACTGCCCA	345bp, M1 region of M segment; inner primer of classic 5'RACE
208F	CAATTGCCTTCGCCTTGGAC	389bp, M2 region of M segment
208R	AATTCGTCCGTCGATCCCAG	389bp, M2 region of M segment
G2432_F	TTTGAAACTATCATTGGTGCAT	392bp, M3 region of M segment
G2432_R	CTCATTTTGGCATTAGCTG	392bp, M3 region of M segment
FaMYBV1-MFF	gcACACAAAGACCCCTCCATAATTCTG	337bp, M4 region of M segment
M3TI	TGATTGGGTCATGAAGGGCA	337bp, M1 region of M segment; inner primer of classic 3'RACE
07335F	CTCACTAATTCTAGCATCGCATC	FGSG_07335, Actin, 199bp & 497bp (gDNA)
07335R	GGCCTTGCACATAACCCGAA	FGSG_07335, Actin, 199bp & 497bp (gDNA)
M5TO	TGAGCAAATGGTGGGGTCA	outer primer of classic 5'RACE for M segment
M3TO	ATCCAGGCAAACAATGCAGC	outer primer of classic 3'RACE for M segment
11sp	ACCAGATAATAGGGGCTTCC	Fusarium asiaticum mitovirus 1
11ap	AATACTAGCGGTACTCCTTTTCG	Fusarium asiaticum mitovirus 1
582sp	AACCGCTGTCTGTGAGGTACG	Fusarium asiaticum mitovirus 2
582ap	CCCGATTTTGGTGATTATGC	Fusarium asiaticum mitovirus 2
54sp	TTACCTGCCTGCTGAGCCT	Fusarium asiaticum mitovirus 3
54ap	ACATAACCTTGCCCTACTTC	Fusarium asiaticum mitovirus 3
581sp	CTGTAATCTGCGAGTTCTG	Fusarium asiaticum mitovirus 4
581ap	CCATACTTGGTGATGATGTGG	Fusarium asiaticum mitovirus 4
390sp	TTAGGCCCTTTCAGTCTTTTG	Fusarium asiaticum mitovirus 5
390ap	CCGCTTCACGATTCTTTATT	Fusarium asiaticum mitovirus 5
2262sp	CGCTGATAAGGAAGGAAAGAC	Fusarium asiaticum mitovirus 6
2262ap	GCTGAAACCTGGAATGGAGT	Fusarium asiaticum mitovirus 6
125sp	GAGGCCGAGAAAGCAAAG	Fusarium asiaticum mitovirus 7
125ap	ATGCCATTATAGGTCAGGATGT	Fusarium asiaticum mitovirus 7
1321sp	CCATTTGCGCTCCCTATTC	Fusarium asiaticum mitovirus 8
1321ap	TTGGCATTCTATCTGTTGCTG	Fusarium asiaticum mitovirus 8
289sp	GTTATCTGGAAACCCCATCG	Fusarium poae mitovirus 1
289ap	CCCTGAGGACCTGCCTTATT	Fusarium poae mitovirus 1
FaOFNV1S1F	CCGCTCACCCCTTAAGATCCAC	Fusarium asiaticum narnavirus 1 RNA1
FaOFNV1S1R	ATCTTGTACTIONCATCGTTACGC	Fusarium asiaticum narnavirus 1 RNA1
62F	CAGGCTTCCAATGCCTGAGA	Fusarium asiaticum narnavirus 1 RNA2
62R	GCAAAACCTGGTTCCGTGAC	Fusarium asiaticum narnavirus 1 RNA2
862sp	CATCCGTCGCATTATTTCC	Fusarium asiaticum ourmiavirus 1
862ap	CATCCGTCGCATTATTTCC	Fusarium asiaticum ourmiavirus 1
1857sp	GCGGTCTCCTCCTCAAATG	Fusarium asiaticum ourmiavirus 2, 519bp
1857ap	GGACAAACGGATGGCAAG	Fusarium asiaticum ourmiavirus 2, 519bp
109sp	GTAATCTGCCGATGTGGTTG	Fusarium graminearum hypovirus 2
109ap	CCCCTTGCTTTAGACGCT	Fusarium graminearum hypovirus 2
373sp	AACCAAGAAAAGGGCAGTATG	Fusarium asiaticum fusarivirus 1
373ap	GAAAGGCTTAAAGCTGAACG	Fusarium asiaticum fusarivirus 1
113sp	TGGGATGCCTTTCTCACC	Fusarium asiaticum negative-stranded RNA virus 1
113ap	AACGCTACTGTCTCGTCAATG	Fusarium asiaticum negative-stranded RNA virus 1
FgNSRV1-F	ATTGGCTTCAGTTAAGACGAA	Fusarium graminearum negative-stranded RNA virus 1
FgNSRV1-R	ACTAGCCATTACTGAACACC	Fusarium graminearum negative-stranded RNA virus 1
FgPV(S)-TF(171203)	GCTGGATCAGGAACCGTCCTAATTG	SMARTer 3'RACE for S segment
FgPV(S)-TR(171202)	CAGCAAGTGCATGAGGATTTGAGGAG	SMARTer 5'RACE for S segment
FgPV-TF(171009)	GCAGAACTATGGCTACTGTGGAAGGG	SMARTer 3'RACE for L segment
FgPV-TR(171009)	TGTGAATAACGATGGGCTCGGTTT	SMARTer 5'RACE for L segment

Table S3. Strain information used for RNA isolation and RNA-seq.

Location	Isolate
Nanjing	60
Guangshui	65
Suizhou	201
Xiaogan	24
Total	350