

Summary of codon statistics for individual genes (>100 codons) of completely sequenced plant viruses (Adams & Antoniw)

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Alfalfa mosaic virus	Alfamovirus	Polymerase 2a	K02702	791	42.2	49.3	35.7	41.6	57.8
Alfalfa mosaic virus	Alfamovirus	Movement protein 3a	K02703	301	43.9	50.2	41.5	39.9	56.3
Alfalfa mosaic virus	Alfamovirus	Coat protein 3b	K02703	222	51.5	57.2	44.6	52.7	61.0
Alfalfa mosaic virus	Alfamovirus	Replication protein 1a	L00163	1127	42.9	48.7	41.1	38.9	53.6
Garlic virus A	Allexivirus	TGBp2	AB010300	104	53.2	54.8	49.0	55.8	60.9
Garlic virus A	Allexivirus	TGBp1	AB010300	252	51.6	54.8	45.2	54.8	52.0
Garlic virus A	Allexivirus	Polymerase	AB010300	1626	50.1	57.2	41.1	51.9	56.1
Garlic virus A	Allexivirus	ORF4	AB010300	356	46.6	47.8	43.3	48.9	58.9
Garlic virus A	Allexivirus	Nucleic acid binding protein	AB010300	132	42.9	50.8	38.6	39.4	58.2
Garlic virus A	Allexivirus	Coat protein	AB010300	251	49.1	52.6	45.8	49.0	58.1
Garlic virus C	Allexivirus	TGBp2	AB010302	104	48.7	56.7	46.2	43.3	59.8
Garlic virus C	Allexivirus	TGBp1	AB010302	245	48.3	53.5	40.0	51.4	57.0
Garlic virus C	Allexivirus	Polymerase	AB010302	1551	47.8	54.3	40.3	48.8	58.0
Garlic virus C	Allexivirus	ORF4	AB010302	368	47.4	53.5	40.5	48.1	59.7
Garlic virus C	Allexivirus	Nucleic acid binding protein	AB010302	129	45.0	47.3	38.0	49.6	60.9
Garlic virus C	Allexivirus	Coat protein	AB010302	260	50.3	53.1	50.0	47.7	61.0
Garlic virus E	Allexivirus	TGBp2	AJ292230	104	52.2	57.7	47.1	51.9	61.0
Garlic virus E	Allexivirus	TGBp1	AJ292230	245	51.0	54.3	44.5	54.3	57.5
Garlic virus E	Allexivirus	Polymerase	AJ292230	1558	50.8	56.2	40.6	55.5	57.2
Garlic virus E	Allexivirus	ORF4	AJ292230	365	49.1	52.6	44.9	49.9	61.0
Garlic virus E	Allexivirus	Nucleic acid binding protein	AJ292230	128	42.7	49.2	39.8	39.1	55.6
Garlic virus E	Allexivirus	Coat protein	AJ292230	253	52.3	54.2	47.8	54.9	55.1
Garlic virus X	Allexivirus	TGBp2	U89243	107	53.9	52.3	54.2	55.1	48.4
Garlic virus X	Allexivirus	TGBp1	U89243	235	48.1	54.0	40.0	50.2	58.2
Garlic virus X	Allexivirus	Polymerase	U89243	1544	46.7	51.8	40.1	48.4	55.9
Garlic virus X	Allexivirus	ORF4	U89243	289	46.3	47.8	42.9	48.1	59.4
Garlic virus X	Allexivirus	Nucleic acid binding protein	U89243	128	41.7	43.8	42.2	39.1	61.0
Garlic virus X	Allexivirus	Coat protein	U89243	244	49.9	52.9	48.0	48.8	60.0
Shallot virus X	Allexivirus	TGBp2	M97264	104	52.9	57.7	48.1	52.9	52.8
Shallot virus X	Allexivirus	TGBp1	M97264	242	51.0	57.4	44.2	51.2	52.4
Shallot virus X	Allexivirus	Polymerase	M97264	1719	49.6	54.5	40.7	53.6	56.6
Shallot virus X	Allexivirus	ORF4	M97264	381	47.3	48.8	42.8	50.4	58.3
Shallot virus X	Allexivirus	Nucleic acid binding protein	M97264	129	41.9	45.0	40.3	40.3	60.3

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Shallot virus X	Allexivirus	Coat protein	M97264	263	51.5	51.7	47.9	54.8	58.8
Pothos latent virus	Aureusvirus	Polymerase readthrough	AJ243370	740	47.9	53.1	41.4	49.2	56.9
Pothos latent virus	Aureusvirus	ORF4	AJ243370	131	49.6	55.7	51.9	41.2	51.6
Pothos latent virus	Aureusvirus	Movement protein	AJ243370	243	47.7	51.4	43.2	48.6	54.7
Pothos latent virus	Aureusvirus	Coat protein	AJ243370	373	46.4	50.9	47.2	41.0	56.9
Oat chlorotic stunt virus	Avenavirus	Polymerase readthrough	X83964	753	51.7	51.7	42.1	61.2	55.3
Oat chlorotic stunt virus	Avenavirus	Coat protein	X83964	455	49.3	49.2	48.8	49.9	58.9
Banana bunchy top virus	Babuvirus	Coat protein P3	L41574	176	43.0	42.1	41.5	45.5	58.6
Banana bunchy top virus	Babuvirus	Movement protein P4	L41575	118	43.2	51.7	38.1	39.8	49.9
Banana bunchy top virus	Babuvirus	P6 protein	L41577	155	39.8	45.8	40.7	32.9	44.6
Banana bunchy top virus	Babuvirus	Rb-binding protein P5	L41578	162	38.1	45.1	29.6	39.5	49.5
Banana bunchy top virus	Babuvirus	Replication protein P1	S56276	287	39.7	43.2	36.2	39.7	52.3
Banana streak virus	Badnavirus	Polyprotein ORF3	AJ002234	1833	40.7	47.4	34.5	40.3	49.6
Banana streak virus	Badnavirus	ORF2	AJ002234	135	44.4	48.2	44.4	40.7	52.8
Banana streak virus	Badnavirus	ORF1	AJ002234	178	42.0	52.8	25.8	47.2	56.7
Cacao swollen shoot virus	Badnavirus	Polyprotein ORF3	L14546	1835	44.9	50.8	38.9	45.1	55.0
Cacao swollen shoot virus	Badnavirus	ORF2	L14546	133	43.6	54.9	33.8	42.1	54.0
Cacao swollen shoot virus	Badnavirus	ORF1	L14546	144	40.7	52.1	29.2	41.0	53.5
Citrus yellow mosaic virus	Badnavirus	Polyprotein ORF3	AF347695	1984	44.5	51.7	39.8	42.2	55.9
Citrus yellow mosaic virus	Badnavirus	ORF6	AF347695	155	49.5	58.7	43.2	46.5	46.7
Citrus yellow mosaic virus	Badnavirus	ORF4	AF347695	180	44.1	45.0	28.9	58.3	51.4
Citrus yellow mosaic virus	Badnavirus	ORF2	AF347695	138	42.3	49.3	33.3	44.2	61.0
Citrus yellow mosaic virus	Badnavirus	ORF1	AF347695	144	38.0	47.2	33.3	33.3	57.5
Commelina yellow mottle virus	Badnavirus	Polyprotein ORF3	X52938	1887	40.6	48.2	36.1	37.4	47.2
Commelina yellow mottle virus	Badnavirus	ORF2	X52938	136	40.9	45.6	38.2	39.0	48.1
Commelina yellow mottle virus	Badnavirus	ORF1	X52938	201	34.8	46.8	23.9	33.8	48.3
Sugarcane bacilliform virus	Badnavirus	Polyprotein ORF3	AJ277091	1913	42.4	49.0	37.0	41.2	48.7
Sugarcane bacilliform virus	Badnavirus	ORF2	AJ277091	124	46.5	54.8	34.7	50.0	56.3
Sugarcane bacilliform virus	Badnavirus	ORF1	AJ277091	186	46.1	54.3	29.6	54.3	47.6
Abutilon mosaic virus	Begomovirus	TrAP protein AC2	X15983	130	48.7	51.5	47.7	46.9	58.0
Abutilon mosaic virus	Begomovirus	Replication protein AC1	X15983	156	49.6	55.8	38.5	54.5	61.0
Abutilon mosaic virus	Begomovirus	Replication enhancer AC3	X15983	133	39.1	39.1	31.6	46.6	54.8
Abutilon mosaic virus	Begomovirus	Coat protein AV1	X15983	242	48.6	48.8	39.3	57.9	52.7
Abutilon mosaic virus	Begomovirus	Nuclear shuttle protein BV1	X15984	257	47.7	49.4	42.0	51.8	61.0
Abutilon mosaic virus	Begomovirus	Movement protein BC1	X15984	294	49.3	47.3	41.2	59.5	57.4

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
African cassava mosaic virus	Begomovirus	TrAP protein AC2	J02057	136	45.8	52.9	45.6	39.0	55.8
African cassava mosaic virus	Begomovirus	Replication protein AC1	J02057	359	45.3	50.4	40.7	44.9	55.0
African cassava mosaic virus	Begomovirus	Replication enhancer AC3	J02057	135	39.3	43.0	28.2	46.7	61.0
African cassava mosaic virus	Begomovirus	Movement protein AV2	J02057	114	50.6	58.8	38.6	54.4	60.8
African cassava mosaic virus	Begomovirus	Coat protein AV1	J02057	259	45.8	44.4	39.8	53.3	50.0
African cassava mosaic virus	Begomovirus	AC4 protein	J02057	141	44.7	39.0	44.7	50.4	50.6
African cassava mosaic virus	Begomovirus	Nuclear shuttle protein BV1	J02058	257	41.1	43.2	41.3	38.9	49.4
African cassava mosaic virus	Begomovirus	Movement protein BC1	J02058	299	42.6	46.8	39.8	41.1	55.7
Ageratum enation virus	Begomovirus	TrAP protein C2	AJ437618	135	47.2	54.1	47.4	40.0	60.7
Ageratum enation virus	Begomovirus	Replication protein C1	AJ437618	362	43.7	50.3	38.4	42.5	57.6
Ageratum enation virus	Begomovirus	Replication enhancer C3	AJ437618	135	36.5	42.2	25.9	41.5	61.0
Ageratum enation virus	Begomovirus	Movement protein V2	AJ437618	116	46.6	51.7	40.5	47.4	57.6
Ageratum enation virus	Begomovirus	Coat protein V1	AJ437618	257	43.2	47.5	41.3	40.9	56.4
Ageratum yellow vein China virus	Begomovirus	TrAP protein C2	AJ495813	136	44.4	50.7	43.4	39.0	56.3
Ageratum yellow vein China virus	Begomovirus	Replication protein C1	AJ495813	363	41.2	48.8	39.9	35.0	48.0
Ageratum yellow vein China virus	Begomovirus	Replication enhancer C3	AJ495813	135	36.1	37.0	30.4	40.7	43.8
Ageratum yellow vein China virus	Begomovirus	Movement protein V2	AJ495813	124	50.3	59.7	45.2	46.0	52.0
Ageratum yellow vein China virus	Begomovirus	Coat protein V1	AJ495813	258	42.3	45.0	39.5	42.3	47.2
Ageratum yellow vein Sri Lanka virus	Begomovirus	TrAP protein AC2	AF314144	135	46.7	52.6	47.4	40.0	61.0
Ageratum yellow vein Sri Lanka virus	Begomovirus	Replication protein AC1	AF314144	362	43.4	49.2	39.2	41.7	50.7
Ageratum yellow vein Sri Lanka virus	Begomovirus	Replication enhancer AC3	AF314144	135	37.8	43.7	26.7	43.0	52.4
Ageratum yellow vein Sri Lanka virus	Begomovirus	Movement protein AV2	AF314144	116	47.4	53.5	39.7	49.1	61.0
Ageratum yellow vein Sri Lanka virus	Begomovirus	Coat protein AV1	AF314144	257	44.6	44.8	41.6	47.5	50.0
Ageratum yellow vein Taiwan virus	Begomovirus	Coat protein AV1	AF307861	258	41.9	44.6	39.9	41.1	47.5
Ageratum yellow vein Taiwan virus	Begomovirus	Movement protein AV2	AF307861	117	48.7	61.5	40.2	44.4	50.0
Ageratum yellow vein Taiwan virus	Begomovirus	Replication enhancer AC3	AF307861	135	36.1	36.3	31.1	40.7	47.6
Ageratum yellow vein Taiwan virus	Begomovirus	Replication protein AC1	AF307861	361	42.7	49.3	39.6	39.1	55.8
Ageratum yellow vein Taiwan virus	Begomovirus	TrAP protein AC2	AF307861	136	45.3	51.5	44.1	40.4	55.6
Ageratum yellow vein virus	Begomovirus	Coat protein AV1	X74516	258	41.9	44.6	39.9	41.1	48.9
Ageratum yellow vein virus	Begomovirus	Movement protein AV2	X74516	117	49.0	61.5	40.2	45.3	53.2
Ageratum yellow vein virus	Begomovirus	Replication enhancer AC3	X74516	135	35.3	35.6	29.6	40.7	49.6
Ageratum yellow vein virus	Begomovirus	Replication protein AC1	X74516	361	43.2	49.6	39.1	41.0	56.5
Ageratum yellow vein virus	Begomovirus	TrAP protein AC2	X74516	136	45.1	52.2	43.4	39.7	57.9
Bean calico mosaic virus	Begomovirus	TrAP protein AC2	AF110189	175	43.1	44.0	43.4	41.7	58.0
Bean calico mosaic virus	Begomovirus	Replication protein AC1	AF110189	350	45.8	50.6	38.9	48.0	56.8

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Bean calico mosaic virus	Begomovirus	Replication enhancer AC3	AF110189	133	35.8	38.4	31.6	37.6	47.3
Bean calico mosaic virus	Begomovirus	Coat protein AV1	AF110189	250	42.0	45.2	40.0	40.8	49.2
Bean calico mosaic virus	Begomovirus	AC4 protein	AF110189	110	45.5	36.4	46.4	53.6	41.2
Bean calico mosaic virus	Begomovirus	Nuclear shuttle protein BV1	AF110190	259	38.5	44.4	39.0	32.1	46.0
Bean calico mosaic virus	Begomovirus	Movement protein BC1	AF110190	293	41.3	43.7	38.9	41.3	55.4
Bean dwarf mosaic virus	Begomovirus	TrAP protein AC2	M88179	130	49.5	55.4	47.7	45.4	61.0
Bean dwarf mosaic virus	Begomovirus	Replication protein AC1	M88179	362	47.2	52.5	39.5	49.7	54.9
Bean dwarf mosaic virus	Begomovirus	Replication enhancer AC3	M88179	133	38.9	39.9	32.3	44.4	61.0
Bean dwarf mosaic virus	Begomovirus	Coat protein AV1	M88179	252	46.6	46.8	40.5	52.4	52.1
Bean dwarf mosaic virus	Begomovirus	Nuclear shuttle protein BV1	M88180	257	44.8	45.9	40.9	47.5	57.5
Bean dwarf mosaic virus	Begomovirus	Movement protein BC1	M88180	294	47.5	46.6	40.8	55.1	55.5
Bean golden mosaic virus	Begomovirus	TrAP protein AC2	M88686	130	45.1	50.0	49.2	36.2	47.8
Bean golden mosaic virus	Begomovirus	Replication protein AC1	M88686	362	43.7	47.0	40.1	43.9	49.7
Bean golden mosaic virus	Begomovirus	Replication enhancer AC3	M88686	133	37.1	42.9	29.3	39.1	52.8
Bean golden mosaic virus	Begomovirus	Coat protein AV1	M88686	252	41.7	47.2	39.7	38.1	50.6
Bean golden mosaic virus	Begomovirus	Nuclear shuttle protein BV1	M88687	254	38.9	42.5	42.1	31.9	45.4
Bean golden mosaic virus	Begomovirus	Movement protein BC1	M88687	294	40.3	43.2	42.5	35.0	50.8
Bean golden yellow mosaic virus	Begomovirus	Nuclear shuttle protein BV1	D00200	257	36.6	43.2	37.7	28.8	42.1
Bean golden yellow mosaic virus	Begomovirus	Movement protein BC1	D00200	294	40.3	42.9	38.8	39.1	52.8
Bean golden yellow mosaic virus	Begomovirus	TrAP protein AC2	D00201	173	45.9	47.4	46.2	43.9	59.3
Bean golden yellow mosaic virus	Begomovirus	Replication protein AC1	D00201	354	43.6	48.9	38.4	43.5	53.5
Bean golden yellow mosaic virus	Begomovirus	Replication enhancer AC3	D00201	133	38.6	42.9	31.6	41.4	57.4
Bean golden yellow mosaic virus	Begomovirus	Movement protein AV2	D00201	115	46.4	51.3	41.7	46.1	46.3
Bean golden yellow mosaic virus	Begomovirus	Coat protein AV1	D00201	252	42.3	45.2	40.1	41.7	48.9
Bhendi yellow vein mosaic virus	Begomovirus	TrAP protein AC2	AF241479	144	46.1	53.5	43.1	41.7	55.2
Bhendi yellow vein mosaic virus	Begomovirus	Replication protein AC1	AF241479	363	43.7	49.9	39.4	41.9	53.8
Bhendi yellow vein mosaic virus	Begomovirus	Replication enhancer AC3	AF241479	135	39.5	43.7	28.9	45.9	61.0
Bhendi yellow vein mosaic virus	Begomovirus	Movement protein AV2	AF241479	122	47.8	53.3	42.6	47.5	53.5
Bhendi yellow vein mosaic virus	Begomovirus	Coat protein AV1	AF241479	257	45.9	49.0	40.9	47.9	50.6
Bhendi yellow vein mosaic virus	Begomovirus	AC4 protein	AF241479	103	47.9	38.8	48.5	56.3	48.1
Cabbage leaf curl virus	Begomovirus	TrAP protein AC2	U65529	130	48.0	53.9	44.6	45.4	61.0
Cabbage leaf curl virus	Begomovirus	Replication protein AC1	U65529	350	45.9	49.7	42.3	45.7	58.0
Cabbage leaf curl virus	Begomovirus	Replication enhancer AC3	U65529	133	42.4	45.1	36.1	45.9	59.6
Cabbage leaf curl virus	Begomovirus	Coat protein AV1	U65529	252	45.8	44.8	39.7	52.8	58.1
Cabbage leaf curl virus	Begomovirus	AC4 protein	U65529	122	47.0	37.7	52.5	50.8	47.7

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Cabbage leaf curl virus	Begomovirus	Nuclear shuttle protein BV1	U65530	257	39.7	45.1	38.9	35.0	48.9
Cabbage leaf curl virus	Begomovirus	Movement protein BC1	U65530	296	42.5	46.6	42.2	38.5	50.5
Chayote yellow mosaic virus	Begomovirus	TrAP protein AC2	AJ223191	136	50.0	58.8	46.3	44.9	52.3
Chayote yellow mosaic virus	Begomovirus	Replication protein AC1	AJ223191	363	49.1	52.1	42.2	53.2	58.9
Chayote yellow mosaic virus	Begomovirus	Replication enhancer AC3	AJ223191	135	43.5	48.2	28.2	54.1	61.0
Chayote yellow mosaic virus	Begomovirus	Coat protein AV1	AJ223191	259	48.0	48.7	43.6	51.7	56.4
Chilli leaf curl virus	Begomovirus	Coat protein AV1	AF336806	257	45.7	47.1	40.9	49.0	55.2
Chilli leaf curl virus	Begomovirus	Movement protein AV2	AF336806	119	49.3	58.0	40.3	49.6	61.0
Chilli leaf curl virus	Begomovirus	Replication enhancer AC3	AF336806	135	39.8	42.2	30.4	46.7	54.2
Chilli leaf curl virus	Begomovirus	Replication protein AC1	AF336806	350	43.9	47.4	39.7	44.6	53.0
Chilli leaf curl virus	Begomovirus	TrAP protein AC2	AF336806	135	50.4	58.5	48.2	44.4	54.3
Chino del tomate virus	Begomovirus	TrAP protein AC2	AF101476	130	50.5	53.9	50.8	46.9	61.0
Chino del tomate virus	Begomovirus	Replication protein AC1	AF101476	362	47.8	52.2	38.4	52.8	52.7
Chino del tomate virus	Begomovirus	Replication enhancer AC3	AF101476	133	41.1	42.1	32.3	48.9	60.8
Chino del tomate virus	Begomovirus	Coat protein AV1	AF101476	252	49.1	47.2	40.5	59.5	61.0
Chino del tomate virus	Begomovirus	Nuclear shuttle protein BV1	AF101478	257	44.6	45.1	42.8	45.9	56.1
Chino del tomate virus	Begomovirus	Movement protein BC1	AF101478	294	46.4	46.9	41.8	50.3	57.4
Cotton leaf curl Alabad virus	Begomovirus	TrAP protein AC2	AJ002455	151	46.6	48.3	45.0	46.4	55.8
Cotton leaf curl Alabad virus	Begomovirus	Replication protein AC1	AJ002455	364	42.5	49.5	37.9	40.1	50.1
Cotton leaf curl Alabad virus	Begomovirus	Replication enhancer AC3	AJ002455	135	39.3	42.2	30.4	45.2	61.0
Cotton leaf curl Alabad virus	Begomovirus	Movement protein AV2	AJ002455	122	49.2	54.9	42.6	50.0	59.0
Cotton leaf curl Alabad virus	Begomovirus	Coat protein AV1	AJ002455	257	45.7	48.3	40.1	48.6	51.1
Cotton leaf curl Gezira virus	Begomovirus	TrAP protein AC2	AF155064	135	46.9	53.3	45.2	42.2	52.6
Cotton leaf curl Gezira virus	Begomovirus	Replication protein AC1	AF155064	363	45.8	52.1	39.1	46.3	52.0
Cotton leaf curl Gezira virus	Begomovirus	Replication enhancer AC3	AF155064	134	38.3	36.6	29.9	48.5	48.8
Cotton leaf curl Gezira virus	Begomovirus	Movement protein AV2	AF155064	123	52.9	60.2	43.1	55.3	59.5
Cotton leaf curl Gezira virus	Begomovirus	Coat protein AV1	AF155064	259	43.9	46.0	41.7	44.0	49.3
Cotton leaf curl Kokhran virus	Begomovirus	TrAP protein AC2	AJ002448	135	48.4	53.3	48.9	43.0	53.9
Cotton leaf curl Kokhran virus	Begomovirus	Replication protein AC1	AJ002448	361	45.8	49.9	40.4	47.1	55.5
Cotton leaf curl Kokhran virus	Begomovirus	Replication enhancer AC3	AJ002448	135	38.3	43.7	30.4	40.7	56.8
Cotton leaf curl Kokhran virus	Begomovirus	Movement protein AV2	AJ002448	119	47.3	51.3	40.3	50.4	51.8
Cotton leaf curl Kokhran virus	Begomovirus	Coat protein AV1	AJ002448	257	43.3	46.3	40.1	43.6	53.3
Cotton leaf curl Kokhran virus	Begomovirus	AC4 protein	AJ002448	101	51.5	40.6	58.4	55.5	56.3
Cotton leaf curl Multan virus	Begomovirus	TrAP protein AC2	AJ002458	151	46.4	51.0	45.0	43.1	57.5
Cotton leaf curl Multan virus	Begomovirus	Replication protein AC1	AJ002458	364	46.3	52.8	39.8	46.4	50.0

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Cotton leaf curl Multan virus	Begomovirus	Replication enhancer AC3	AJ002458	135	40.0	43.7	31.1	45.2	50.6
Cotton leaf curl Multan virus	Begomovirus	Movement protein AV2	AJ002458	122	47.5	52.5	42.6	47.5	61.0
Cotton leaf curl Multan virus	Begomovirus	Coat protein AV1	AJ002458	257	43.1	47.1	40.1	42.0	50.8
Cotton leaf curl Multan virus	Begomovirus	AC4 protein	AJ002458	101	50.2	41.6	52.5	56.4	54.1
Cotton leaf curl Rajasthan virus	Begomovirus	TrAP protein AC2	AF363011	151	45.9	51.7	44.4	41.7	54.4
Cotton leaf curl Rajasthan virus	Begomovirus	Replication protein AC1	AF363011	363	45.2	49.3	40.5	45.7	54.9
Cotton leaf curl Rajasthan virus	Begomovirus	Replication enhancer AC3	AF363011	135	39.8	43.7	30.4	45.2	54.6
Cotton leaf curl Rajasthan virus	Begomovirus	Movement protein AV2	AF363011	119	49.0	54.6	42.0	50.4	55.6
Cotton leaf curl Rajasthan virus	Begomovirus	Coat protein AV1	AF363011	257	43.2	46.3	40.9	42.4	51.9
Cotton leaf curl Rajasthan virus	Begomovirus	AC4 protein	AF363011	101	51.5	41.6	58.4	54.5	58.2
Cowpea golden mosaic virus	Begomovirus	Coat protein AV1	AF029217	254	46.3	45.3	43.7	50.0	49.0
Cowpea golden mosaic virus	Begomovirus	Movement protein AV2	AF029217	113	50.4	57.5	39.8	54.0	52.8
Cowpea golden mosaic virus	Begomovirus	Replication enhancer AC3	AF029217	135	39.8	42.2	34.1	43.0	59.8
Cowpea golden mosaic virus	Begomovirus	Replication protein AC1	AF029217	353	45.1	47.6	38.2	49.6	51.6
Cowpea golden mosaic virus	Begomovirus	TrAP protein AC2	AF029217	136	45.6	51.5	46.3	39.0	58.7
Croton yellow vein mosaic virus	Begomovirus	TrAP protein AC2	AJ507777	135	47.7	53.3	47.4	42.2	53.1
Croton yellow vein mosaic virus	Begomovirus	Replication protein AC1	AJ507777	362	43.4	48.9	40.1	41.2	57.2
Croton yellow vein mosaic virus	Begomovirus	Replication enhancer AC3	AJ507777	135	38.5	44.4	28.2	43.0	55.2
Croton yellow vein mosaic virus	Begomovirus	Movement protein AV2	AJ507777	119	47.1	53.8	41.2	46.2	55.9
Croton yellow vein mosaic virus	Begomovirus	Coat protein AV1	AJ507777	257	44.2	45.9	40.9	45.9	50.9
Cucurbit leaf curl virus	Begomovirus	TrAP protein AC2	AF256200	132	46.0	51.5	45.5	40.9	61.0
Cucurbit leaf curl virus	Begomovirus	Replication protein AC1	AF256200	352	46.2	49.4	39.5	49.7	58.0
Cucurbit leaf curl virus	Begomovirus	Replication enhancer AC3	AF256200	133	37.8	42.9	29.3	41.4	55.4
Cucurbit leaf curl virus	Begomovirus	Coat protein AV1	AF256200	250	47.1	47.6	40.4	53.2	54.9
Cucurbit leaf curl virus	Begomovirus	AC4 protein	AF256200	122	47.3	38.5	53.3	50.0	49.7
Cucurbit leaf curl virus	Begomovirus	Nuclear shuttle protein BV1	AF327559	257	42.4	44.4	44.4	38.5	50.1
Cucurbit leaf curl virus	Begomovirus	Movement protein BC1	AF327559	294	44.1	43.5	40.8	48.0	54.4
Dicliptera yellow mottle virus	Begomovirus	TrAP protein AC2	AF139168	173	42.8	43.4	43.4	41.6	61.0
Dicliptera yellow mottle virus	Begomovirus	Replication protein AC1	AF139168	352	42.7	47.4	38.1	42.6	49.3
Dicliptera yellow mottle virus	Begomovirus	Replication enhancer AC3	AF139168	133	36.3	42.1	30.1	36.8	55.7
Dicliptera yellow mottle virus	Begomovirus	Coat protein AV1	AF139168	252	43.4	45.2	39.3	45.6	46.2
Dicliptera yellow mottle virus	Begomovirus	Nuclear shuttle protein BV1	AF170101	258	38.5	45.0	38.4	32.2	46.6
Dicliptera yellow mottle virus	Begomovirus	Movement protein BC1	AF170101	294	40.6	44.2	40.8	36.7	47.4
East African cassava mosaic Cameroon virus	Begomovirus	TrAP protein AC2	AF112354	136	49.0	54.4	50.7	41.9	56.4
East African cassava mosaic Cameroon virus	Begomovirus	Replication protein AC1	AF112354	353	45.7	49.6	39.9	47.6	56.6

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
East African cassava mosaic Cameroon virus	Begomovirus	Replication enhancer AC3	AF112354	135	41.2	44.4	33.3	45.9	61.0
East African cassava mosaic Cameroon virus	Begomovirus	Coat protein AV1	AF112354	258	44.2	46.1	38.8	47.7	54.4
East African cassava mosaic Cameroon virus	Begomovirus	Nuclear shuttle protein BV1	AF112355	255	44.6	47.8	41.6	44.3	57.5
East African cassava mosaic Cameroon virus	Begomovirus	Movement protein BC1	AF112355	308	47.7	46.8	45.5	51.0	49.8
East African cassava mosaic virus	Begomovirus	Coat protein AV1	AF126806	258	45.2	44.6	38.0	53.1	52.0
East African cassava mosaic virus	Begomovirus	Movement protein AV2	AF126806	119	48.5	60.5	37.8	47.1	51.5
East African cassava mosaic virus	Begomovirus	Movement protein BC1	AF126807	308	47.4	45.8	43.8	52.6	53.3
East African cassava mosaic virus	Begomovirus	Nuclear shuttle protein BV1	AF126807	259	43.6	44.4	44.0	42.5	48.5
East African cassava mosaic virus	Begomovirus	Replication enhancer AC3	AF126806	135	43.2	48.2	30.4	51.1	60.9
East African cassava mosaic virus	Begomovirus	Replication protein AC1	AF126806	360	45.7	51.1	41.1	45.0	57.1
East African cassava mosaic virus	Begomovirus	TrAP protein AC2	AF126806	136	51.5	57.4	47.8	49.3	56.0
East African cassava mosaic Zanzibar virus	Begomovirus	Coat protein AV1	AF422174	258	45.2	47.3	38.4	50.0	58.6
East African cassava mosaic Zanzibar virus	Begomovirus	Movement protein AV2	AF422174	119	48.7	60.5	39.5	46.2	58.9
East African cassava mosaic Zanzibar virus	Begomovirus	Movement protein BC1	AF422175	308	47.2	45.1	44.5	52.0	51.2
East African cassava mosaic Zanzibar virus	Begomovirus	Nuclear shuttle protein BV1	AF422175	259	44.1	44.8	43.2	44.4	51.0
East African cassava mosaic Zanzibar virus	Begomovirus	Replication enhancer AC3	AF422174	135	42.7	46.7	29.6	51.9	61.0
East African cassava mosaic Zanzibar virus	Begomovirus	Replication protein AC1	AF422174	360	45.7	48.3	40.8	48.1	58.9
East African cassava mosaic Zanzibar virus	Begomovirus	TrAP protein AC2	AF422174	136	50.7	58.1	47.1	47.1	61.0
Eupatorium yellow vein virus	Begomovirus	TrAP protein C2	AB007990	137	46.7	51.8	43.8	44.5	56.3
Eupatorium yellow vein virus	Begomovirus	Replication protein C1	AB007990	363	43.5	49.6	39.9	41.1	51.0
Eupatorium yellow vein virus	Begomovirus	Replication enhancer C3	AB007990	135	38.8	40.7	31.1	44.4	51.5
Eupatorium yellow vein virus	Begomovirus	Movement protein V2	AB007990	117	48.4	59.0	41.9	44.4	53.7
Eupatorium yellow vein virus	Begomovirus	Coat protein V1	AB007990	258	43.8	44.2	41.1	46.1	51.3
Eupatorium yellow vein virus	Begomovirus	C4 protein	AB007990	100	46.0	40.0	46.0	52.0	61.0
Hollyhock leaf crumple virus	Begomovirus	TrAP protein C2	AY036009	135	46.9	48.9	45.9	45.9	52.4
Hollyhock leaf crumple virus	Begomovirus	Replication protein C1	AY036009	363	45.0	50.4	39.7	44.9	52.7
Hollyhock leaf crumple virus	Begomovirus	Replication enhancer C3	AY036009	134	37.1	37.3	34.3	39.6	55.2
Hollyhock leaf crumple virus	Begomovirus	Movement protein V2	AY036009	123	49.6	56.1	44.7	48.0	54.4
Hollyhock leaf crumple virus	Begomovirus	Coat protein V1	AY036009	259	42.9	45.6	41.3	41.7	46.4
Honeysuckle yellow vein mosaic virus	Begomovirus	TrAP protein C2	AB020781	136	47.1	50.0	49.3	41.9	56.9
Honeysuckle yellow vein mosaic virus	Begomovirus	Replication protein C1	AB020781	364	46.4	48.6	41.8	48.9	52.5
Honeysuckle yellow vein mosaic virus	Begomovirus	Replication enhancer C3	AB020781	135	39.5	43.7	31.9	43.0	55.4
Honeysuckle yellow vein mosaic virus	Begomovirus	Movement protein V2	AB020781	117	49.6	59.8	41.9	47.0	58.5
Honeysuckle yellow vein mosaic virus	Begomovirus	Coat protein V1	AB020781	258	43.3	45.4	39.9	44.6	54.1
Indian cassava mosaic virus	Begomovirus	TrAP protein AC2	Z24758	136	49.0	58.8	44.9	43.4	58.1

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Indian cassava mosaic virus	Begomovirus	Replication protein AC1	Z24758	352	46.8	50.3	41.8	48.3	58.6
Indian cassava mosaic virus	Begomovirus	Replication enhancer AC3	Z24758	135	41.2	43.7	28.9	51.1	61.0
Indian cassava mosaic virus	Begomovirus	Movement protein AV2	Z24758	113	48.1	52.2	38.9	53.1	61.0
Indian cassava mosaic virus	Begomovirus	Coat protein AV1	Z24758	257	45.4	45.9	40.9	49.4	59.4
Indian cassava mosaic virus	Begomovirus	AC4 protein putative	Z24758	103	49.5	42.7	51.5	54.4	53.3
Indian cassava mosaic virus	Begomovirus	Nuclear shuttle protein BV1	Z24759	261	42.5	45.6	46.4	35.6	47.8
Indian cassava mosaic virus	Begomovirus	Movement protein BC1	Z24759	288	45.4	47.6	37.9	50.7	58.4
Ipomoea yellow vein virus	Begomovirus	TrAP protein C2	AJ132548	150	50.2	48.7	52.0	50.0	60.7
Ipomoea yellow vein virus	Begomovirus	Replication enhancer C3	AJ132548	146	40.0	46.6	34.3	39.0	53.7
Ipomoea yellow vein virus	Begomovirus	Movement protein V2	AJ132548	132	48.7	47.0	47.0	52.3	61.0
Ipomoea yellow vein virus	Begomovirus	Coat protein V1	AJ132548	255	45.5	45.1	41.2	50.2	51.8
Macrottilium mosaic Puerto Rico virus	Begomovirus	TrAP protein AC2	AY044133	139	45.1	51.1	47.5	36.7	58.4
Macrottilium mosaic Puerto Rico virus	Begomovirus	Replication protein AC1	AY044133	359	42.5	46.8	39.0	41.8	52.4
Macrottilium mosaic Puerto Rico virus	Begomovirus	Replication enhancer AC3	AY044133	133	37.6	39.1	30.1	43.6	61.0
Macrottilium mosaic Puerto Rico virus	Begomovirus	Coat protein AV1	AY044133	250	41.3	43.6	40.0	40.4	46.4
Macrottilium mosaic Puerto Rico virus	Begomovirus	Nuclear shuttle protein BV1	AY044134	256	37.6	44.5	39.5	28.9	47.5
Macrottilium mosaic Puerto Rico virus	Begomovirus	Movement protein BC1	AY044134	294	39.7	43.2	41.5	34.4	51.1
Macrottilium yellow mosaic Florida virus	Begomovirus	TrAP protein AC2	AY044135	130	48.2	50.0	45.4	49.2	58.8
Macrottilium yellow mosaic Florida virus	Begomovirus	Replication protein AC1	AY044135	350	45.7	48.6	38.3	50.3	56.6
Macrottilium yellow mosaic Florida virus	Begomovirus	Replication enhancer AC3	AY044135	133	39.1	43.6	33.1	40.6	53.6
Macrottilium yellow mosaic Florida virus	Begomovirus	Coat protein AV1	AY044135	252	44.8	44.4	40.1	50.0	50.9
Macrottilium yellow mosaic Florida virus	Begomovirus	Nuclear shuttle protein BV1	AY044136	255	38.6	45.1	38.4	32.2	45.7
Macrottilium yellow mosaic Florida virus	Begomovirus	Movement protein BC1	AY044136	294	42.0	44.9	41.5	39.5	53.0
Macrottilium yellow mosaic virus	Begomovirus	Coat protein AV1	AJ344452	251	43.7	44.6	40.2	46.2	51.1
Macrottilium yellow mosaic virus	Begomovirus	Replication enhancer AC3	AJ344452	135	40.7	43.7	32.6	45.9	48.9
Macrottilium yellow mosaic virus	Begomovirus	Replication protein AC1	AJ344452	349	46.3	50.7	39.5	48.7	56.5
Macrottilium yellow mosaic virus	Begomovirus	TrAP protein AC2	AJ344452	130	49.7	57.7	46.2	45.4	57.2
Malvastrum yellow vein virus	Begomovirus	TrAP protein AC2	AJ457824	151	47.2	53.6	45.0	43.1	58.5
Malvastrum yellow vein virus	Begomovirus	Replication protein AC1	AJ457824	363	44.4	49.9	39.1	44.1	52.8
Malvastrum yellow vein virus	Begomovirus	Replication enhancer AC3	AJ457824	135	42.5	40.7	34.8	51.9	60.7
Malvastrum yellow vein virus	Begomovirus	Movement protein AV2	AJ457824	116	48.6	54.3	40.5	50.9	61.0
Malvastrum yellow vein virus	Begomovirus	Coat protein AV1	AJ457824	257	45.9	47.1	41.6	49.0	49.4
Malvastrum yellow vein virus	Begomovirus	AC4 protein	AJ457824	100	44.7	41.0	43.0	50.0	61.0
Melon chlorotic leaf curl virus	Begomovirus	TrAP protein AC2	AF325497	132	44.4	47.0	47.7	38.6	50.8
Melon chlorotic leaf curl virus	Begomovirus	Replication protein AC1	AF325497	360	43.2	50.6	38.6	40.6	58.6

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Melon chlorotic leaf curl virus	Begomovirus	Replication enhancer AC3	AF325497	135	38.3	43.0	28.9	43.0	61.0
Melon chlorotic leaf curl virus	Begomovirus	Coat protein AV1	AF325497	252	44.3	46.0	40.5	46.4	57.1
Melon chlorotic leaf curl virus	Begomovirus	AC4 protein	AF325497	126	45.8	37.3	43.7	56.4	51.7
Mungbean yellow mosaic India virus	Begomovirus	TrAP protein AC2	AF126406	137	47.0	54.0	46.0	40.9	55.7
Mungbean yellow mosaic India virus	Begomovirus	Replication protein AC1	AF126406	362	43.9	48.3	39.0	44.5	53.7
Mungbean yellow mosaic India virus	Begomovirus	Replication enhancer AC3	AF126406	128	42.2	41.4	32.8	52.3	56.7
Mungbean yellow mosaic India virus	Begomovirus	Coat protein AV1	AF126406	229	43.2	44.1	41.5	44.1	54.1
Mungbean yellow mosaic India virus	Begomovirus	AC4 protein	AF126406	100	45.3	37.0	44.0	55.0	61.0
Mungbean yellow mosaic India virus	Begomovirus	Nuclear shuttle protein BV1	AF142440	255	40.9	46.3	38.4	38.0	56.2
Mungbean yellow mosaic India virus	Begomovirus	Movement protein BC1	AF142440	323	43.3	42.1	40.6	47.4	52.8
Mungbean yellow mosaic virus	Begomovirus	Replication protein AC1	D14703	362	44.1	50.0	39.8	42.5	53.9
Mungbean yellow mosaic virus	Begomovirus	Replication enhancer AC3	D14703	135	41.0	44.4	28.9	49.6	61.0
Mungbean yellow mosaic virus	Begomovirus	Coat protein AV1	D14703	245	44.4	46.5	42.0	44.5	59.6
Mungbean yellow mosaic virus	Begomovirus	AC4 protein	D14703	100	47.3	37.0	46.0	59.0	60.7
Mungbean yellow mosaic virus	Begomovirus	Nuclear shuttle protein BV1	D14704	257	39.0	42.0	38.9	36.2	54.4
Mungbean yellow mosaic virus	Begomovirus	Movement protein BC1	D14704	299	43.0	42.5	39.8	46.8	59.3
Okra yellow vein mosaic virus	Begomovirus	AC4 protein	AJ002451	101	50.8	39.6	57.4	55.5	50.3
Okra yellow vein mosaic virus	Begomovirus	Coat protein AV1	AJ002451	257	45.3	48.3	40.1	47.5	52.9
Okra yellow vein mosaic virus	Begomovirus	Movement protein AV2	AJ002451	122	48.6	54.1	42.6	49.2	56.7
Okra yellow vein mosaic virus	Begomovirus	Replication enhancer AC3	AJ002451	135	38.8	43.7	28.2	44.4	61.0
Okra yellow vein mosaic virus	Begomovirus	Replication protein AC1	AJ002451	364	45.2	51.4	39.3	44.8	53.2
Okra yellow vein mosaic virus	Begomovirus	TrAP protein AC2	AJ002451	151	44.8	50.3	43.7	40.4	49.3
Papaya leaf curl virus	Begomovirus	TrAP protein AC2	Y15934	135	45.4	51.1	48.2	37.0	49.2
Papaya leaf curl virus	Begomovirus	Replication protein AC1	Y15934	362	42.2	48.3	38.1	40.1	55.3
Papaya leaf curl virus	Begomovirus	Replication enhancer AC3	Y15934	135	35.6	43.0	26.7	37.0	51.2
Papaya leaf curl virus	Begomovirus	Movement protein AV2	Y15934	119	45.7	50.4	40.3	46.2	53.8
Papaya leaf curl virus	Begomovirus	Coat protein AV1	Y15934	257	43.1	47.5	39.7	42.0	57.8
Pepper golden mosaic virus	Begomovirus	TrAP protein AC2	U57457	130	48.5	50.8	47.7	46.9	54.8
Pepper golden mosaic virus	Begomovirus	Replication protein AC1	U57457	349	44.0	50.4	39.0	42.7	57.3
Pepper golden mosaic virus	Begomovirus	Replication enhancer AC3	U57457	133	43.1	45.1	35.3	48.9	61.0
Pepper golden mosaic virus	Begomovirus	Coat protein AV1	U57457	251	48.2	46.6	41.4	56.6	56.4
Pepper golden mosaic virus	Begomovirus	Nuclear shuttle protein BV1	AF499442	257	41.4	46.3	38.1	39.7	53.8
Pepper golden mosaic virus	Begomovirus	Movement protein BC1	AF499442	289	46.1	48.8	42.9	46.7	61.0
Pepper huasteco yellow vein virus	Begomovirus	TrAP protein AC2	X70418	139	45.6	49.6	48.2	38.9	57.0
Pepper huasteco yellow vein virus	Begomovirus	Replication protein AC1	X70418	350	44.8	49.4	39.4	45.4	58.6

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Pepper huasteco yellow vein virus	Begomovirus	Replication enhancer AC3	X70418	133	40.9	45.1	33.1	44.4	61.0
Pepper huasteco yellow vein virus	Begomovirus	Coat protein AV1	X70418	252	45.0	47.2	41.3	46.4	57.6
Pepper huasteco yellow vein virus	Begomovirus	Nuclear shuttle protein BV1	X70419	257	39.2	44.4	38.1	35.0	52.3
Pepper huasteco yellow vein virus	Begomovirus	Movement protein BC1	X70419	294	43.8	44.6	42.5	44.2	56.9
Pepper leaf curl Bangladesh virus	Begomovirus	TrAP protein AC2	AF314531	135	50.1	56.3	48.2	45.9	54.1
Pepper leaf curl Bangladesh virus	Begomovirus	Replication protein AC1	AF314531	362	44.8	50.3	40.3	43.9	58.9
Pepper leaf curl Bangladesh virus	Begomovirus	Replication enhancer AC3	AF314531	135	39.3	41.5	31.9	44.4	55.1
Pepper leaf curl Bangladesh virus	Begomovirus	Movement protein AV2	AF314531	119	49.9	56.3	40.3	52.9	58.2
Pepper leaf curl Bangladesh virus	Begomovirus	Coat protein AV1	AF314531	257	46.4	47.5	40.5	51.4	55.1
Pepper leaf curl virus	Begomovirus	TrAP protein C2	AF134484	138	48.1	51.5	52.2	40.6	53.4
Pepper leaf curl virus	Begomovirus	Replication protein C1	AF134484	355	42.8	47.9	37.5	43.1	52.4
Pepper leaf curl virus	Begomovirus	Replication enhancer C3	AF134484	138	40.8	44.9	33.3	44.2	60.7
Pepper leaf curl virus	Begomovirus	Movement protein V2	AF134484	104	47.1	56.7	37.5	47.1	61.0
Pepper leaf curl virus	Begomovirus	Coat protein V1	AF134484	257	46.2	49.8	41.6	47.1	59.5
Potato yellow mosaic Panama virus	Begomovirus	Coat protein AV1	Y15034	252	47.0	47.2	40.9	52.8	56.4
Potato yellow mosaic Panama virus	Begomovirus	Movement protein BC1	Y15033	294	45.4	48.0	40.8	47.3	61.0
Potato yellow mosaic Panama virus	Begomovirus	Nuclear shuttle protein BV1	Y15033	257	42.0	47.5	39.3	39.3	49.2
Potato yellow mosaic Panama virus	Begomovirus	Replication enhancer AC3	Y15034	133	39.1	42.9	33.1	41.4	59.0
Potato yellow mosaic Panama virus	Begomovirus	Replication protein AC1	Y15034	352	45.8	51.7	40.6	45.2	55.9
Potato yellow mosaic Panama virus	Begomovirus	TrAP protein AC2	Y15034	130	48.5	52.3	47.7	45.4	55.1
Potato yellow mosaic Trinidad virus	Begomovirus	Coat protein AV1	AF039031	252	48.3	46.4	40.9	57.5	58.6
Potato yellow mosaic Trinidad virus	Begomovirus	Movement protein BC1	AF039032	294	46.5	47.6	40.8	51.0	59.5
Potato yellow mosaic Trinidad virus	Begomovirus	Nuclear shuttle protein BV1	AF039032	256	43.4	49.2	40.2	40.6	55.5
Potato yellow mosaic Trinidad virus	Begomovirus	Replication enhancer AC3	AF039031	133	40.4	42.9	33.8	44.4	59.6
Potato yellow mosaic Trinidad virus	Begomovirus	Replication protein AC1	AF039031	351	45.9	50.4	38.8	48.4	54.3
Potato yellow mosaic Trinidad virus	Begomovirus	TrAP protein AC2	AF039031	130	49.7	53.9	49.2	46.2	53.7
Potato yellow mosaic virus	Begomovirus	TrAP protein AC2	D00940	130	49.0	53.9	47.7	45.4	48.3
Potato yellow mosaic virus	Begomovirus	Replication protein AC1	D00940	362	45.9	50.3	38.7	48.6	56.3
Potato yellow mosaic virus	Begomovirus	Replication enhancer AC3	D00940	133	39.4	41.4	33.1	43.6	57.2
Potato yellow mosaic virus	Begomovirus	Coat protein AV1	D00940	252	47.5	47.2	40.9	54.4	55.7
Potato yellow mosaic virus	Begomovirus	Nuclear shuttle protein BV1	D00941	257	42.4	49.4	38.5	39.3	52.8
Potato yellow mosaic virus	Begomovirus	Movement protein BC1	D00941	294	45.8	47.3	40.8	49.3	60.6
Rhynchosia golden mosaic virus	Begomovirus	TrAP protein AC2	AF239671	139	48.7	50.4	49.6	46.0	59.9
Rhynchosia golden mosaic virus	Begomovirus	Replication protein AC1	AF239671	359	45.6	49.9	38.7	48.2	54.8
Rhynchosia golden mosaic virus	Begomovirus	Replication enhancer AC3	AF239671	133	41.4	44.4	33.8	45.9	60.2

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Rhynchosia golden mosaic virus	Begomovirus	Coat protein AV1	AF239671	252	45.6	45.2	40.9	50.8	48.6
Rhynchosia golden mosaic virus	Begomovirus	AC4 protein putative	AF239671	129	45.2	38.0	48.8	48.8	48.4
Sida golden mosaic Costa Rica virus	Begomovirus	Coat protein AV1	X99550	252	48.0	46.4	39.7	57.9	57.9
Sida golden mosaic Costa Rica virus	Begomovirus	Movement protein BC1	X99551	294	49.4	46.6	41.8	59.9	56.3
Sida golden mosaic Costa Rica virus	Begomovirus	Nuclear shuttle protein BV1	X99551	257	45.3	46.3	42.0	47.5	55.6
Sida golden mosaic Costa Rica virus	Begomovirus	Replication enhancer AC3	X99550	133	39.9	42.1	34.6	42.9	61.0
Sida golden mosaic Costa Rica virus	Begomovirus	Replication protein AC1	X99550	362	47.3	53.3	39.2	49.5	53.2
Sida golden mosaic Costa Rica virus	Begomovirus	TrAP protein AC2	X99550	130	49.5	51.5	47.7	49.2	61.0
Sida golden mosaic Florida virus	Begomovirus	Coat protein AV1	U77963	239	47.3	48.1	38.5	55.2	56.5
Sida golden mosaic Florida virus	Begomovirus	Replication enhancer AC3	U77963	133	41.1	43.6	33.8	45.9	61.0
Sida golden mosaic Florida virus	Begomovirus	Replication protein AC1	U77963	361	48.7	52.9	39.6	53.5	54.3
Sida golden mosaic Florida virus	Begomovirus	TrAP protein AC2	U77963	130	50.5	54.6	47.7	49.2	55.5
Sida golden mosaic Honduras virus	Begomovirus	Coat protein AV1	Y11097	252	47.5	46.0	40.1	56.4	58.5
Sida golden mosaic Honduras virus	Begomovirus	Movement protein BC1	Y11098	294	50.1	46.6	42.2	61.6	52.9
Sida golden mosaic Honduras virus	Begomovirus	Nuclear shuttle protein BV1	Y11098	257	46.2	47.5	40.9	50.2	58.1
Sida golden mosaic Honduras virus	Begomovirus	Replication enhancer AC3	Y11097	133	39.4	40.6	32.3	45.1	61.0
Sida golden mosaic Honduras virus	Begomovirus	Replication protein AC1	Y11097	362	47.9	52.5	39.2	51.9	51.9
Sida golden mosaic Honduras virus	Begomovirus	TrAP protein AC2	Y11097	130	48.5	51.5	49.2	44.6	57.0
Sida golden mosaic virus	Begomovirus	Nuclear shuttle protein BV1	AF039841	259	46.6	49.8	42.9	47.1	58.3
Sida golden mosaic virus	Begomovirus	Movement protein BC1	AF039841	294	50.3	45.9	41.8	63.3	54.4
Sida golden mosaic virus	Begomovirus	TrAP protein AC2	AF049336	130	50.0	53.1	48.5	48.5	61.0
Sida golden mosaic virus	Begomovirus	Replication protein AC1	AF049336	362	47.3	52.5	39.2	50.3	54.2
Sida golden mosaic virus	Begomovirus	Replication enhancer AC3	AF049336	133	41.6	41.4	33.8	49.6	55.1
Sida golden mosaic virus	Begomovirus	Coat protein AV1	AF049336	252	48.9	47.6	39.7	59.5	55.1
Sida golden yellow vein virus	Begomovirus	Coat protein AV1	U77964	252	47.0	45.2	42.1	53.6	53.7
Sida golden yellow vein virus	Begomovirus	Replication enhancer AC3	U77964	133	40.9	43.6	30.1	48.9	61.0
Sida golden yellow vein virus	Begomovirus	Replication protein AC1	U77964	361	46.9	51.8	39.6	49.3	56.7
Sida golden yellow vein virus	Begomovirus	TrAP protein AC2	U77964	130	50.0	54.6	48.5	46.9	55.2
Sida mottle virus	Begomovirus	TrAP protein AC2	AY090555	130	49.2	53.1	49.2	45.4	60.6
Sida mottle virus	Begomovirus	Replication protein AC1	AY090555	361	45.4	51.8	38.0	46.5	51.4
Sida mottle virus	Begomovirus	Replication enhancer AC3	AY090555	133	42.6	44.4	32.3	51.1	59.7
Sida mottle virus	Begomovirus	Coat protein AV1	AY090555	252	49.6	46.8	40.5	61.5	57.9
Sida yellow mosaic virus	Begomovirus	TrAP protein AC2	AY090558	131	49.9	55.0	48.1	46.6	61.0
Sida yellow mosaic virus	Begomovirus	Replication protein AC1	AY090558	359	46.0	49.3	37.1	51.5	54.8
Sida yellow mosaic virus	Begomovirus	Replication enhancer AC3	AY090558	134	41.0	40.3	33.6	49.3	51.6

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Sida yellow mosaic virus	Begomovirus	Coat protein AV1	AY090558	252	49.3	49.6	42.5	56.0	61.0
Sida yellow vein virus	Begomovirus	Coat protein AV1	Y11099	252	49.5	47.6	40.1	60.7	57.2
Sida yellow vein virus	Begomovirus	Replication enhancer AC3	Y11099	133	40.1	41.4	34.6	44.4	61.0
Sida yellow vein virus	Begomovirus	Replication protein AC1	Y11099	362	47.6	51.9	38.7	52.2	53.5
Sida yellow vein virus	Begomovirus	TrAP protein AC2	Y11099	130	50.0	52.3	50.0	47.7	59.5
South African cassava mosaic virus	Begomovirus	TrAP protein AC2	AF155806	136	50.3	58.1	45.6	47.1	55.9
South African cassava mosaic virus	Begomovirus	Replication protein AC1	AF155806	355	47.0	49.6	40.3	51.0	59.2
South African cassava mosaic virus	Begomovirus	Replication enhancer AC3	AF155806	135	42.5	45.2	29.6	52.6	59.2
South African cassava mosaic virus	Begomovirus	Movement protein AV2	AF155806	117	52.1	62.4	39.3	54.7	50.9
South African cassava mosaic virus	Begomovirus	Coat protein AV1	AF155806	259	44.9	46.3	40.9	47.5	54.7
South African cassava mosaic virus	Begomovirus	Nuclear shuttle protein BV1	AF155807	259	43.9	44.8	42.9	44.0	47.1
South African cassava mosaic virus	Begomovirus	Movement protein BC1	AF155807	308	47.2	46.1	43.5	52.0	50.9
Soybean crinkle leaf virus	Begomovirus	Coat protein V1	AB050781	258	43.2	43.8	39.5	46.1	50.9
Soybean crinkle leaf virus	Begomovirus	Movement protein V2	AB050781	117	48.7	65.0	39.3	41.9	51.8
Soybean crinkle leaf virus	Begomovirus	Replication enhancer C3	AB050781	135	38.8	37.8	34.1	44.4	53.5
Soybean crinkle leaf virus	Begomovirus	Replication protein C1	AB050781	362	44.8	46.7	37.9	49.7	58.4
Soybean crinkle leaf virus	Begomovirus	TrAP protein C2	AB050781	136	46.8	52.9	43.4	44.1	55.2
Squash leaf curl China virus	Begomovirus	TrAP protein AC2	AB027465	135	45.9	48.9	46.7	42.2	61.0
Squash leaf curl China virus	Begomovirus	Replication protein AC1	AB027465	244	44.5	51.6	38.1	43.9	57.2
Squash leaf curl China virus	Begomovirus	Replication enhancer AC3	AB027465	137	41.1	45.3	30.7	47.5	55.6
Squash leaf curl China virus	Begomovirus	Movement protein AV2	AB027465	151	48.1	58.9	37.1	48.3	61.0
Squash leaf curl China virus	Begomovirus	Coat protein AV1	AB027465	257	44.4	47.5	42.4	43.2	55.0
Squash leaf curl virus	Begomovirus	Nuclear shuttle protein BV1	M38182	284	43.8	48.9	43.3	39.1	53.8
Squash leaf curl virus	Begomovirus	Movement protein BC1	M38182	295	44.1	45.1	41.7	45.4	58.0
Squash leaf curl virus	Begomovirus	TrAP protein AC2	M38183	132	44.4	50.8	45.5	37.1	61.0
Squash leaf curl virus	Begomovirus	Replication protein AC1	M38183	349	45.0	49.3	39.8	45.9	56.4
Squash leaf curl virus	Begomovirus	Replication enhancer AC3	M38183	135	39.8	43.7	29.6	45.9	61.0
Squash leaf curl virus	Begomovirus	Coat protein AV1	M38183	252	46.7	45.6	40.1	54.4	56.0
Squash leaf curl virus	Begomovirus	AC4 protein putative	M38183	126	46.8	37.3	48.4	54.8	51.6
Squash leaf curl Yunnan virus	Begomovirus	Coat protein AV1	AJ420319	257	43.8	47.9	39.3	44.4	52.7
Squash leaf curl Yunnan virus	Begomovirus	Movement protein AV2	AJ420319	113	47.8	56.6	39.8	46.9	57.3
Squash leaf curl Yunnan virus	Begomovirus	Replication enhancer AC3	AJ420319	136	36.3	37.5	30.9	40.4	53.5
Squash leaf curl Yunnan virus	Begomovirus	Replication protein AC1	AJ420319	362	42.3	48.3	39.0	39.5	55.1
Squash leaf curl Yunnan virus	Begomovirus	TrAP protein AC2	AJ420319	135	45.7	50.4	44.4	42.2	57.3
Squash mild leaf curl virus	Begomovirus	AC4 protein	AF421552	122	46.7	38.5	50.8	50.8	58.1

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Squash mild leaf curl virus	Begomovirus	Coat protein AV1	AF421552	252	46.4	46.4	40.1	52.8	51.5
Squash mild leaf curl virus	Begomovirus	Movement protein BC1	AF421553	294	44.0	45.9	41.8	44.2	56.9
Squash mild leaf curl virus	Begomovirus	Nuclear shuttle protein BV1	AF421553	255	42.8	51.0	40.8	36.5	53.4
Squash mild leaf curl virus	Begomovirus	Replication enhancer AC3	AF421552	133	40.1	45.9	30.1	44.4	61.0
Squash mild leaf curl virus	Begomovirus	Replication protein AC1	AF421552	350	46.0	50.3	39.7	48.0	58.9
Squash mild leaf curl virus	Begomovirus	TrAP protein AC2	AF421552	130	45.6	50.8	47.7	38.5	60.9
Squash yellow mottle virus	Begomovirus	Nuclear shuttle protein BV1	AF440790	257	44.8	49.4	42.4	42.4	56.3
Squash yellow mottle virus	Begomovirus	Movement protein BC1	AF440790	294	42.5	44.9	42.2	40.5	57.0
Squash yellow mottle virus	Begomovirus	TrAP protein AC2	AY064391	132	43.9	48.5	47.0	36.4	57.9
Squash yellow mottle virus	Begomovirus	Replication protein AC1	AY064391	360	45.1	49.7	40.8	44.7	59.9
Squash yellow mottle virus	Begomovirus	Replication enhancer AC3	AY064391	135	39.3	42.2	31.9	43.7	61.0
Squash yellow mottle virus	Begomovirus	Coat protein AV1	AY064391	252	46.3	46.8	40.9	51.2	56.7
Squash yellow mottle virus	Begomovirus	AC4 protein	AY064391	126	47.1	38.9	46.8	55.6	54.2
Sri Lankan cassava mosaic virus	Begomovirus	TrAP protein AC2	AJ314737	136	53.4	63.2	48.5	48.5	61.0
Sri Lankan cassava mosaic virus	Begomovirus	Replication protein AC1	AJ314737	352	46.8	48.3	40.9	51.1	59.2
Sri Lankan cassava mosaic virus	Begomovirus	Replication enhancer AC3	AJ314737	135	44.4	45.2	32.6	55.6	61.0
Sri Lankan cassava mosaic virus	Begomovirus	Movement protein AV2	AJ314737	113	51.6	54.9	40.7	59.3	60.8
Sri Lankan cassava mosaic virus	Begomovirus	Coat protein AV1	AJ314737	257	45.7	46.7	41.3	49.0	57.6
Sri Lankan cassava mosaic virus	Begomovirus	AC4 protein	AJ314737	101	51.8	43.6	57.4	54.5	46.6
Sri Lankan cassava mosaic virus	Begomovirus	Nuclear shuttle protein BV1	AJ314738	313	42.3	44.4	47.9	34.5	48.6
Sri Lankan cassava mosaic virus	Begomovirus	Movement protein BC1	AJ314738	287	45.6	46.7	39.0	51.2	56.0
Stachytarpheta leaf curl virus	Begomovirus	TrAP protein AC2	AJ495814	135	45.9	50.4	47.4	40.0	55.8
Stachytarpheta leaf curl virus	Begomovirus	Replication protein AC1	AJ495814	362	43.6	49.5	39.5	41.7	57.5
Stachytarpheta leaf curl virus	Begomovirus	Replication enhancer AC3	AJ495814	135	36.8	38.5	31.1	40.7	58.0
Stachytarpheta leaf curl virus	Begomovirus	Movement protein AV2	AJ495814	117	51.3	61.5	41.0	51.3	54.2
Stachytarpheta leaf curl virus	Begomovirus	Coat protein AV1	AJ495814	258	42.5	45.4	39.5	42.6	49.9
Sweet potato leaf curl Georgia virus	Begomovirus	TrAP protein AC2	AF326775	150	48.2	48.7	49.3	46.7	54.8
Sweet potato leaf curl Georgia virus	Begomovirus	Replication protein AC1	AF326775	365	43.5	49.9	41.1	39.5	53.9
Sweet potato leaf curl Georgia virus	Begomovirus	Replication enhancer AC3	AF326775	146	38.8	43.2	33.6	39.7	52.0
Sweet potato leaf curl Georgia virus	Begomovirus	Movement protein AV2	AF326775	115	50.4	52.2	45.2	53.9	61.0
Sweet potato leaf curl Georgia virus	Begomovirus	Coat protein AV1	AF326775	255	46.3	47.1	42.0	49.8	49.5
Sweet potato leaf curl virus	Begomovirus	TrAP protein AC2	AF104036	149	50.6	51.0	48.3	52.4	61.0
Sweet potato leaf curl virus	Begomovirus	Replication protein AC1	AF104036	365	45.8	50.4	41.9	45.2	55.0
Sweet potato leaf curl virus	Begomovirus	Replication enhancer AC3	AF104036	145	41.6	44.8	38.6	41.4	56.3
Sweet potato leaf curl virus	Begomovirus	Movement protein AV2	AF104036	115	49.6	47.8	45.2	55.7	61.0

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Sweet potato leaf curl virus	Begomovirus	Coat protein AV1	AF104036	255	47.5	47.5	42.0	52.9	51.9
Tobacco curly shoot virus	Begomovirus	TrAP protein AC2	AJ457986	135	45.4	51.9	48.9	35.6	54.0
Tobacco curly shoot virus	Begomovirus	Replication protein AC1	AJ457986	362	42.9	48.1	39.5	41.2	52.0
Tobacco curly shoot virus	Begomovirus	Replication enhancer AC3	AJ457986	135	35.3	43.7	25.9	36.3	55.7
Tobacco curly shoot virus	Begomovirus	Movement protein AV2	AJ457986	116	47.1	52.6	40.5	48.3	59.1
Tobacco curly shoot virus	Begomovirus	Coat protein AV1	AJ457986	257	43.5	47.5	40.5	42.4	56.3
Tobacco curly shoot virus	Begomovirus	AC4 protein	AJ457986	100	45.3	41.0	41.0	54.0	58.9
Tobacco leaf curl Japan virus	Begomovirus	Coat protein V1	AB028604	256	42.7	46.1	41.8	40.2	51.6
Tobacco leaf curl Japan virus	Begomovirus	Movement protein V2	AB028604	117	49.0	58.1	40.2	48.7	56.3
Tobacco leaf curl Japan virus	Begomovirus	Replication enhancer C3	AB028604	135	38.0	43.0	30.4	40.7	54.4
Tobacco leaf curl Japan virus	Begomovirus	Replication protein C1	AB028604	364	45.8	48.4	41.8	47.3	55.0
Tobacco leaf curl Japan virus	Begomovirus	TrAP protein C2	AB028604	136	46.3	52.2	47.1	39.7	57.5
Tobacco leaf curl Kochi virus	Begomovirus	Coat protein V1	AB055009	258	41.7	44.2	41.1	39.9	52.7
Tobacco leaf curl Kochi virus	Begomovirus	Movement protein V2	AB055009	114	49.1	61.4	40.4	45.6	55.6
Tobacco leaf curl Kochi virus	Begomovirus	Replication enhancer C3	AB055009	135	38.0	41.5	29.6	43.0	52.7
Tobacco leaf curl Kochi virus	Begomovirus	Replication protein C1	AB055009	363	45.5	47.7	41.3	47.4	52.7
Tobacco leaf curl Kochi virus	Begomovirus	TrAP protein C2	AB055009	136	47.1	50.0	47.8	43.4	59.0
Tobacco leaf curl Yunnan virus	Begomovirus	Coat protein AV1	AF240674	256	44.1	46.5	41.8	44.1	52.7
Tobacco leaf curl Yunnan virus	Begomovirus	Movement protein AV2	AF240674	119	47.1	52.1	40.3	48.7	53.8
Tobacco leaf curl Yunnan virus	Begomovirus	Replication enhancer AC3	AF240674	135	36.8	37.8	30.4	42.2	49.6
Tobacco leaf curl Yunnan virus	Begomovirus	Replication protein AC1	AF240674	363	44.6	48.8	38.6	46.6	55.1
Tobacco leaf curl Yunnan virus	Begomovirus	TrAP protein AC2	AF240674	136	46.1	52.9	46.3	39.0	54.8
Tobacco leaf curl Zimbabwe virus	Begomovirus	TrAP protein AC2	AF350330	136	44.1	50.0	44.1	38.2	54.3
Tobacco leaf curl Zimbabwe virus	Begomovirus	Replication protein AC1	AF350330	360	44.4	48.6	41.4	43.3	53.7
Tobacco leaf curl Zimbabwe virus	Begomovirus	Replication enhancer AC3	AF350330	135	36.8	43.7	25.2	41.5	59.4
Tobacco leaf curl Zimbabwe virus	Begomovirus	Movement protein AV2	AF350330	117	48.7	56.4	40.2	49.6	61.0
Tobacco leaf curl Zimbabwe virus	Begomovirus	Coat protein AV1	AF350330	259	45.6	48.3	44.8	43.6	55.2
Tomato chlorotic mottle virus	Begomovirus	TrAP protein AC2	AF490004	130	45.9	53.1	46.9	37.7	52.3
Tomato chlorotic mottle virus	Begomovirus	Replication protein AC1	AF490004	352	44.7	50.6	37.2	46.3	53.3
Tomato chlorotic mottle virus	Begomovirus	Replication enhancer AC3	AF490004	133	38.6	43.6	30.1	42.1	52.5
Tomato chlorotic mottle virus	Begomovirus	Coat protein AV1	AF490004	252	46.4	47.2	40.1	52.0	58.1
Tomato chlorotic mottle virus	Begomovirus	Nuclear shuttle protein BV1	AF491306	257	40.2	44.4	39.7	36.6	46.6
Tomato chlorotic mottle virus	Begomovirus	Movement protein BC1	AF491306	294	41.4	43.2	41.2	39.8	52.3
Tomato curly stunt virus	Begomovirus	TrAP protein AC2	AF261885	136	48.0	58.1	46.3	39.7	44.8
Tomato curly stunt virus	Begomovirus	Replication protein AC1	AF261885	360	44.1	47.5	40.0	44.7	53.2

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Tomato curly stunt virus	Begomovirus	Replication enhancer AC3	AF261885	135	38.0	44.4	24.4	45.2	61.0
Tomato curly stunt virus	Begomovirus	Movement protein AV2	AF261885	114	50.6	64.0	36.0	51.8	54.1
Tomato curly stunt virus	Begomovirus	Coat protein AV1	AF261885	259	48.1	46.7	41.7	56.0	53.6
Tomato golden mosaic virus	Begomovirus	TrAP protein AC2	K02029	130	45.4	49.2	46.2	40.8	50.0
Tomato golden mosaic virus	Begomovirus	Replication protein AC1	K02029	353	43.1	47.9	38.2	43.1	55.6
Tomato golden mosaic virus	Begomovirus	Replication enhancer AC3	K02029	133	38.9	38.4	33.8	44.4	54.2
Tomato golden mosaic virus	Begomovirus	Coat protein AV1	K02029	248	45.8	46.8	40.7	50.0	54.4
Tomato golden mosaic virus	Begomovirus	Nuclear shuttle protein BV1	K02030	257	40.0	47.5	41.3	31.1	49.8
Tomato golden mosaic virus	Begomovirus	Movement protein BC1	K02030	185	41.8	42.7	37.8	44.9	60.5
Tomato golden mottle virus	Begomovirus	TrAP protein C2	AF132852	132	45.7	50.0	45.5	41.7	54.2
Tomato golden mottle virus	Begomovirus	Replication protein C1	AF132852	347	43.0	52.2	36.6	40.4	51.9
Tomato golden mottle virus	Begomovirus	Replication enhancer C3	AF132852	133	39.4	42.1	33.1	42.9	56.8
Tomato golden mottle virus	Begomovirus	Coat protein V1	AF132852	252	46.4	47.6	40.9	50.8	55.3
Tomato leaf curl Bangalore virus	Begomovirus	TrAP protein C2	Z48182	135	48.6	54.1	47.4	44.4	61.0
Tomato leaf curl Bangalore virus	Begomovirus	Replication protein C1	Z48182	361	43.4	49.9	40.4	39.9	56.2
Tomato leaf curl Bangalore virus	Begomovirus	Replication enhancer C3	Z48182	135	38.0	44.4	29.6	40.0	61.0
Tomato leaf curl Bangalore virus	Begomovirus	Movement protein V2	Z48182	116	48.0	56.0	41.4	46.6	55.0
Tomato leaf curl Bangalore virus	Begomovirus	Coat protein V1	Z48182	257	44.4	46.7	39.3	47.1	54.5
Tomato leaf curl Bangladesh virus	Begomovirus	Coat protein V1	AF188481	257	45.0	47.9	40.9	46.3	56.9
Tomato leaf curl Bangladesh virus	Begomovirus	Movement protein V2	AF188481	119	47.1	52.9	41.2	47.1	54.5
Tomato leaf curl Bangladesh virus	Begomovirus	Replication enhancer C3	AF188481	135	37.5	43.7	28.9	40.0	61.0
Tomato leaf curl Bangladesh virus	Begomovirus	Replication protein C1	AF188481	362	44.4	50.6	39.0	43.7	59.8
Tomato leaf curl Bangladesh virus	Begomovirus	TrAP protein C2	AF188481	135	47.7	54.8	47.4	40.7	55.4
Tomato leaf curl Gujarat virus	Begomovirus	Coat protein AV1	AF413671	257	47.2	48.6	41.6	51.4	57.5
Tomato leaf curl Gujarat virus	Begomovirus	Movement protein AV2	AF413671	116	47.7	56.0	43.1	44.0	61.0
Tomato leaf curl Gujarat virus	Begomovirus	Replication enhancer AC3	AF413671	135	40.0	41.5	31.9	46.7	57.1
Tomato leaf curl Gujarat virus	Begomovirus	Replication protein AC1	AF413671	362	43.8	48.1	40.3	43.1	54.5
Tomato leaf curl Gujarat virus	Begomovirus	TrAP protein AC2	AF413671	135	49.1	57.8	48.2	41.5	61.0
Tomato leaf curl Karnataka virus	Begomovirus	TrAP protein C2	U38239	135	48.9	56.3	51.1	39.3	60.9
Tomato leaf curl Karnataka virus	Begomovirus	Replication protein C1	U38239	362	43.7	47.8	39.8	43.7	53.8
Tomato leaf curl Karnataka virus	Begomovirus	Replication enhancer C3	U38239	135	39.0	45.2	26.7	45.2	61.0
Tomato leaf curl Karnataka virus	Begomovirus	Movement protein V2	U38239	119	44.8	49.6	41.2	43.7	52.1
Tomato leaf curl Karnataka virus	Begomovirus	Coat protein V1	U38239	257	45.0	47.1	39.7	48.3	52.5
Tomato leaf curl Laos virus	Begomovirus	Coat protein V1	AF195782	258	44.4	46.1	39.5	47.7	49.5
Tomato leaf curl Laos virus	Begomovirus	Movement protein V2	AF195782	117	46.2	51.3	38.5	48.7	61.0

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Tomato leaf curl Laos virus	Begomovirus	Replication enhancer C3	AF195782	135	38.8	40.0	33.3	43.0	58.8
Tomato leaf curl Laos virus	Begomovirus	Replication protein C1	AF195782	361	44.0	48.8	39.3	44.0	53.1
Tomato leaf curl Laos virus	Begomovirus	TrAP protein C2	AF195782	136	46.8	48.5	47.1	44.9	56.7
Tomato leaf curl Malaysia virus	Begomovirus	Coat protein AV1	AF327436	258	44.2	45.4	39.5	47.7	52.5
Tomato leaf curl Malaysia virus	Begomovirus	Movement protein AV2	AF327436	120	46.9	52.5	38.3	50.0	61.0
Tomato leaf curl Malaysia virus	Begomovirus	Replication enhancer AC3	AF327436	135	39.0	40.0	31.9	45.2	55.2
Tomato leaf curl Malaysia virus	Begomovirus	Replication protein AC1	AF327436	363	44.6	48.5	39.4	46.0	56.1
Tomato leaf curl Malaysia virus	Begomovirus	TrAP protein AC2	AF327436	136	44.9	50.7	45.6	38.2	57.8
Tomato leaf curl New Delhi virus	Begomovirus	Nuclear shuttle protein BV1	X89653	279	41.6	40.9	43.7	40.1	56.6
Tomato leaf curl New Delhi virus	Begomovirus	Movement protein BC1	X89653	281	43.7	46.3	39.5	45.2	53.4
Tomato leaf curl New Delhi virus	Begomovirus	TrAP protein AC2	Y16421	140	46.9	50.7	46.4	43.6	58.2
Tomato leaf curl New Delhi virus	Begomovirus	Replication protein AC1	Y16421	362	44.5	52.2	38.1	43.1	60.1
Tomato leaf curl New Delhi virus	Begomovirus	Replication enhancer AC3	Y16421	137	40.6	45.3	29.2	47.5	61.0
Tomato leaf curl New Delhi virus	Begomovirus	Movement protein AV2	Y16421	113	48.7	57.5	38.1	50.4	61.0
Tomato leaf curl New Delhi virus	Begomovirus	Coat protein AV1	Y16421	257	44.4	47.5	42.8	42.8	52.2
Tomato leaf curl Taiwan virus	Begomovirus	TrAP protein C2	U88692	136	44.9	48.5	47.8	38.2	58.4
Tomato leaf curl Taiwan virus	Begomovirus	Replication protein C1	U88692	363	44.0	50.4	38.8	42.7	50.0
Tomato leaf curl Taiwan virus	Begomovirus	Replication enhancer C3	U88692	135	36.5	40.7	29.6	39.3	61.0
Tomato leaf curl Taiwan virus	Begomovirus	Movement protein V2	U88692	114	45.6	57.9	38.6	40.4	53.0
Tomato leaf curl Taiwan virus	Begomovirus	Coat protein V1	U88692	258	43.4	46.9	39.2	44.2	52.3
Tomato leaf curl Vietnam virus	Begomovirus	Coat protein AV1	AF264063	258	43.7	47.7	39.2	44.2	56.8
Tomato leaf curl Vietnam virus	Begomovirus	Movement protein AV2	AF264063	117	46.7	56.4	39.3	44.4	50.6
Tomato leaf curl Vietnam virus	Begomovirus	Replication enhancer AC3	AF264063	135	38.8	40.7	33.3	42.2	56.0
Tomato leaf curl Vietnam virus	Begomovirus	Replication protein AC1	AF264063	363	43.7	49.9	39.1	42.2	56.4
Tomato leaf curl Vietnam virus	Begomovirus	TrAP protein AC2	AF264063	136	47.1	50.0	47.8	43.4	54.6
Tomato leaf curl virus	Begomovirus	TrAP protein C2	S53251	136	47.1	52.2	43.4	45.6	59.4
Tomato leaf curl virus	Begomovirus	Replication protein C1	S53251	363	44.2	50.7	38.0	43.8	56.3
Tomato leaf curl virus	Begomovirus	Replication enhancer C3	S53251	135	39.3	43.0	28.9	45.9	56.3
Tomato leaf curl virus	Begomovirus	Movement protein V2	S53251	116	49.7	58.6	41.4	49.1	55.7
Tomato leaf curl virus	Begomovirus	Coat protein V1	S53251	257	45.4	43.6	41.6	51.0	51.2
Tomato leaf curl virus	Begomovirus	C4 protein	S53251	103	51.8	38.8	57.3	59.2	46.2
Tomato mosaic Havana virus	Begomovirus	TrAP protein AC2	Y14874	130	48.5	53.1	46.2	46.2	60.2
Tomato mosaic Havana virus	Begomovirus	Replication protein AC1	Y14874	362	47.0	52.2	38.7	50.0	50.4
Tomato mosaic Havana virus	Begomovirus	Replication enhancer AC3	Y14874	133	39.6	42.1	33.1	43.6	52.3
Tomato mosaic Havana virus	Begomovirus	Coat protein AV1	Y14874	252	47.9	46.8	39.3	57.5	53.0

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Tomato mosaic Havana virus	Begomovirus	Nuclear shuttle protein BV1	Y14875	256	43.9	49.6	39.5	42.6	54.4
Tomato mosaic Havana virus	Begomovirus	Movement protein BC1	Y14875	296	45.7	45.6	42.2	49.3	57.8
Tomato mottle Taino virus	Begomovirus	TrAP protein AC2	AF012300	130	49.0	52.3	48.5	46.2	59.8
Tomato mottle Taino virus	Begomovirus	Replication protein AC1	AF012300	362	46.4	50.6	40.1	48.6	56.1
Tomato mottle Taino virus	Begomovirus	Replication enhancer AC3	AF012300	133	39.4	40.6	33.8	43.6	58.3
Tomato mottle Taino virus	Begomovirus	Coat protein AV1	AF012300	252	49.1	48.4	40.5	58.3	61.0
Tomato mottle Taino virus	Begomovirus	Nuclear shuttle protein BV1	AF012301	259	42.6	47.5	39.8	40.5	55.2
Tomato mottle Taino virus	Begomovirus	Movement protein BC1	AF012301	294	46.5	46.6	41.8	51.0	56.8
Tomato mottle virus	Begomovirus	TrAP protein AC2	L14460	130	50.0	53.1	52.3	44.6	61.0
Tomato mottle virus	Begomovirus	Replication protein AC1	L14460	362	46.0	52.8	39.0	46.4	53.2
Tomato mottle virus	Begomovirus	Replication enhancer AC3	L14460	133	39.4	44.4	30.8	42.9	56.7
Tomato mottle virus	Begomovirus	Coat protein AV1	L14460	252	46.4	44.8	40.5	54.0	55.5
Tomato mottle virus	Begomovirus	Nuclear shuttle protein BV1	L14461	258	42.1	47.3	38.4	40.7	54.3
Tomato mottle virus	Begomovirus	Movement protein BC1	L14461	294	45.6	45.2	41.2	50.3	59.2
Tomato rugose mosaic virus	Begomovirus	TrAP protein AC2	AF291705	130	45.9	53.1	47.7	36.9	52.1
Tomato rugose mosaic virus	Begomovirus	Replication protein AC1	AF291705	353	45.4	47.6	41.4	47.3	55.6
Tomato rugose mosaic virus	Begomovirus	Replication enhancer AC3	AF291705	133	39.6	43.6	30.8	44.4	55.0
Tomato rugose mosaic virus	Begomovirus	Coat protein AV1	AF291705	252	47.4	47.2	40.5	54.4	61.0
Tomato rugose mosaic virus	Begomovirus	Nuclear shuttle protein BV1	AF291706	257	39.3	45.1	38.9	33.9	48.2
Tomato rugose mosaic virus	Begomovirus	Movement protein BC1	AF291706	294	43.1	46.3	41.8	41.2	48.9
Tomato severe leaf curl virus	Begomovirus	TrAP protein AC2	AF130415	129	46.0	50.4	43.4	44.2	61.0
Tomato severe leaf curl virus	Begomovirus	Replication protein AC1	AF130415	345	46.7	51.3	38.8	49.9	56.2
Tomato severe leaf curl virus	Begomovirus	Replication enhancer AC3	AF130415	133	39.4	37.6	33.8	46.6	59.9
Tomato severe leaf curl virus	Begomovirus	Coat protein AV1	AF130415	252	50.4	48.4	41.3	61.5	54.6
Tomato severe leaf curl virus	Begomovirus	AC4 protein	AF130415	122	47.8	38.5	50.0	54.9	53.6
Tomato severe rugose virus	Begomovirus	TrAP protein AC2	AY029750	130	46.4	53.1	45.4	40.8	48.9
Tomato severe rugose virus	Begomovirus	Replication protein AC1	AY029750	352	44.6	49.4	40.1	44.3	55.7
Tomato severe rugose virus	Begomovirus	Replication enhancer AC3	AY029750	133	38.6	39.1	33.8	42.9	57.9
Tomato severe rugose virus	Begomovirus	Coat protein AV1	AY029750	252	46.0	46.8	40.9	50.4	44.8
Tomato yellow leaf curl China virus	Begomovirus	TrAP protein AC2	AF311734	135	45.4	51.1	47.4	37.8	56.2
Tomato yellow leaf curl China virus	Begomovirus	Replication protein AC1	AF311734	362	43.7	49.2	39.8	42.3	57.5
Tomato yellow leaf curl China virus	Begomovirus	Replication enhancer AC3	AF311734	135	35.8	39.3	28.9	39.3	61.0
Tomato yellow leaf curl China virus	Begomovirus	Movement protein AV2	AF311734	116	48.3	56.9	42.2	45.7	52.7
Tomato yellow leaf curl China virus	Begomovirus	Coat protein AV1	AF311734	257	43.6	47.5	41.6	41.6	50.4
Tomato yellow leaf curl Gezira virus	Begomovirus	TrAP protein C2	AY044137	136	44.4	49.3	41.9	41.9	52.3

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Tomato yellow leaf curl Gezira virus	Begomovirus	Replication protein C1	AY044137	360	42.6	46.7	40.0	41.1	51.7
Tomato yellow leaf curl Gezira virus	Begomovirus	Replication enhancer C3	AY044137	135	35.3	40.0	27.4	38.5	57.8
Tomato yellow leaf curl Gezira virus	Begomovirus	Movement protein V2	AY044137	117	47.0	57.3	40.2	43.6	57.2
Tomato yellow leaf curl Gezira virus	Begomovirus	Coat protein V1	AY044137	258	43.2	46.5	41.5	41.5	48.1
Tomato yellow leaf curl Gezira virus	Begomovirus	C4 protein	AY044137	101	46.2	43.6	41.6	53.5	48.2
Tomato yellow leaf curl Sardinia virus	Begomovirus	TrAP protein C2	X61153	136	42.7	49.3	37.5	41.2	53.8
Tomato yellow leaf curl Sardinia virus	Begomovirus	Replication protein C1	X61153	360	42.1	49.4	38.3	38.6	57.9
Tomato yellow leaf curl Sardinia virus	Begomovirus	Replication enhancer C3	X61153	136	33.8	35.3	28.7	37.5	47.6
Tomato yellow leaf curl Sardinia virus	Begomovirus	Movement protein V2	X61153	116	48.6	57.8	39.7	48.3	44.4
Tomato yellow leaf curl Sardinia virus	Begomovirus	Coat protein V1	X61153	258	42.4	46.5	40.7	39.9	52.0
Tomato yellow leaf curl Thailand virus	Begomovirus	Nuclear shuttle protein BV1	AF141897	239	44.4	47.7	45.6	39.8	54.2
Tomato yellow leaf curl Thailand virus	Begomovirus	Movement protein BC1	AF141897	238	43.6	46.6	37.4	46.6	54.0
Tomato yellow leaf curl Thailand virus	Begomovirus	TrAP protein AC2	AF141922	137	45.3	49.6	46.0	40.2	60.9
Tomato yellow leaf curl Thailand virus	Begomovirus	Replication protein AC1	AF141922	362	42.6	46.7	39.5	41.7	54.4
Tomato yellow leaf curl Thailand virus	Begomovirus	Replication enhancer AC3	AF141922	135	35.6	37.8	30.4	38.5	56.9
Tomato yellow leaf curl Thailand virus	Begomovirus	Coat protein AV1	AF141922	257	43.8	47.9	39.7	44.0	54.5
Tomato yellow leaf curl Thailand virus	Begomovirus	AC4 protein	AF141922	100	46.0	41.0	43.0	54.0	50.6
Tomato yellow leaf curl virus	Begomovirus	TrAP protein C2	AF105975	136	44.1	48.5	40.4	43.4	55.0
Tomato yellow leaf curl virus	Begomovirus	Replication protein C1	AF105975	360	43.3	48.6	38.3	43.1	55.9
Tomato yellow leaf curl virus	Begomovirus	Replication enhancer C3	AF105975	135	35.3	41.5	28.2	36.3	57.9
Tomato yellow leaf curl virus	Begomovirus	Movement protein V2	AF105975	117	47.9	58.1	39.3	46.2	56.9
Tomato yellow leaf curl virus	Begomovirus	Coat protein V1	AF105975	259	42.9	44.0	41.3	43.2	50.9
Tomato yellow leaf curl virus	Begomovirus	C4 protein	AF105975	101	48.8	40.6	47.5	58.4	52.4
Watermelon chlorotic stunt virus	Begomovirus	TrAP protein AC2	AJ012081	136	47.6	48.5	46.3	47.8	51.3
Watermelon chlorotic stunt virus	Begomovirus	Replication protein AC1	AJ012081	362	50.0	52.8	40.3	56.9	59.9
Watermelon chlorotic stunt virus	Begomovirus	Replication enhancer AC3	AJ012081	135	41.7	48.9	31.9	44.4	55.9
Watermelon chlorotic stunt virus	Begomovirus	Movement protein AV2	AJ012081	120	52.5	59.2	42.5	55.8	51.0
Watermelon chlorotic stunt virus	Begomovirus	Coat protein AV1	AJ012081	258	47.3	51.2	38.4	52.3	56.4
Watermelon chlorotic stunt virus	Begomovirus	Nuclear shuttle protein BV1	AJ012082	252	49.3	52.4	42.5	53.2	58.9
Watermelon chlorotic stunt virus	Begomovirus	Movement protein BC1	AJ012082	307	49.6	45.3	44.3	59.3	53.8
Beet necrotic yellow vein virus	Benyvirus	ORF-RNA5	D63936	229	38.0	48.0	37.6	28.4	45.3
Beet necrotic yellow vein virus	Benyvirus	Polymerase	D84410	2110	40.2	48.5	37.1	35.0	43.7
Beet necrotic yellow vein virus	Benyvirus	TGBp3	D84411	133	39.1	42.1	36.1	39.1	49.2
Beet necrotic yellow vein virus	Benyvirus	TGBp2	D84411	119	43.1	52.9	46.2	30.3	43.0
Beet necrotic yellow vein virus	Benyvirus	TGBp1	D84411	385	43.4	49.9	41.3	39.0	53.7

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Beet necrotic yellow vein virus	Benyvirus	Cysteine-rich protein	D84411	130	38.5	46.2	33.1	36.2	42.9
Beet necrotic yellow vein virus	Benyvirus	Coat protein readthrough	D84411	691	46.3	55.9	48.8	34.2	48.5
Beet necrotic yellow vein virus	Benyvirus	ORF-RNA3	D84412	220	41.4	53.6	39.1	31.4	42.6
Beet necrotic yellow vein virus	Benyvirus	ORF-RNA4	D84413	283	38.3	48.8	39.9	26.2	42.8
Beet soil-borne mosaic virus	Benyvirus	TGBp3	AF061869	133	39.6	45.9	34.6	38.4	38.9
Beet soil-borne mosaic virus	Benyvirus	TGBp2	AF061869	119	44.5	52.1	45.4	36.1	51.2
Beet soil-borne mosaic virus	Benyvirus	TGBp1	AF061869	383	44.0	50.1	40.2	41.5	53.8
Beet soil-borne mosaic virus	Benyvirus	Cysteine-rich protein	AF061869	121	38.3	39.7	35.5	39.7	51.3
Beet soil-borne mosaic virus	Benyvirus	Coat protein readthrough	AF061869	687	46.2	55.8	48.6	34.2	44.1
Beet soil-borne mosaic virus	Benyvirus	Polymerase	AF280539	2118	40.0	48.1	37.2	34.8	41.3
Beet soil-borne mosaic virus	Benyvirus	ORF-RNA3	AF280540	258	42.6	56.6	38.4	33.0	44.8
Beet soil-borne mosaic virus	Benyvirus	ORF-RNA4	AF280541	111	40.2	45.1	37.8	37.8	51.5
Pelargonium zonate spot virus	Bromoviridae	Replication protein 1a	AJ272327	963	44.5	48.6	39.7	45.3	53.8
Pelargonium zonate spot virus	Bromoviridae	Polymerase 2a	AJ272328	688	42.7	50.3	35.5	42.3	53.3
Pelargonium zonate spot virus	Bromoviridae	Movement protein 3a	AJ272329	310	48.1	50.7	44.8	48.7	58.5
Pelargonium zonate spot virus	Bromoviridae	Coat protein 3b	AJ272329	209	51.0	55.0	47.9	50.2	49.7
Broad bean mottle virus	Bromovirus	Movement protein 3a	M60291	296	43.4	45.3	42.6	42.2	52.5
Broad bean mottle virus	Bromovirus	Coat protein 3b	M60291	191	47.1	57.1	42.4	41.9	52.3
Broad bean mottle virus	Bromovirus	Polymerase 2a	M64713	811	44.0	50.6	37.5	43.9	58.2
Broad bean mottle virus	Bromovirus	Replication protein 1a	M65138	967	43.0	48.2	39.1	41.8	53.6
Brome mosaic virus	Bromovirus	Movement protein 3a	J02042	304	46.8	51.3	46.4	42.8	52.9
Brome mosaic virus	Bromovirus	Coat protein 3b	J02042	190	53.0	60.0	47.4	51.6	60.1
Brome mosaic virus	Bromovirus	Polymerase 2a	X01678	823	44.7	52.0	37.9	44.2	56.0
Brome mosaic virus	Bromovirus	Replication protein 1a	X02380	962	47.1	52.9	40.1	48.3	56.4
Cowpea chlorotic mottle virus	Bromovirus	Polymerase 2a	M28817	809	42.7	49.0	37.0	42.0	54.2
Cowpea chlorotic mottle virus	Bromovirus	Movement protein 3a	M28818	303	43.9	44.9	42.2	44.6	52.8
Cowpea chlorotic mottle virus	Bromovirus	Coat protein 3b	M28818	191	50.8	52.9	48.2	51.3	59.4
Cowpea chlorotic mottle virus	Bromovirus	Replication protein 1a	M65139	959	43.3	48.9	39.7	41.4	54.7
Barley mild mosaic virus	Bymovirus	RNA2 Polyprotein	X90904	895	51.6	58.0	46.0	50.7	54.8
Barley mild mosaic virus	Bymovirus	RNA1 Polyprotein	Y10973	2259	48.6	51.8	38.7	55.3	54.5
Barley yellow mosaic virus	Bymovirus	RNA1 polyprotein	AJ132268	2411	45.9	51.6	40.2	45.8	55.9
Barley yellow mosaic virus	Bymovirus	RNA2 polyprotein	AJ132269	891	48.8	55.8	45.6	45.0	57.3
Oat mosaic virus	Bymovirus	RNA1 polyprotein	AJ306718	2341	46.2	51.1	38.9	48.6	54.7
Oat mosaic virus	Bymovirus	RNA2 polyprotein	AJ306719	315	50.2	52.7	44.1	53.7	58.6
Wheat yellow mosaic virus	Bymovirus	RNA1 polyprotein	D86634	2405	48.6	51.7	40.8	53.4	54.0

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Wheat yellow mosaic virus	Bymovirus	RNA2 polyprotein	D86635	905	48.7	54.5	44.8	46.9	54.5
Apple stem grooving virus	Capillovirus	RNA1 polyprotein	D14995	2106	41.4	44.4	37.1	42.6	51.8
Apple stem grooving virus	Capillovirus	RNA2 polyprotein	D14995	321	45.7	46.4	43.0	47.7	51.8
Cherry virus A	Capillovirus	Polyprotein	X82547	2343	39.4	41.8	35.1	41.4	49.7
Cherry virus A	Capillovirus	Movement protein	X82547	464	42.2	45.5	43.1	38.2	48.3
Aconitum latent virus	Carlavirus	TGBp2	AB051848	110	48.8	59.1	41.8	45.5	47.3
Aconitum latent virus	Carlavirus	TGBp1	AB051848	230	49.7	53.0	41.3	54.8	51.4
Aconitum latent virus	Carlavirus	Polymerase	AB051848	1987	47.1	51.4	39.9	50.1	56.6
Aconitum latent virus	Carlavirus	Nucleic acid binding protein	AB051848	106	50.0	51.9	54.7	43.4	61.0
Aconitum latent virus	Carlavirus	Coat protein	AB051848	305	47.8	57.7	42.6	43.0	57.6
Blueberry scorch virus	Carlavirus	TGBp2	L25658	107	53.3	58.9	52.3	48.6	61.0
Blueberry scorch virus	Carlavirus	TGBp1	L25658	229	48.8	55.9	43.2	47.2	50.3
Blueberry scorch virus	Carlavirus	Polymerase	L25658	1968	47.3	50.5	39.3	52.2	56.4
Blueberry scorch virus	Carlavirus	Nucleic acid binding protein	L25658	148	47.8	48.0	45.3	50.0	49.6
Blueberry scorch virus	Carlavirus	Coat protein	L25658	313	54.9	62.3	44.1	58.2	55.4
Garlic latent virus	Carlavirus	TGBp2	AJ292226	111	45.1	44.1	50.5	40.5	61.0
Garlic latent virus	Carlavirus	TGBp1	AJ292226	237	46.4	51.9	43.5	43.9	56.6
Garlic latent virus	Carlavirus	Polymerase	AJ292226	1925	43.7	48.0	36.7	46.6	56.0
Garlic latent virus	Carlavirus	Coat protein	AJ292226	298	47.9	52.4	45.0	46.3	61.0
Hop latent virus	Carlavirus	TGBp2	AB032469	109	51.4	54.1	49.5	50.5	47.8
Hop latent virus	Carlavirus	TGBp1	AB032469	232	48.0	53.9	44.8	45.3	55.3
Hop latent virus	Carlavirus	Polymerase	AB032469	1982	47.7	52.8	39.2	51.2	53.5
Hop latent virus	Carlavirus	Nucleic acid binding protein	AB032469	105	47.0	47.6	49.5	43.8	56.1
Hop latent virus	Carlavirus	Coat protein	AB032469	307	50.5	53.8	39.7	58.0	50.8
Potato virus M	Carlavirus	TGBp2	D14449	110	53.0	59.1	50.0	50.0	47.3
Potato virus M	Carlavirus	TGBp1	D14449	230	49.3	52.2	42.6	53.0	55.7
Potato virus M	Carlavirus	Polymerase	D14449	1969	48.3	52.3	38.5	54.1	54.6
Potato virus M	Carlavirus	Nucleic acid binding protein	D14449	109	46.5	48.6	50.5	40.4	61.0
Potato virus M	Carlavirus	Coat protein	D14449	305	53.1	58.7	46.9	53.8	56.2
Cardamine chlorotic fleck virus	Carmovirus	Polymerase readthrough	L16015	774	49.8	54.7	42.5	52.2	60.4
Cardamine chlorotic fleck virus	Carmovirus	Coat protein	L16015	352	54.7	56.3	48.9	59.1	58.1
Carnation mottle virus	Carmovirus	Polymerase readthrough	AF192772	764	49.4	51.4	40.8	55.8	58.2
Carnation mottle virus	Carmovirus	Coat protein	AF192772	349	50.2	51.6	45.9	53.3	57.1
Cowpea mottle virus	Carmovirus	Polymerase readthrough	U20976	743	51.6	54.4	42.1	58.1	59.2
Cowpea mottle virus	Carmovirus	Coat protein	U20976	368	51.8	51.6	49.7	54.1	56.5

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Galinsoga mosaic virus	Carmovirus	Polymerase readthrough	Y13463	730	47.9	52.6	42.6	48.5	59.0
Galinsoga mosaic virus	Carmovirus	Coat protein	Y13463	341	50.2	51.0	49.3	50.2	61.0
Hibiscus chlorotic ringspot virus	Carmovirus	Polymerase readthrough	X86448	736	49.7	56.3	43.3	49.5	55.4
Hibiscus chlorotic ringspot virus	Carmovirus	Coat protein	X86448	346	50.6	52.6	48.3	50.9	59.7
Japanese iris necrotic ring virus	Carmovirus	Polymerase readthrough	D86123	763	51.5	52.4	42.6	59.4	56.7
Japanese iris necrotic ring virus	Carmovirus	Movement protein 2 P12	D86123	111	50.2	55.0	43.2	52.3	61.0
Japanese iris necrotic ring virus	Carmovirus	Coat protein	D86123	353	51.3	51.6	51.3	51.0	59.0
Melon necrotic spot virus	Carmovirus	Polymerase readthrough	M29671	792	46.1	50.6	42.1	45.7	56.3
Melon necrotic spot virus	Carmovirus	Coat protein	M29671	391	46.6	51.7	46.6	41.7	50.5
Saguaro cactus virus	Carmovirus	Polymerase readthrough	U72332	751	51.2	58.2	41.4	53.9	58.2
Saguaro cactus virus	Carmovirus	Coat protein	U72332	345	53.3	53.6	53.0	53.3	56.5
Turnip crinkle virus	Carmovirus	Polymerase readthrough	M22445	775	51.3	53.8	41.7	58.3	58.4
Turnip crinkle virus	Carmovirus	Coat protein	M22445	352	54.8	55.4	48.9	60.2	53.6
Tobacco vein-clearing virus	Caulimoviridae	Transactivator factor ORF4	AF190123	418	34.4	40.2	32.3	30.6	43.4
Tobacco vein-clearing virus	Caulimoviridae	Polyprotein ORF3	AF190123	636	25.1	33.7	25.9	15.7	31.0
Tobacco vein-clearing virus	Caulimoviridae	Movement protein	AF190123	420	25.6	36.7	26.7	13.6	31.8
Tobacco vein-clearing virus	Caulimoviridae	Coat protein	AF190123	580	25.3	34.5	26.6	15.0	30.2
Blueberry red ringspot virus	Caulimovirus	Reverse transcriptase ORF5	AF404509	658	29.5	39.8	29.9	18.8	36.0
Blueberry red ringspot virus	Caulimovirus	ORFA	AF404509	123	30.4	40.7	31.7	18.7	33.4
Blueberry red ringspot virus	Caulimovirus	ORF7	AF404509	143	30.1	36.4	31.5	22.4	37.0
Blueberry red ringspot virus	Caulimovirus	ORF6	AF404509	429	37.0	41.7	31.5	37.8	41.8
Blueberry red ringspot virus	Caulimovirus	ORF 3	AF404509	148	29.3	39.9	27.7	20.3	36.2
Blueberry red ringspot virus	Caulimovirus	ORF 2	AF404509	165	26.3	37.6	25.5	15.8	35.9
Blueberry red ringspot virus	Caulimovirus	Movement protein ORF1	AF404509	313	31.6	40.6	30.7	23.6	36.3
Blueberry red ringspot virus	Caulimovirus	Coat protein ORF4	AF404509	487	28.6	38.8	29.6	17.5	34.3
Carnation etched ring virus	Caulimovirus	Reverse transcriptase ORF5	X04658	660	36.6	43.8	32.0	33.9	48.2
Carnation etched ring virus	Caulimovirus	ORF3	X04658	129	38.8	45.7	38.8	31.8	38.9
Carnation etched ring virus	Caulimovirus	Movement protein ORF1	X04658	320	35.1	41.6	31.3	32.5	51.5
Carnation etched ring virus	Caulimovirus	Inclusion body protein ORF6	X04658	497	36.3	44.3	35.0	29.6	51.3
Carnation etched ring virus	Caulimovirus	Helper protein ORF2	X04658	169	35.9	37.3	34.3	36.1	52.8
Carnation etched ring virus	Caulimovirus	Coat protein ORF4	X04658	495	35.9	43.6	33.5	30.5	45.7
Cauliflower mosaic virus	Caulimovirus	Transmission protein ORF3	V00141	130	37.2	46.9	33.9	30.8	37.2
Cauliflower mosaic virus	Caulimovirus	Reverse transcriptase ORF5	V00141	680	40.3	46.0	31.2	43.7	49.7
Cauliflower mosaic virus	Caulimovirus	Movement protein ORF1	V00141	328	33.7	40.6	30.2	30.5	46.8
Cauliflower mosaic virus	Caulimovirus	Inclusion body protein ORF6	V00141	521	44.9	51.3	38.2	45.3	51.7

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Cauliflower mosaic virus	Caulimovirus	Helper protein ORF2	V00141	160	32.5	35.0	31.9	30.6	39.1
Cauliflower mosaic virus	Caulimovirus	Coat protein ORF4	V00141	490	41.2	45.1	34.7	43.9	50.8
Figwort mosaic virus	Caulimovirus	Reverse transcriptase ORF5	X06166	667	34.2	44.1	30.4	28.0	45.4
Figwort mosaic virus	Caulimovirus	ORF3	X06166	116	39.4	48.3	39.7	30.2	43.1
Figwort mosaic virus	Caulimovirus	Movement protein ORF1	X06166	324	32.4	40.4	31.2	25.6	43.4
Figwort mosaic virus	Caulimovirus	Inclusion body protein ORF6	X06166	513	39.4	47.2	35.1	36.1	55.4
Figwort mosaic virus	Caulimovirus	Helper protein ORF2	X06166	165	30.5	35.8	26.7	29.1	49.2
Figwort mosaic virus	Caulimovirus	Coat protein ORF4	X06166	490	34.3	39.6	33.5	29.8	47.3
Mirabilis mosaic virus	Caulimovirus	Transmission protein ORF3	AF454635	125	41.9	52.8	38.4	34.4	49.8
Mirabilis mosaic virus	Caulimovirus	Coat protein ORF4	AF454635	488	37.0	42.0	34.2	34.6	47.1
Mirabilis mosaic virus	Caulimovirus	Helper protein ORF2	AF454635	166	36.8	39.8	33.7	36.8	54.5
Mirabilis mosaic virus	Caulimovirus	Inclusion body protein ORF6	AF454635	537	41.0	46.4	37.2	39.5	50.5
Mirabilis mosaic virus	Caulimovirus	Movement protein ORF1	AF454635	324	35.1	41.1	28.7	35.5	51.8
Mirabilis mosaic virus	Caulimovirus	Reverse transcriptase ORF5	AF454635	675	37.1	45.8	30.5	35.0	48.5
Strawberry vein banding virus	Caulimovirus	Reverse transcriptase ORF5	X97304	709	38.0	46.8	34.0	33.3	48.7
Strawberry vein banding virus	Caulimovirus	ORF3	X97304	118	38.4	50.0	33.9	31.4	40.6
Strawberry vein banding virus	Caulimovirus	Movement protein ORF1	X97304	329	39.0	45.3	36.5	35.3	47.8
Strawberry vein banding virus	Caulimovirus	Inclusion body protein ORF6	X97304	515	41.9	51.1	36.3	38.5	49.9
Strawberry vein banding virus	Caulimovirus	Helper protein ORF2	X97304	162	34.8	40.1	30.9	33.3	43.1
Strawberry vein banding virus	Caulimovirus	Coat protein ORF4	X97304	475	37.5	43.0	33.5	36.0	52.2
Little cherry virus-1	Closteroviridae	Polyprotein ORF1a	Y10237	2302	37.8	43.2	34.6	35.4	49.8
Little cherry virus-1	Closteroviridae	Polymerase ORF1b	Y10237	516	36.0	42.3	34.5	31.2	44.5
Little cherry virus-1	Closteroviridae	ORF8	Y10237	240	34.6	35.0	26.3	42.5	58.2
Little cherry virus-1	Closteroviridae	ORF7	Y10237	182	30.4	33.0	28.6	29.7	48.0
Little cherry virus-1	Closteroviridae	ORF4	Y10237	518	32.2	35.1	28.0	33.4	47.7
Little cherry virus-1	Closteroviridae	HSP70 homologue	Y10237	619	33.3	41.2	30.7	28.1	46.3
Little cherry virus-1	Closteroviridae	Coat protein duplicate	Y10237	665	31.7	35.3	31.6	28.3	42.3
Little cherry virus-1	Closteroviridae	Coat protein	Y10237	405	38.2	45.7	35.6	33.3	48.6
Beet yellows virus	Closterovirus	Polyprotein ORF1a	X73476	2631	47.6	51.1	42.4	49.4	56.0
Beet yellows virus	Closterovirus	Polymerase ORF1b	X73476	505	44.7	44.0	37.6	52.5	56.6
Beet yellows virus	Closterovirus	ORF8, unknown function	X73476	178	43.3	51.7	33.7	44.4	56.5
Beet yellows virus	Closterovirus	ORF7, unknown function	X73476	181	40.0	44.2	37.0	38.7	55.5
Beet yellows virus	Closterovirus	HSP90 homologue?	X73476	554	43.8	45.7	36.5	49.3	54.5
Beet yellows virus	Closterovirus	HSP70 homologue	X73476	599	46.8	51.1	41.1	48.3	55.9
Beet yellows virus	Closterovirus	Coat protein duplicate	X73476	217	44.9	48.4	37.3	48.9	58.4

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Beet yellows virus	Closterovirus	Coat protein	X73476	205	47.2	50.2	44.4	46.8	58.6
Citrus tristeza virus	Closterovirus	Putative P61	U16304	536	43.5	48.7	37.1	44.6	53.1
Citrus tristeza virus	Closterovirus	Polyprotein ORF1a	U16304	3125	47.5	50.3	44.3	48.0	54.0
Citrus tristeza virus	Closterovirus	Polymerase ORF1b	U16304	501	43.1	46.5	35.7	46.9	57.4
Citrus tristeza virus	Closterovirus	P33	U16304	303	44.1	46.9	44.6	40.9	50.5
Citrus tristeza virus	Closterovirus	P23 RNA binding?	U16304	210	45.6	49.1	39.1	48.6	54.1
Citrus tristeza virus	Closterovirus	P20	U16304	183	47.0	49.2	36.6	55.2	59.3
Citrus tristeza virus	Closterovirus	P18	U16304	168	39.3	38.7	41.7	37.5	47.3
Citrus tristeza virus	Closterovirus	P13	U16304	120	42.2	43.3	35.8	47.5	43.2
Citrus tristeza virus	Closterovirus	HSP70 homologue	U16304	595	43.9	46.7	41.7	43.2	52.7
Citrus tristeza virus	Closterovirus	Coat protein duplicate	U16304	241	41.6	44.4	37.3	43.2	53.6
Citrus tristeza virus	Closterovirus	Coat protein	U16304	224	43.8	48.7	38.0	44.6	53.2
Apple latent spherical virus	Comoviridae	Polyprotein	AB030940	2080	40.1	48.5	38.8	32.9	46.3
Apple latent spherical virus	Comoviridae	Polyprotein	AB030941	962	42.7	49.6	40.6	37.7	52.4
Bean pod mottle virus	Comovirus	RNA2 Polyprotein	M62738	1019	39.2	45.8	40.2	31.6	46.7
Bean pod mottle virus	Comovirus	RNA1 Polyprotein	U70866	1851	38.7	46.2	37.1	32.8	44.7
Cowpea mosaic virus	Comovirus	RNA1 Polyprotein	X00206	1867	42.7	50.2	37.6	40.3	49.3
Cowpea mosaic virus	Comovirus	RNA2 Polyprotein	X00729	1047	42.7	47.0	43.7	37.4	51.4
Cowpea severe mosaic virus	Comovirus	RNA2 Polyprotein	M83309	1003	42.2	46.8	41.4	38.4	53.5
Cowpea severe mosaic virus	Comovirus	RNA1 Polyprotein	M83830	1859	42.9	50.1	37.2	41.4	54.1
Red clover mottle virus	Comovirus	RNA2 Polyprotein	M14913	997	42.4	46.4	43.2	37.6	51.2
Red clover mottle virus	Comovirus	RNA1 Polyprotein	X64886	1865	42.2	49.2	37.8	39.6	50.1
Squash mosaic virus	Comovirus	RNA1 Polyprotein	AB054688	1859	43.3	48.7	37.8	43.3	51.5
Squash mosaic virus	Comovirus	RNA2 Polyprotein	AB054689	1010	42.5	47.5	40.9	39.0	52.7
Lettuce infectious yellows virus	Crinivirus	Polyprotein ORF1a	U15440	1874	37.1	39.0	33.6	38.5	52.3
Lettuce infectious yellows virus	Crinivirus	Polymerase ORF1b	U15440	516	38.5	39.7	33.7	42.1	53.4
Lettuce infectious yellows virus	Crinivirus	ORF3	U15440	275	33.1	36.0	28.4	34.9	54.8
Lettuce infectious yellows virus	Crinivirus	unknown protein	U15441	228	28.7	30.7	28.5	26.8	40.1
Lettuce infectious yellows virus	Crinivirus	unknown protein	U15441	515	33.3	37.5	32.8	29.7	44.7
Lettuce infectious yellows virus	Crinivirus	HSP70 homologue	U15441	555	36.7	40.2	35.3	34.6	50.7
Lettuce infectious yellows virus	Crinivirus	Coat protein duplicate	U15441	453	33.9	38.0	30.9	32.9	48.6
Lettuce infectious yellows virus	Crinivirus	Coat protein	U15441	250	38.5	44.0	35.2	36.4	49.1
Cassava vein mosaic virus	Cavemovirus	Reverse transcriptase ORF3	U59751	653	24.3	34.6	26.2	11.9	30.2
Cassava vein mosaic virus	Cavemovirus	Polyprotein ORF1	U59751	1373	23.5	37.0	23.0	10.4	29.3
Cassava vein mosaic virus	Cavemovirus	ORF4	U59751	393	28.9	41.5	20.6	24.7	42.5

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Cucumber mosaic virus	Cucumovirus	Polymerase 2a	D00355	858	45.0	50.4	41.4	43.2	55.6
Cucumber mosaic virus	Cucumovirus	2b protein	D00355	111	51.7	60.4	43.2	51.4	56.5
Cucumber mosaic virus	Cucumovirus	Replication protein 1a	D00356	994	46.2	50.2	41.3	47.1	56.1
Cucumber mosaic virus	Cucumovirus	Movement protein 3a	D00385	280	46.0	50.0	46.4	41.4	54.3
Cucumber mosaic virus	Cucumovirus	Coat protein 3b	D00385	219	49.2	54.8	46.6	46.1	61.0
Peanut stunt virus	Cucumovirus	Replication protein 1a	U15728	1007	46.6	50.7	41.7	47.4	57.1
Peanut stunt virus	Cucumovirus	Polymerase 2a	U15729	835	46.0	49.7	41.8	46.5	56.0
Peanut stunt virus	Cucumovirus	Movement protein 3a	U15730	290	48.2	53.5	46.6	44.5	60.9
Peanut stunt virus	Cucumovirus	Coat protein 3b	U15730	226	50.7	57.5	45.6	49.1	57.3
Tomato aspermy virus	Cucumovirus	Replication protein 1a	D10044	994	43.8	51.0	39.6	40.9	55.8
Tomato aspermy virus	Cucumovirus	Polymerase 2a	D10663	829	41.5	46.0	38.5	40.1	54.2
Tomato aspermy virus	Cucumovirus	Movement protein 3a	AJ277268	281	49.0	55.5	47.7	43.8	60.3
Tomato aspermy virus	Cucumovirus	Coat protein 3b	AJ277268	219	46.9	52.1	43.4	45.2	49.7
Beet curly top virus	Curtovirus	V2 protein	M24597	103	42.4	47.6	31.1	48.5	44.7
Beet curly top virus	Curtovirus	Replication protein C1	M24597	385	41.0	49.9	36.4	36.6	49.6
Beet curly top virus	Curtovirus	Replication enhancer C3	M24597	137	38.0	40.9	28.5	44.5	58.4
Beet curly top virus	Curtovirus	Coat protein V1	M24597	255	38.8	32.9	40.8	42.8	44.2
Beet curly top virus	Curtovirus	C2 protein	M24597	174	42.5	49.4	38.5	39.7	59.3
Beet mild curly top virus	Curtovirus	V2 protein	U56975	127	42.0	48.8	27.6	49.6	41.3
Beet mild curly top virus	Curtovirus	Replication protein C1	U56975	359	40.8	50.1	39.0	33.2	51.2
Beet mild curly top virus	Curtovirus	Replication enhancer C3	U56975	137	39.7	37.2	33.6	48.2	54.0
Beet mild curly top virus	Curtovirus	Coat protein V1	U56975	255	39.2	34.1	40.8	42.8	43.9
Beet mild curly top virus	Curtovirus	C2 protein	U56975	148	44.6	51.4	40.5	41.9	61.0
Beet severe curly top virus	Curtovirus	V4 protein	U02311	108	35.8	46.3	25.9	35.2	51.8
Beet severe curly top virus	Curtovirus	V2 protein	U02311	127	41.7	50.4	27.6	47.2	48.4
Beet severe curly top virus	Curtovirus	Replication protein C1	U02311	355	40.0	48.7	37.2	34.1	52.3
Beet severe curly top virus	Curtovirus	Replication enhancer C3	U02311	137	38.4	41.6	27.0	46.7	61.0
Beet severe curly top virus	Curtovirus	Coat protein V1	U02311	255	38.7	33.3	40.0	42.8	43.8
Beet severe curly top virus	Curtovirus	C2 protein	U02311	174	42.5	51.2	40.8	35.6	52.0
Horseradish curly top virus	Curtovirus	V2 protein	U49907	126	44.4	50.8	35.7	46.8	50.9
Horseradish curly top virus	Curtovirus	Replication protein C1	U49907	347	45.6	49.6	38.9	48.4	51.0
Horseradish curly top virus	Curtovirus	Coat protein V1	U49907	254	38.5	35.0	39.8	40.6	45.1
Horseradish curly top virus	Curtovirus	C4 protein	U49907	122	47.5	37.7	51.6	53.3	49.3
Horseradish curly top virus	Curtovirus	C2 protein	U49907	135	35.6	40.7	32.6	33.3	55.9
Northern cereal mosaic virus	Cytorhabdovirus	Polymerase L	AB030277	2059	42.1	43.3	38.5	44.5	52.7

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Northern cereal mosaic virus	Cytorhabdovirus	Phosphoprotein P	AB030277	287	41.0	50.2	31.0	41.8	51.5
Northern cereal mosaic virus	Cytorhabdovirus	Matrix protein M	AB030277	175	41.3	44.0	38.3	41.7	55.5
Northern cereal mosaic virus	Cytorhabdovirus	Glycoprotein G	AB030277	484	42.6	46.5	39.1	42.2	54.4
Northern cereal mosaic virus	Cytorhabdovirus	Gene 6 protein	AB030277	123	53.4	54.5	44.7	61.0	46.8
Northern cereal mosaic virus	Cytorhabdovirus	Gene 5 protein	AB030277	126	41.0	43.7	45.2	34.1	52.5
Northern cereal mosaic virus	Cytorhabdovirus	Gene 4 protein	AB030277	115	42.0	47.8	40.0	38.3	56.0
Northern cereal mosaic virus	Cytorhabdovirus	Gene 3 protein	AB030277	173	43.6	39.3	43.9	47.4	49.7
Northern cereal mosaic virus	Cytorhabdovirus	Coat protein N	AB030277	432	44.1	49.3	38.2	44.9	55.2
Carnation ringspot virus	Dianthovirus	Polymerase fusion	L18870	768	47.1	50.5	39.8	51.0	58.6
Carnation ringspot virus	Dianthovirus	Coat protein	L18870	346	51.0	49.4	47.4	56.1	58.0
Carnation ringspot virus	Dianthovirus	Movement protein	M88589	305	46.2	48.5	43.0	47.2	58.4
Red clover necrotic mosaic virus	Dianthovirus	Polymerase fusion	J04357	767	45.6	49.7	38.2	48.8	58.1
Red clover necrotic mosaic virus	Dianthovirus	Coat protein	J04357	340	47.3	48.2	47.7	45.9	61.0
Red clover necrotic mosaic virus	Dianthovirus	Movement protein	X08021	318	47.6	49.4	46.2	47.2	58.3
Sweet clover necrotic mosaic virus	Dianthovirus	Polymerase fusion	L07884	500	47.3	50.4	38.2	53.2	59.9
Sweet clover necrotic mosaic virus	Dianthovirus	Coat protein	L07884	339	51.0	49.0	46.3	57.8	59.5
Sweet clover necrotic mosaic virus	Dianthovirus	Movement protein	S46028	327	48.5	50.8	45.9	48.9	59.7
Pea enation mosaic virus-1	Enamovirus	Replication protein ORF1	L04573	761	50.6	50.3	48.6	52.8	57.5
Pea enation mosaic virus-1	Enamovirus	Polymerase ORF2	L04573	600	52.4	55.3	46.0	55.8	56.9
Pea enation mosaic virus-1	Enamovirus	ORF0	L04573	304	49.5	56.9	43.8	47.7	53.2
Pea enation mosaic virus-1	Enamovirus	Coat protein readthrough	L04573	494	51.1	53.2	49.8	50.2	58.8
Broad bean wilt virus 2	Fabavirus	RNA1 Polyprotein	AF225953	1870	43.6	47.8	39.0	43.9	52.3
Broad bean wilt virus 2	Fabavirus	RNA2 Polyprotein	AF225954	1065	43.6	48.5	40.5	41.8	53.5
Nilaparvata lugens reovirus	Fijivirus	Nonstructural protein P10	D14691	432	35.1	43.5	36.8	25.0	42.6
Nilaparvata lugens reovirus	Fijivirus	Coat protein P8	D26127	563	35.1	43.0	35.9	26.5	46.2
Nilaparvata lugens reovirus	Fijivirus	Polymerase P1	D49693	1443	33.4	40.3	33.8	26.1	44.8
Nilaparvata lugens reovirus	Fijivirus	B spike protein P2	D49694	1200	33.0	39.7	34.3	25.0	44.3
Nilaparvata lugens reovirus	Fijivirus	Major core protein P3	D49695	1224	34.1	42.2	35.2	24.9	45.8
Nilaparvata lugens reovirus	Fijivirus	P4 protein	D49696	1133	33.9	41.0	33.3	27.5	47.1
Nilaparvata lugens reovirus	Fijivirus	P5 protein	D49697	973	40.0	48.1	41.5	30.3	47.1
Nilaparvata lugens reovirus	Fijivirus	Nonstructural protein P6	D49698	831	37.5	41.8	36.5	34.2	53.0
Nilaparvata lugens reovirus	Fijivirus	NTP binding protein P7	D49699	630	33.6	43.5	32.4	24.9	46.2
Nilaparvata lugens reovirus	Fijivirus	Nonstructural protein P9-2	D49700	207	32.7	38.7	31.4	28.0	51.7
Nilaparvata lugens reovirus	Fijivirus	Nonstructural protein P9-1	D49700	291	34.1	40.2	34.4	27.8	43.6
Rice black streaked dwarf virus	Fijivirus	P3 protein	AJ293984	1147	33.8	42.0	32.5	26.9	43.0

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Rice black streaked dwarf virus	Fijivirus	Polymerase P1	AJ294757	1465	31.8	40.1	31.1	24.2	41.1
Rice black streaked dwarf virus	Fijivirus	Nonstructural protein P7-2	AJ297427	310	32.5	41.3	30.0	26.1	40.7
Rice black streaked dwarf virus	Fijivirus	Nonstructural protein P7-1	AJ297427	363	35.2	43.0	37.7	24.8	45.7
Rice black streaked dwarf virus	Fijivirus	Nonstructural protein P9-2	AJ297430	210	28.7	39.5	27.6	19.1	42.7
Rice black streaked dwarf virus	Fijivirus	Nonstructural protein P9-1	AJ297430	348	35.4	43.1	33.3	29.9	48.3
Rice black streaked dwarf virus	Fijivirus	Core protein P8	AJ297431	592	34.4	41.2	33.3	28.7	44.8
Rice black streaked dwarf virus	Fijivirus	Coat protein P10	AJ297433	559	36.0	44.4	34.4	29.2	47.1
Rice black streaked dwarf virus	Fijivirus	P2 protein	AJ409145	1227	33.7	39.6	32.8	28.5	43.5
Rice black streaked dwarf virus	Fijivirus	P4 protein	AJ409146	1170	30.5	35.0	30.4	26.1	43.7
Rice black streaked dwarf virus	Fijivirus	P5 protein	AJ409147	938	37.2	42.6	34.2	34.9	50.2
Rice black streaked dwarf virus	Fijivirus	P6 protein	AJ409148	793	38.1	45.0	30.9	38.5	48.7
Apple stem pitting virus	Foveavirus	TGBp2	D21829	121	44.4	44.6	52.1	36.4	47.8
Apple stem pitting virus	Foveavirus	TGBp1	D21829	224	43.9	52.2	35.3	44.2	52.2
Apple stem pitting virus	Foveavirus	Polymerase	D21829	2184	42.7	47.3	37.2	43.5	51.4
Apple stem pitting virus	Foveavirus	Coat protein	D21829	415	50.2	57.4	52.8	40.5	52.7
Banana mild mosaic virus	Foveavirus	TGBp2	AF314662	113	42.2	48.7	40.7	37.2	50.9
Banana mild mosaic virus	Foveavirus	TGBp1	AF314662	225	39.7	48.9	27.6	42.7	52.4
Banana mild mosaic virus	Foveavirus	Polymerase	AF314662	1772	36.6	42.9	31.8	35.0	48.9
Banana mild mosaic virus	Foveavirus	Coat protein	AF314662	239	41.4	45.6	40.2	38.5	50.2
Cherry green ring mottle virus	Foveavirus	TGBp2	AF017780	114	45.9	44.7	41.2	51.8	57.5
Cherry green ring mottle virus	Foveavirus	TGBp1	AF017780	223	43.5	55.6	38.1	36.8	48.0
Cherry green ring mottle virus	Foveavirus	Polymerase	AF017780	2024	42.0	47.2	35.9	43.0	51.7
Cherry green ring mottle virus	Foveavirus	Coat protein	AF017780	269	45.5	48.3	43.9	44.2	56.4
Cherry necrotic rusty mottle virus	Foveavirus	TGBp2	AF237816	116	42.2	46.6	47.4	32.8	56.8
Cherry necrotic rusty mottle virus	Foveavirus	TGBp1	AF237816	223	40.7	49.8	38.1	34.1	52.0
Cherry necrotic rusty mottle virus	Foveavirus	Polymerase	AF237816	2039	40.6	45.9	35.8	40.3	49.7
Cherry necrotic rusty mottle virus	Foveavirus	Coat protein	AF237816	268	43.9	45.5	45.5	40.7	51.3
Rupestris stem pitting-associated virus	Foveavirus	TGBp2	AF057136	118	44.6	46.6	44.9	42.4	54.8
Rupestris stem pitting-associated virus	Foveavirus	TGBp1	AF057136	222	40.8	46.9	37.8	37.8	49.5
Rupestris stem pitting-associated virus	Foveavirus	Polymerase	AF057136	2161	43.0	46.8	38.5	43.7	52.6
Rupestris stem pitting-associated virus	Foveavirus	Coat protein	AF057136	260	45.6	53.1	43.1	40.8	57.3
Chinese wheat mosaic virus	Furovirus	Polymerase readthrough	AJ012005	1859	43.5	47.6	36.4	46.4	52.9
Chinese wheat mosaic virus	Furovirus	Movement protein	AJ012005	330	43.1	47.0	36.7	45.8	53.0
Chinese wheat mosaic virus	Furovirus	Cysteine-rich protein	AJ012006	174	44.6	51.7	45.4	36.8	41.6
Chinese wheat mosaic virus	Furovirus	Coat protein readthrough	AJ012006	760	45.7	53.2	40.8	43.0	52.4

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Oat golden stripe virus	Furovirus	Polymerase readthrough	AJ132578	1854	44.2	48.0	35.6	49.1	51.4
Oat golden stripe virus	Furovirus	Movement protein	AJ132578	325	42.3	48.0	37.5	41.2	49.3
Oat golden stripe virus	Furovirus	Cysteine-rich protein	AJ132579	174	48.3	58.1	43.7	43.1	51.5
Oat golden stripe virus	Furovirus	Coat protein readthrough	AJ132579	684	46.2	52.8	38.7	47.1	55.3
Soil-borne cereal mosaic virus	Furovirus	Polymerase readthrough	AJ132576	1817	43.9	47.6	36.5	47.5	50.2
Soil-borne cereal mosaic virus	Furovirus	Movement protein	AJ132576	327	41.9	47.7	34.3	43.7	57.6
Soil-borne cereal mosaic virus	Furovirus	Cysteine-rich protein	AJ132577	166	43.4	56.0	41.0	33.1	47.2
Soil-borne cereal mosaic virus	Furovirus	Coat protein readthrough	AJ132577	755	44.4	50.3	40.9	41.9	49.9
Soil-borne wheat mosaic virus	Furovirus	Polymerase readthrough	L07937	1829	43.5	47.7	36.1	46.6	50.1
Soil-borne wheat mosaic virus	Furovirus	Movement protein	L07937	328	42.9	48.8	37.2	42.7	47.0
Soil-borne wheat mosaic virus	Furovirus	Cysteine-rich protein	L07938	175	46.1	56.6	44.6	37.1	44.4
Soil-borne wheat mosaic virus	Furovirus	Coat protein readthrough	L07938	855	45.7	52.8	42.6	41.6	52.4
Sorghum chlorotic spot virus	Furovirus	Polymerase readthrough	AB033691	1786	43.9	48.2	35.3	48.3	53.2
Sorghum chlorotic spot virus	Furovirus	Movement protein	AB033691	328	44.1	48.2	36.0	48.2	51.8
Sorghum chlorotic spot virus	Furovirus	Cysteine-rich protein	AB033692	157	46.7	51.0	43.3	45.9	48.1
Sorghum chlorotic spot virus	Furovirus	Coat protein readthrough	AB033692	726	47.7	53.3	42.8	46.8	52.5
Barley stripe mosaic virus	Hordeivirus	Replication protein	J04342	1140	42.9	48.4	38.3	41.9	55.2
Barley stripe mosaic virus	Hordeivirus	Polymerase	M16576	772	42.5	50.5	37.4	39.5	53.5
Barley stripe mosaic virus	Hordeivirus	Cysteine-rich protein	M16576	154	40.9	46.8	39.6	36.4	52.2
Barley stripe mosaic virus	Hordeivirus	TGBp3	X03854	156	43.2	46.2	40.4	43.0	53.5
Barley stripe mosaic virus	Hordeivirus	TGBp2	X03854	132	43.9	43.2	47.7	40.9	54.8
Barley stripe mosaic virus	Hordeivirus	TGBp1	X03854	529	43.5	49.2	40.5	40.8	52.7
Barley stripe mosaic virus	Hordeivirus	Coat protein	X03854	199	48.1	59.8	43.2	41.2	59.0
Raspberry bushy dwarf virus	Idaeovirus	Polymerase	S51557	1695	43.0	46.4	38.7	43.8	53.8
Raspberry bushy dwarf virus	Idaeovirus	Movement protein	S55890	359	44.9	49.6	42.3	42.9	54.0
Raspberry bushy dwarf virus	Idaeovirus	Coat protein	S55890	275	45.6	50.2	37.1	49.5	59.3
American plum line pattern virus	Ilarvirus	Replication protein 1a	AF235033	1063	45.1	49.8	40.9	44.6	54.3
American plum line pattern virus	Ilarvirus	Polymerase 2a	AF235165	741	42.8	47.8	36.8	43.7	55.2
American plum line pattern virus	Ilarvirus	Movement protein 3a	AF235166	291	44.4	51.2	36.8	45.4	60.5
American plum line pattern virus	Ilarvirus	Coat protein 3b	AF235166	217	49.0	54.4	47.5	45.2	52.6
Apple mosaic virus	Ilarvirus	Movement protein 3a	U15608	287	43.6	48.4	35.5	46.7	52.5
Apple mosaic virus	Ilarvirus	Coat protein 3b	U15608	223	48.0	49.8	43.1	51.1	55.1
Apple mosaic virus	Ilarvirus	Replication protein 1a	AF174584	1047	45.0	46.7	40.2	48.0	54.6
Apple mosaic virus	Ilarvirus	Polymerase 2a	AF174585	876	43.2	48.0	35.2	46.4	52.0
Citrus leaf rugose virus	Ilarvirus	Movement protein 3a	U17390	285	43.5	45.6	41.1	43.9	54.2

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Citrus leaf rugose virus	Iarvirus	Coat protein 3b	U17390	218	50.3	52.3	49.5	49.1	61.0
Citrus leaf rugose virus	Iarvirus	Polymerase 2a	U17726	833	43.4	49.8	38.4	42.0	54.7
Citrus leaf rugose virus	Iarvirus	Replication protein 1a	U23715	1052	42.8	47.3	40.9	40.2	51.2
Elm mottle virus	Iarvirus	Polymerase 2a	U34050	790	43.5	51.0	36.6	42.9	54.2
Elm mottle virus	Iarvirus	Replication protein 1a	U57047	1056	44.2	48.7	38.3	45.6	51.9
Elm mottle virus	Iarvirus	Movement protein 3a	U85399	284	44.8	47.9	41.9	44.7	55.7
Elm mottle virus	Iarvirus	Coat protein 3b	U85399	214	49.5	54.2	51.4	43.0	53.8
Prune dwarf virus	Iarvirus	Movement protein 3a	L28145	294	40.3	45.9	38.1	36.7	45.8
Prune dwarf virus	Iarvirus	Coat protein 3b	L28145	219	45.4	50.2	42.5	43.4	53.3
Prune dwarf virus	Iarvirus	Replication protein 1a	U57648	1056	42.0	47.4	38.8	39.8	51.4
Prune dwarf virus	Iarvirus	Polymerase 2a	AF277662	789	38.3	46.8	33.3	34.9	46.5
Prunus necrotic ringspot virus	Iarvirus	Movement protein 3a	S78312	284	44.1	48.9	37.3	46.1	54.3
Prunus necrotic ringspot virus	Iarvirus	Coat protein 3b	S78312	225	51.7	55.6	44.4	55.1	52.9
Prunus necrotic ringspot virus	Iarvirus	Replication protein 1a	AF278534	1046	45.2	49.7	41.6	44.2	53.2
Prunus necrotic ringspot virus	Iarvirus	Polymerase 2a	AF278535	800	41.5	46.0	34.9	43.6	51.0
Spinach latent virus	Iarvirus	Replication protein 1a	U93192	1057	42.6	48.4	39.3	40.0	52.0
Spinach latent virus	Iarvirus	Putative 2b protein	U93193	196	46.1	52.6	40.8	44.9	53.9
Spinach latent virus	Iarvirus	Polymerase 2a	U93193	798	41.6	49.1	37.0	38.7	51.0
Spinach latent virus	Iarvirus	Movement protein 3a	U93194	283	43.9	45.6	38.5	47.7	56.9
Spinach latent virus	Iarvirus	Coat protein 3b	U93194	219	46.1	48.9	50.2	39.3	52.9
Tobacco streak virus	Iarvirus	putative 2b protein	U75538	206	44.7	46.6	40.3	47.1	61.0
Tobacco streak virus	Iarvirus	Polymerase 2a	U75538	801	41.7	48.9	36.3	39.7	52.8
Tobacco streak virus	Iarvirus	Replication protein 1a	U80934	1095	43.1	49.4	38.0	41.9	55.5
Tobacco streak virus	Iarvirus	Movement protein 3a	X00435	290	43.2	48.3	42.4	39.0	52.7
Tobacco streak virus	Iarvirus	Coat protein 3b	X00435	238	50.8	56.3	47.5	48.7	61.0
Tulare apple mosaic virus	Iarvirus	Replication protein 1a	AF226160	1061	44.1	49.6	40.7	41.9	54.0
Tulare apple mosaic virus	Iarvirus	Putative 2b protein	AF226161	201	46.3	52.2	37.8	48.8	55.9
Tulare apple mosaic virus	Iarvirus	Polymerase 2a	AF226161	810	43.5	50.7	39.9	40.0	53.5
Tulare apple mosaic virus	Iarvirus	Movement protein 3a	AF226162	291	46.2	48.1	42.6	47.8	59.1
Tulare apple mosaic virus	Iarvirus	Coat protein 3b	AF226162	213	47.7	50.7	49.3	43.2	55.6
Sweet potato mild mottle virus	Ipomovirus	Polyprotein	Z73124	3457	43.0	50.5	36.9	41.6	54.4
Arabidopsis mosaic virus large satellite RNA	Large satellite RNAs	ORF	D00664	361	54.2	57.1	54.0	51.5	61.0
Bamboo mosaic virus satellite RNA	Large satellite RNAs	20 kDa protein	L22762	184	53.6	53.3	51.6	56.0	61.0
Blackcurrant reversion virus satellite RNA	Large satellite RNAs	CDS	AF112119	403	56.8	58.1	56.6	55.8	61.0
Chicory yellow mottle virus large satellite RNA	Large satellite RNAs	ORF	D00686	363	52.7	54.8	49.9	53.4	61.0

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Grapevine fanleaf virus satellite RNA	Large satellite RNAs	39K product, P3	D00442	342	55.7	57.6	52.9	56.4	56.3
Strawberry latent ringspot virus satellite RNA	Large satellite RNAs	36 kDa protein	X69826	332	52.2	52.1	51.5	53.0	59.9
Tomato black ring virus satellite RNA	Large satellite RNAs	47.7 kDa protein	X05689	420	46.8	53.1	42.1	45.2	60.4
Bean leafroll virus	Luteoviridae	P1-P2 fusion protein	AF441393	902	45.0	50.8	36.6	47.6	58.5
Bean leafroll virus	Luteoviridae	ORF4	AF441393	143	47.3	39.9	59.4	42.7	50.1
Bean leafroll virus	Luteoviridae	Coat protein readthrough	AF441393	723	46.6	51.6	44.4	43.9	54.2
Soybean dwarf virus	Luteoviridae	Replication protein ORF1	AB038147	362	47.2	54.1	35.4	52.2	56.0
Soybean dwarf virus	Luteoviridae	Polymerase ORF2	AB038147	536	42.5	47.2	36.8	43.5	58.6
Soybean dwarf virus	Luteoviridae	ORF4	AB038147	190	48.3	50.0	50.0	44.7	54.9
Soybean dwarf virus	Luteoviridae	Coat protein readthrough	AB038147	723	45.6	50.2	44.8	41.9	55.6
Sugarcane yellow leaf virus	Luteoviridae	Replication protein ORF1	AF157029	651	49.4	47.2	43.8	57.1	58.5
Sugarcane yellow leaf virus	Luteoviridae	Polymerase ORF2	AF157029	564	52.2	57.6	43.8	55.1	55.6
Sugarcane yellow leaf virus	Luteoviridae	ORF4	AF157029	151	52.1	53.0	51.0	52.3	50.8
Sugarcane yellow leaf virus	Luteoviridae	ORF0	AF157029	257	45.0	56.8	33.1	45.1	61.0
Sugarcane yellow leaf virus	Luteoviridae	Coat protein readthrough	AF157029	677	51.3	54.7	51.4	47.7	58.8
Barley yellow dwarf virus-MAV	Luteovirus	Replication protein ORF1	D11028	340	49.9	52.9	34.7	62.1	56.2
Barley yellow dwarf virus-MAV	Luteovirus	Polymerase ORF2	D11028	533	46.7	49.5	36.4	54.2	55.4
Barley yellow dwarf virus-MAV	Luteovirus	ORF4	D11028	155	51.0	52.3	51.6	49.0	56.1
Barley yellow dwarf virus-MAV	Luteovirus	Coat protein readthrough	D11028	658	47.4	50.5	46.1	45.6	56.7
Barley yellow dwarf virus-PAS	Luteovirus	Replication protein ORF1	AF218798	341	50.2	52.8	34.3	63.3	47.7
Barley yellow dwarf virus-PAS	Luteovirus	Polymerase ORF2	AF218798	533	46.3	49.3	36.6	53.1	56.2
Barley yellow dwarf virus-PAS	Luteovirus	ORF4	AF218798	154	50.4	55.2	50.0	46.1	61.0
Barley yellow dwarf virus-PAS	Luteovirus	Coat protein readthrough	AF218798	651	48.0	50.4	47.6	45.9	57.4
Barley yellow dwarf virus-PAV	Luteovirus	Replication protein ORF1	X07653	340	50.7	54.4	34.7	62.9	53.5
Barley yellow dwarf virus-PAV	Luteovirus	Polymerase ORF2	X07653	533	45.8	49.2	36.2	52.2	56.4
Barley yellow dwarf virus-PAV	Luteovirus	ORF4	X07653	154	51.3	52.6	52.0	49.4	57.0
Barley yellow dwarf virus-PAV	Luteovirus	Coat protein readthrough	X07653	652	48.1	48.9	48.0	47.2	57.8
Maize chlorotic mottle virus	Machlomovirus	Polymerase readthrough	X14736	966	48.9	53.7	42.2	50.6	57.7
Maize chlorotic mottle virus	Machlomovirus	ORF1	X14736	290	50.7	56.6	50.0	45.5	58.5
Maize chlorotic mottle virus	Machlomovirus	Movement protein ORF3 readthrough	X14736	280	51.1	58.9	47.1	47.1	58.0
Maize chlorotic mottle virus	Machlomovirus	Coat protein	X14736	237	54.4	54.9	56.1	52.3	55.3
Grapevine fleck virus	Maculavirus	Replication protein	AJ309022	1950	66.4	64.2	50.9	84.1	29.1
Grapevine fleck virus	Maculavirus	Putative ORF4	AJ309022	158	71.7	53.8	81.7	79.8	41.6
Grapevine fleck virus	Maculavirus	Putative ORF3	AJ309022	310	69.7	68.7	71.6	68.7	40.5
Grapevine fleck virus	Maculavirus	Coat protein	AJ309022	231	66.1	58.0	59.3	81.0	33.2

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Maize rayado fino virus	Marafivirus	Polyprotein	AF265566	2028	62.4	64.8	50.4	71.9	41.0
Oat blue dwarf virus	Marafivirus	Polyprotein	U87832	2067	63.1	63.2	50.9	75.2	35.5
Poinsettia mosaic virus	Marafivirus	Polyprotein	AJ271595	1988	56.2	55.3	45.9	67.5	48.7
Bean yellow dwarf virus	Mastrevirus	Replicase B C2	Y11023	138	46.4	41.3	42.0	55.8	60.0
Bean yellow dwarf virus	Mastrevirus	Replicase A C1	Y11023	293	45.2	50.5	44.0	41.0	54.8
Bean yellow dwarf virus	Mastrevirus	Coat protein V1	Y11023	246	45.1	42.7	49.2	43.5	51.3
Chloris striate mosaic virus	Mastrevirus	Replicase A C1	M20021	171	51.9	56.1	45.0	54.4	53.8
Chloris striate mosaic virus	Mastrevirus	Movement protein V2	M20021	141	56.0	54.6	55.3	58.2	60.7
Chloris striate mosaic virus	Mastrevirus	Coat protein V1	M20021	242	56.9	54.1	51.2	65.3	53.0
Digitaria streak virus	Mastrevirus	Replicase B C2	M23022	149	47.0	47.7	43.0	50.3	46.5
Digitaria streak virus	Mastrevirus	Replicase A C1	M23022	267	46.6	50.2	39.0	50.6	54.5
Digitaria streak virus	Mastrevirus	Movement protein V2	M23022	110	50.9	60.9	49.1	42.7	61.0
Digitaria streak virus	Mastrevirus	Coat protein V1	M23022	245	53.9	49.4	53.1	59.2	61.0
Maize streak virus	Mastrevirus	Replicase B C2	Y00514	149	44.1	42.3	38.3	51.7	53.7
Maize streak virus	Mastrevirus	Replicase A C1	Y00514	273	44.1	48.7	38.5	45.1	57.0
Maize streak virus	Mastrevirus	Movement protein V2	Y00514	102	52.6	61.8	49.0	47.1	61.0
Maize streak virus	Mastrevirus	Coat protein V1	Y00514	245	55.8	50.6	51.4	65.3	56.0
Miscanthus streak virus	Mastrevirus	Replicase B C2	D01030	137	51.6	50.4	36.5	67.9	53.3
Miscanthus streak virus	Mastrevirus	Replicase A C1	D01030	218	48.0	51.8	39.0	53.2	52.1
Miscanthus streak virus	Mastrevirus	Coat protein V1	D01030	256	54.4	51.6	48.4	63.3	48.7
Panicum streak virus	Mastrevirus	Replicase B C2	L39638	136	51.0	46.3	40.4	66.2	47.4
Panicum streak virus	Mastrevirus	Replicase A C1	L39638	325	50.2	48.9	45.2	56.3	52.0
Panicum streak virus	Mastrevirus	Movement protein V2	L39638	108	57.4	63.9	56.5	51.9	52.1
Panicum streak virus	Mastrevirus	Coat protein V1	L39638	249	57.6	53.4	49.0	70.3	51.9
Sugarcane streak Egypt virus	Mastrevirus	Replicase B C2	AF037752	136	49.8	46.3	38.2	64.7	56.7
Sugarcane streak Egypt virus	Mastrevirus	Replicase A C1	AF037752	277	48.6	50.2	43.0	52.7	53.4
Sugarcane streak Egypt virus	Mastrevirus	Movement protein V2	AF037752	106	58.5	63.2	54.7	57.6	49.9
Sugarcane streak Egypt virus	Mastrevirus	Coat protein V1	AF037752	248	56.1	53.2	52.4	62.5	52.0
Sugarcane streak Reunion virus	Mastrevirus	Replicase B C2	AF072672	145	50.6	49.0	40.7	62.1	48.3
Sugarcane streak Reunion virus	Mastrevirus	Replicase A C1	AF072672	313	48.5	47.3	46.7	51.4	54.4
Sugarcane streak Reunion virus	Mastrevirus	Movement protein V2	AF072672	110	58.2	67.3	57.3	50.0	61.0
Sugarcane streak Reunion virus	Mastrevirus	Coat protein V1	AF072672	248	55.4	55.2	52.0	58.9	52.4
Sugarcane streak virus	Mastrevirus	Replicase B C2	M82918	148	50.0	44.6	41.2	64.2	51.7
Sugarcane streak virus	Mastrevirus	Replicase A C1	M82918	315	48.0	46.7	49.5	47.9	54.2
Sugarcane streak virus	Mastrevirus	Movement protein V2	M82918	110	57.3	63.6	59.1	49.1	51.8

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Sugarcane streak virus	Mastrevirus	Coat protein V1	M82918	249	53.6	51.8	50.6	58.2	50.0
Tobacco yellow dwarf virus	Mastrevirus	Replicase B C2	M81103	138	45.9	42.8	43.5	51.5	51.9
Tobacco yellow dwarf virus	Mastrevirus	Replicase A C1	M81103	296	44.3	51.7	41.9	39.2	55.0
Tobacco yellow dwarf virus	Mastrevirus	Movement protein V2	M81103	103	43.0	49.5	36.9	42.7	50.0
Tobacco yellow dwarf virus	Mastrevirus	Coat protein V1	M81103	255	45.4	47.1	47.8	41.2	48.1
Wheat dwarf virus	Mastrevirus	Replicase B C2	AJ311031	142	46.5	43.0	40.9	55.6	58.6
Wheat dwarf virus	Mastrevirus	Replicase A C1	AJ311031	265	47.6	53.2	43.4	46.0	54.7
Wheat dwarf virus	Mastrevirus	Coat protein V1	AJ311031	261	50.5	49.8	43.7	57.9	61.0
Faba bean necrotic yellows virus	Nanovirus	Replication protein P1	AJ005968	283	40.2	44.5	38.2	37.8	49.7
Faba bean necrotic yellows virus	Nanovirus	Rb-binding protein P10	AJ132179	170	36.9	47.1	30.6	32.9	45.6
Faba bean necrotic yellows virus	Nanovirus	Replication protein P2	AJ132180	287	39.8	48.1	37.3	34.2	45.4
Faba bean necrotic yellows virus	Nanovirus	P3 protein	AJ132181	156	35.0	39.7	28.9	36.5	44.8
Faba bean necrotic yellows virus	Nanovirus	Movement protein P4	AJ132182	115	40.6	45.2	46.1	30.4	49.4
Faba bean necrotic yellows virus	Nanovirus	Coat protein P5	AJ132183	173	39.7	46.8	43.9	28.3	42.1
Faba bean necrotic yellows virus	Nanovirus	P6 protein	AJ132184	125	38.1	42.4	36.0	36.0	54.3
Faba bean necrotic yellows virus	Nanovirus	Replication protein P7	AJ132185	284	37.7	44.4	39.1	29.6	44.5
Faba bean necrotic yellows virus	Nanovirus	P8 protein	AJ132186	154	38.7	46.1	33.8	36.4	47.8
Faba bean necrotic yellows virus	Nanovirus	Replication protein P9	AJ132187	282	37.7	45.4	30.9	36.9	51.0
Milk vetch dwarf virus	Nanovirus	Replication protein P1	AB000920	282	38.8	47.5	35.1	33.7	51.8
Milk vetch dwarf virus	Nanovirus	Replication protein P2	AB000921	283	40.8	45.2	38.2	38.9	52.7
Milk vetch dwarf virus	Nanovirus	Replication protein P3	AB000922	285	41.3	50.2	34.7	39.0	55.4
Milk vetch dwarf virus	Nanovirus	Non-structural protein P4	AB000923	170	36.5	47.1	29.4	32.9	37.4
Milk vetch dwarf virus	Nanovirus	Non-structural protein P5	AB000924	151	33.8	36.4	26.5	38.4	47.2
Milk vetch dwarf virus	Nanovirus	Non-structural protein P6	AB000925	154	37.0	42.9	33.8	34.4	46.2
Milk vetch dwarf virus	Nanovirus	Non-structural protein P7	AB000926	126	37.3	46.8	35.7	29.4	51.3
Milk vetch dwarf virus	Nanovirus	Non-structural protein P8	AB000927	113	42.5	45.1	44.3	38.1	52.5
Milk vetch dwarf virus	Nanovirus	Coat protein P9	AB009046	173	41.4	45.7	40.5	38.2	46.5
Milk vetch dwarf virus	Nanovirus	Replication initiation protein P10	AB009047	284	39.2	45.8	37.0	34.9	50.7
Milk vetch dwarf virus	Nanovirus	Master Rep replication initiator P11	AB027511	287	41.5	48.1	36.9	39.4	52.7
Subterranean clover stunt virus	Nanovirus	P1 protein	U16730	113	35.7	38.1	45.1	23.9	32.9
Subterranean clover stunt virus	Nanovirus	Replication protein P2	U16731	281	42.6	45.9	37.7	44.1	59.1
Subterranean clover stunt virus	Nanovirus	P3 protein	U16732	165	36.8	47.3	26.7	36.4	36.7
Subterranean clover stunt virus	Nanovirus	P4 protein	U16733	154	35.9	45.5	34.4	27.9	40.6
Subterranean clover stunt virus	Nanovirus	Coat protein P5	U16734	170	39.4	41.8	42.4	34.1	40.2
Subterranean clover stunt virus	Nanovirus	Replication protein P6	U16735	286	40.2	50.4	36.4	33.9	46.2

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Subterranean clover stunt virus	Nanovirus	P7 protein	U16736	147	37.0	42.9	31.3	36.7	35.1
Subterranean clover stunt virus	Nanovirus	Master Rep, replication initiator P8	AJ290434	287	41.5	49.8	35.9	38.7	50.0
Leek white stripe virus	Necrovirus	Polymerase readthrough	X94560	728	46.8	51.2	41.5	47.5	54.7
Leek white stripe virus	Necrovirus	Movement protein ORF2	X94560	101	42.9	41.6	42.6	44.6	49.7
Leek white stripe virus	Necrovirus	Coat protein	X94560	252	41.7	44.4	42.1	38.5	59.0
Olive latent virus 1	Necrovirus	Polymerase readthrough	X85989	724	47.9	52.4	38.3	53.0	58.8
Olive latent virus 1	Necrovirus	Coat protein	X85989	271	48.7	49.8	47.6	48.7	57.2
Tobacco necrosis virus A	Necrovirus	Polymerase readthrough	M33002	725	47.9	53.1	38.6	52.0	59.3
Tobacco necrosis virus A	Necrovirus	Coat protein	M33002	277	51.9	51.6	47.7	56.3	55.8
Tobacco necrosis virus D	Necrovirus	Polymerase readthrough	U62546	726	48.3	53.2	41.5	50.1	57.3
Tobacco necrosis virus D	Necrovirus	Coat protein	U62546	269	47.7	48.3	49.1	45.7	51.7
Beet ringspot virus	Nepovirus	RNA1 Polyprotein	D00322	2267	45.1	53.9	38.6	42.8	53.7
Beet ringspot virus	Nepovirus	RNA2 Polyprotein	X04062	1358	46.5	53.8	43.7	42.1	54.5
Blackcurrant reversion virus	Nepovirus	RNA2 Polyprotein	AF020051	1627	47.1	55.1	45.7	40.6	53.9
Blackcurrant reversion virus	Nepovirus	RNA1 Polyprotein	AF368272	2095	46.4	54.0	43.4	41.9	54.3
Cycas necrotic stunt virus	Nepovirus	RNA1 Polyprotein	AB073147	2337	45.4	53.4	40.0	42.7	53.5
Cycas necrotic stunt virus	Nepovirus	RNA2 Polyprotein	AB073148	1248	45.1	52.5	41.5	41.4	53.0
Grapevine chrome mosaic virus	Nepovirus	RNA2 Polyprotein	X15163	1325	45.7	52.9	43.3	40.9	55.3
Grapevine chrome mosaic virus	Nepovirus	RNA1 Polyprotein	X15346	2253	46.4	53.7	40.5	45.1	53.2
Grapevine fanleaf virus	Nepovirus	RNA1 Polyprotein	D00915	2285	45.4	52.3	41.0	42.9	53.7
Grapevine fanleaf virus	Nepovirus	RNA2 Polyprotein	X16907	1110	48.9	53.2	47.2	46.3	55.6
Satsuma dwarf virus	Nepovirus	RNA1 Polyprotein	AB009958	2082	47.7	53.5	43.3	46.3	56.4
Satsuma dwarf virus	Nepovirus	RNA2 Polyprotein	AB009959	1575	48.9	54.3	46.8	45.6	56.0
Tomato black ring virus	Nepovirus	RNA1 polyprotein	AY157993	2267	45.1	54.4	38.8	42.2	52.7
Tomato black ring virus	Nepovirus	RNA2 polyprotein	AY157994	1344	45.5	51.9	43.5	41.2	53.6
Tomato ringspot virus	Nepovirus	RNA2 Polyprotein	D12477	1883	49.7	55.9	47.4	45.6	51.7
Tomato ringspot virus	Nepovirus	RNA1 Polyprotein	L19655	2198	47.1	54.4	41.5	45.5	52.4
Rice yellow stunt virus	Nucleorhabdovirus	SC4	AB011257	295	42.7	42.4	38.3	47.5	49.8
Rice yellow stunt virus	Nucleorhabdovirus	Polymerase L	AB011257	1968	42.8	46.6	37.0	44.8	51.8
Rice yellow stunt virus	Nucleorhabdovirus	Phosphoprotein P	AB011257	323	44.6	46.1	39.6	48.0	53.7
Rice yellow stunt virus	Nucleorhabdovirus	Matrix protein M	AB011257	263	43.6	47.2	40.3	43.4	49.9
Rice yellow stunt virus	Nucleorhabdovirus	Glycoprotein G	AB011257	670	42.4	41.5	40.8	45.1	49.8
Rice yellow stunt virus	Nucleorhabdovirus	Coat protein N	AB011257	522	48.8	49.6	44.3	52.5	54.0
Sonchus yellow net virus	Nucleorhabdovirus	SC4	L32603	325	42.2	39.7	37.9	48.9	52.5
Sonchus yellow net virus	Nucleorhabdovirus	Polymerase L	L32603	2117	40.8	42.5	36.8	43.2	51.2

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Sonchus yellow net virus	Nucleorhabdovirus	Phosphoprotein P	L32603	346	40.9	46.5	36.1	40.2	54.9
Sonchus yellow net virus	Nucleorhabdovirus	Matrix protein M	L32603	287	42.7	46.3	39.7	42.2	51.9
Sonchus yellow net virus	Nucleorhabdovirus	Glycoprotein G	L32603	633	43.6	44.1	40.8	45.8	52.9
Sonchus yellow net virus	Nucleorhabdovirus	Coat protein N	L32603	476	43.1	45.4	40.3	43.7	53.9
Olive latent virus 2	Oleavirus	Movement protein 3a	X76993	338	52.5	63.9	50.6	42.9	55.8
Olive latent virus 2	Oleavirus	Coat protein 3b	X76993	183	54.8	60.1	49.7	54.6	52.5
Olive latent virus 2	Oleavirus	Replication protein 1a	X94346	909	48.6	52.3	39.7	53.7	57.3
Olive latent virus 2	Oleavirus	2a protein	X94347	788	46.4	52.2	38.6	48.4	54.4
Mirafiori lettuce virus	Ophiovirus	10.6 kDa protein	AF525936	101	45.9	48.5	49.5	39.6	47.5
Mirafiori lettuce virus	Ophiovirus	25 kDa protein	AF525933	212	32.9	36.8	25.0	36.8	52.4
Mirafiori lettuce virus	Ophiovirus	37 kDa protein	AF525936	318	33.2	36.8	28.6	34.3	47.2
Mirafiori lettuce virus	Ophiovirus	55 kDa protein	AF525934	484	39.5	42.4	35.3	40.9	48.4
Mirafiori lettuce virus	Ophiovirus	Coat protein	AF525935	438	39.7	46.4	36.1	36.5	51.1
Mirafiori lettuce virus	Ophiovirus	Polymerase	AF525933	2271	32.9	38.4	31.1	29.3	43.7
Rice ragged stunt virus	Oryzavirus	Spike protein P9	L38899	339	44.3	48.7	40.1	44.0	55.8
Rice ragged stunt virus	Oryzavirus	Protease P8a	L46682	224	43.8	50.9	34.8	45.5	51.4
Rice ragged stunt virus	Oryzavirus	Polyprotein P8	L46682	597	44.2	47.1	40.0	45.6	56.7
Rice ragged stunt virus	Oryzavirus	Coat protein P8b	L46682	372	44.5	44.9	43.0	45.7	58.4
Rice ragged stunt virus	Oryzavirus	P5 protein	U33633	809	45.1	50.2	41.2	43.9	54.5
Rice ragged stunt virus	Oryzavirus	Non-structural protein Pns10	U66712	298	44.6	53.4	41.6	38.9	49.2
Rice ragged stunt virus	Oryzavirus	Non-structural protein Pns7	U66713	609	44.0	49.9	41.2	40.9	55.1
Rice ragged stunt virus	Oryzavirus	Polymerase P4a	U66714	1256	44.5	47.5	41.7	44.3	57.8
Rice ragged stunt virus	Oryzavirus	P4b protein	U66714	327	46.3	53.2	46.2	39.5	50.5
Rice ragged stunt virus	Oryzavirus	Core protein P1	AF020334	1238	43.0	47.3	40.8	40.8	54.3
Rice ragged stunt virus	Oryzavirus	Core protein P2	AF020335	1193	44.1	48.4	41.2	42.8	55.8
Rice ragged stunt virus	Oryzavirus	Major core protein P3	AF020336	1174	44.5	52.0	40.0	41.5	56.5
Rice ragged stunt virus	Oryzavirus	P6 protein	AF020337	593	46.4	52.5	41.3	45.4	56.6
Panicum mosaic virus	Panicovirus	Polymerase readthrough	U55002	993	48.8	52.2	39.9	54.5	58.1
Panicum mosaic virus	Panicovirus	Movement protein ORF4	U55002	133	55.1	60.2	49.6	55.6	61.0
Panicum mosaic virus	Panicovirus	Coat protein	U55002	243	54.5	54.3	54.3	54.7	52.0
Indian peanut clump virus	Pecluvirus	Polymerase readthrough	X99149	1658	41.6	45.9	36.5	42.3	48.7
Indian peanut clump virus	Pecluvirus	Cysteine-rich protein	X99149	125	44.3	52.0	32.0	48.8	60.2
Indian peanut clump virus	Pecluvirus	TGBp3	AF239729	155	41.7	48.4	38.1	38.7	47.7
Indian peanut clump virus	Pecluvirus	TGBp2	AF239729	123	42.3	37.4	44.7	44.7	61.0
Indian peanut clump virus	Pecluvirus	TGBp1	AF239729	410	45.4	52.7	37.1	46.3	55.6

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Indian peanut clump virus	Pecluvirus	ORF2	AF239729	355	45.9	51.0	36.9	49.9	54.3
Indian peanut clump virus	Pecluvirus	Coat protein	AF239729	201	47.8	56.7	43.3	43.3	49.3
Peanut clump virus	Pecluvirus	TGBp3	L07269	123	43.6	34.2	43.9	52.9	52.2
Peanut clump virus	Pecluvirus	TGBp2	L07269	154	39.4	47.4	40.9	29.9	49.8
Peanut clump virus	Pecluvirus	TGBp1	L07269	447	44.0	50.8	34.9	46.3	52.5
Peanut clump virus	Pecluvirus	ORF2	L07269	368	44.9	56.0	35.3	43.5	55.2
Peanut clump virus	Pecluvirus	Coat protein	L07269	208	49.2	58.2	45.7	43.8	51.1
Peanut clump virus	Pecluvirus	Polymerase readthrough	X78602	1673	41.1	46.5	36.4	40.5	50.2
Peanut clump virus	Pecluvirus	Cysteine-rich protein	X78602	125	45.3	55.2	32.0	48.8	61.0
Rice dwarf virus	Phytoreovirus	Minor core protein P7	U36402	507	42.6	46.2	39.1	42.6	54.7
Rice dwarf virus	Phytoreovirus	Non-structural protein Pns4	U36562	728	49.0	48.8	44.2	54.1	56.0
Rice dwarf virus	Phytoreovirus	Core protein P5	U36563	802	42.3	44.9	38.3	43.6	55.6
Rice dwarf virus	Phytoreovirus	Non-structural protein Pns6	U36564	510	43.2	47.3	39.0	43.3	55.6
Rice dwarf virus	Phytoreovirus	Coat protein P8	U36565	422	45.3	47.2	45.5	43.4	55.0
Rice dwarf virus	Phytoreovirus	Non-structural protein Pns9	U36566	352	46.2	52.0	36.7	50.0	55.8
Rice dwarf virus	Phytoreovirus	Non-structural protein Pns10	U36567	354	41.0	48.9	37.9	36.2	55.1
Rice dwarf virus	Phytoreovirus	Non-structural protein Pns11b	U36568	190	41.1	40.5	44.7	37.9	54.4
Rice dwarf virus	Phytoreovirus	Non-structural protein Pns12	U36569	313	44.0	52.1	42.2	37.7	56.5
Rice dwarf virus	Phytoreovirus	Major core protein P3	U72757	1020	43.0	50.4	37.4	41.3	56.4
Rice dwarf virus	Phytoreovirus	Polymerase P1	U73201	1445	41.6	45.9	36.3	42.6	57.0
Rice dwarf virus	Phytoreovirus	Outer capsid protein P2	U73202	1117	44.6	49.4	38.2	46.0	58.5
Beet chlorosis virus	Polerovirus	P1-P2 fusion protein	AF352024	1081	47.2	49.4	41.4	50.8	58.9
Beet chlorosis virus	Polerovirus	ORF4	AF352024	176	51.3	54.0	51.7	48.3	57.5
Beet chlorosis virus	Polerovirus	ORF0	AF352024	249	44.6	53.0	40.2	40.6	55.2
Beet chlorosis virus	Polerovirus	Coat protein readthrough	AF352024	668	47.5	49.4	46.0	47.2	56.6
Beet mild yellowing virus	Polerovirus	Replication protein ORF1	X83110	657	48.1	46.4	48.6	49.2	59.4
Beet mild yellowing virus	Polerovirus	Polymerase ORF2	X83110	626	50.1	55.9	42.3	52.1	58.6
Beet mild yellowing virus	Polerovirus	ORF4	X83110	176	52.1	55.1	51.7	49.4	59.6
Beet mild yellowing virus	Polerovirus	ORF0	X83110	240	44.7	50.4	39.2	44.6	57.9
Beet mild yellowing virus	Polerovirus	Coat protein readthrough	X83110	671	49.2	50.5	47.8	49.2	57.9
Beet western yellows virus	Polerovirus	Coat protein readthrough	AF473561	671	49.5	51.1	47.1	50.2	57.1
Beet western yellows virus	Polerovirus	ORF0	AF473561	239	47.7	57.3	39.8	46.0	58.7
Beet western yellows virus	Polerovirus	ORF4	AF473561	176	52.3	55.1	52.8	48.9	60.1
Beet western yellows virus	Polerovirus	Polymerase ORF2	AF473561	626	53.3	59.4	43.1	57.2	58.4
Beet western yellows virus	Polerovirus	Replication protein ORF1	AF473561	636	52.2	48.3	50.0	58.2	59.1

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Cereal yellow dwarf virus-RPS	Polerovirus	P1-P2 fusion protein	AF235168	1075	52.3	53.7	45.4	57.9	55.9
Cereal yellow dwarf virus-RPS	Polerovirus	ORF4	AF235168	154	55.4	60.4	53.3	52.6	54.4
Cereal yellow dwarf virus-RPS	Polerovirus	ORF0	AF235168	247	50.5	55.9	42.9	52.6	57.5
Cereal yellow dwarf virus-RPS	Polerovirus	Coat protein readthrough	AF235168	613	51.8	54.0	50.9	50.4	60.3
Cereal yellow dwarf virus-RPV	Polerovirus	Replication protein ORF1	L25299	655	51.2	48.6	49.6	55.4	60.1
Cereal yellow dwarf virus-RPV	Polerovirus	Polymerase ORF2	L25299	634	52.2	56.5	45.1	55.1	55.9
Cereal yellow dwarf virus-RPV	Polerovirus	ORF4	L25299	154	54.6	61.0	50.7	52.0	56.2
Cereal yellow dwarf virus-RPV	Polerovirus	ORF0	L25299	257	49.3	56.0	42.8	49.0	56.2
Cereal yellow dwarf virus-RPV	Polerovirus	Coat protein readthrough	L25299	604	50.6	52.3	52.2	47.2	58.1
Cucurbit aphid-borne yellows virus	Polerovirus	Replication protein ORF1	X76931	631	50.8	49.5	47.2	55.8	58.5
Cucurbit aphid-borne yellows virus	Polerovirus	Polymerase ORF2	X76931	611	52.3	57.0	42.7	57.1	58.0
Cucurbit aphid-borne yellows virus	Polerovirus	ORF4	X76931	192	53.3	52.6	58.3	49.0	51.4
Cucurbit aphid-borne yellows virus	Polerovirus	ORF0	X76931	239	47.0	54.4	42.3	44.4	59.9
Cucurbit aphid-borne yellows virus	Polerovirus	Coat protein readthrough	X76931	668	50.1	53.6	47.8	48.8	57.9
Potato leafroll virus	Polerovirus	Replication protein ORF1	D00530	640	49.8	48.0	48.1	53.4	59.6
Potato leafroll virus	Polerovirus	Polymerase ORF2	D00530	617	52.0	57.5	44.4	54.1	55.2
Potato leafroll virus	Polerovirus	ORF4	D00530	157	53.1	52.2	56.1	51.0	51.7
Potato leafroll virus	Polerovirus	ORF0	D00530	248	46.4	54.8	37.5	46.8	48.9
Potato leafroll virus	Polerovirus	Coat protein readthrough	D00530	718	50.1	52.8	47.5	49.9	59.8
Turnip yellows virus	Polerovirus	Replication protein ORF1	X13063	608	48.6	47.7	47.4	50.7	57.3
Turnip yellows virus	Polerovirus	Polymerase ORF2	X13063	587	52.1	56.9	42.4	57.1	56.7
Turnip yellows virus	Polerovirus	ORF4	X13063	176	51.7	54.0	51.7	49.4	60.5
Turnip yellows virus	Polerovirus	ORF0	X13063	250	43.7	53.2	36.4	41.6	54.8
Turnip yellows virus	Polerovirus	Coat protein readthrough	X13063	671	49.7	50.7	48.0	50.4	56.6
Beet soil-borne virus	Pomovirus	Coat protein readthrough	U64512	932	43.5	51.3	40.0	39.1	53.8
Beet soil-borne virus	Pomovirus	TGBp3	Z66493	191	40.0	48.7	37.2	34.0	46.9
Beet soil-borne virus	Pomovirus	TGBp2	Z66493	117	40.7	40.2	41.0	41.0	55.5
Beet soil-borne virus	Pomovirus	TGBp1	Z66493	428	43.2	51.4	37.4	40.7	54.0
Beet soil-borne virus	Pomovirus	Polymerase readthrough	Z97873	1779	39.7	46.0	35.2	38.0	49.2
Beet virus Q	Pomovirus	Polymerase readthrough	AJ223596	1819	40.0	47.6	35.5	37.0	50.4
Beet virus Q	Pomovirus	Coat protein readthrough	AJ223597	490	46.6	54.1	42.9	42.9	53.2
Beet virus Q	Pomovirus	18K protein	AJ223597	167	45.5	49.1	48.5	38.9	53.7
Beet virus Q	Pomovirus	TGBp3	AJ223598	181	41.4	49.2	38.1	37.0	48.0
Beet virus Q	Pomovirus	TGBp2	AJ223598	119	44.3	42.9	47.9	42.0	50.8
Beet virus Q	Pomovirus	TGBp1	AJ223598	483	44.2	51.4	42.7	38.7	53.2

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Broad bean necrosis virus	Pomovirus	Polymerase readthrough	D86636	1822	37.5	43.5	33.2	35.8	43.3
Broad bean necrosis virus	Pomovirus	Coat protein readthrough	D86637	647	39.2	45.6	37.3	34.8	45.9
Broad bean necrosis virus	Pomovirus	TGBp3	D86638	177	33.3	42.4	32.2	25.4	40.8
Broad bean necrosis virus	Pomovirus	TGBp2	D86638	119	38.4	36.1	42.0	37.0	46.8
Broad bean necrosis virus	Pomovirus	TGBp1 incomplete	D86638	438	42.1	46.4	40.2	39.7	52.1
Potato mop-top virus	Pomovirus	Polymerase readthrough	AJ238607	1813	41.6	47.0	35.5	42.3	48.6
Potato mop-top virus	Pomovirus	Coat protein readthrough	AJ243719	826	46.9	53.4	42.6	44.8	52.3
Potato mop-top virus	Pomovirus	TGBp3	AJ277556	191	39.1	47.1	38.2	31.9	48.8
Potato mop-top virus	Pomovirus	TGBp2	AJ277556	120	42.2	41.7	46.7	38.3	53.0
Potato mop-top virus	Pomovirus	TGBp1	AJ277556	464	43.8	48.7	42.0	40.7	53.9
Bamboo mosaic virus	Potexvirus	TGBp2	D26017	120	51.4	50.0	48.3	55.8	54.2
Bamboo mosaic virus	Potexvirus	TGBp1	D26017	254	53.9	57.5	49.2	55.1	49.5
Bamboo mosaic virus	Potexvirus	Polymerase	D26017	1366	50.2	53.4	39.2	57.8	53.3
Bamboo mosaic virus	Potexvirus	Coat protein	D26017	243	54.9	56.4	51.9	56.4	54.5
Cactus virus X	Potexvirus	TGBp2	AF308158	111	50.5	48.7	55.0	47.8	52.0
Cactus virus X	Potexvirus	TGBp1	AF308158	230	53.8	58.7	42.2	60.4	53.3
Cactus virus X	Potexvirus	Polymerase	AF308158	1544	51.0	52.8	38.9	61.3	52.5
Cactus virus X	Potexvirus	Coat protein	AF308158	225	53.2	54.7	49.3	55.6	51.9
Cassava common mosaic virus	Potexvirus	TGBp2	U23414	113	51.0	43.4	53.1	56.6	52.8
Cassava common mosaic virus	Potexvirus	TGBp1	U23414	232	50.1	55.2	43.5	51.7	54.7
Cassava common mosaic virus	Potexvirus	Polymerase	U23414	1450	45.8	51.7	37.5	48.1	52.8
Cassava common mosaic virus	Potexvirus	Coat protein	U23414	230	51.9	56.5	53.0	46.1	61.0
Clover yellow mosaic virus	Potexvirus	TGBp2	D29630	115	49.9	56.5	51.3	41.7	51.0
Clover yellow mosaic virus	Potexvirus	TGBp1	D29630	239	53.8	56.5	46.0	59.0	50.2
Clover yellow mosaic virus	Potexvirus	Polymerase	D29630	1671	48.7	52.3	37.3	56.4	49.1
Clover yellow mosaic virus	Potexvirus	Coat protein	D29630	213	52.3	47.9	47.4	61.5	47.8
Cymbidium mosaic virus	Potexvirus	TGBp2	U62963	113	47.8	50.4	46.0	46.9	50.5
Cymbidium mosaic virus	Potexvirus	TGBp1	U62963	230	50.7	57.8	41.3	53.0	50.9
Cymbidium mosaic virus	Potexvirus	Polymerase	U62963	1418	47.3	53.5	38.8	49.7	56.1
Cymbidium mosaic virus	Potexvirus	Coat protein	U62963	224	59.8	62.1	52.7	64.7	43.4
Foxtail mosaic virus	Potexvirus	TGBp2	M62730	106	52.8	50.9	49.1	58.5	50.7
Foxtail mosaic virus	Potexvirus	TGBp1	M62730	237	54.9	60.3	44.7	59.5	55.8
Foxtail mosaic virus	Potexvirus	Polymerase	M62730	1336	52.2	55.0	39.5	61.9	53.7
Foxtail mosaic virus	Potexvirus	Coat protein	M62730	216	54.8	56.5	45.4	62.5	54.2
Narcissus mosaic virus	Potexvirus	TGBp3	D13747	131	48.6	50.4	48.9	46.6	61.0

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Narcissus mosaic virus	Potexvirus	TGBp2	D13747	101	47.2	52.5	41.6	47.5	61.0
Narcissus mosaic virus	Potexvirus	TGBp1	D13747	234	47.9	49.6	42.7	51.3	53.2
Narcissus mosaic virus	Potexvirus	Polymerase	D13747	1644	47.2	50.4	39.4	51.8	57.5
Narcissus mosaic virus	Potexvirus	Coat protein	D13747	241	52.8	56.0	49.4	53.1	54.9
Papaya mosaic virus	Potexvirus	TGBp2	D13957	112	47.3	51.8	46.4	43.8	58.0
Papaya mosaic virus	Potexvirus	TGBp1	D13957	234	51.1	58.1	40.2	55.1	52.0
Papaya mosaic virus	Potexvirus	Polymerase	D13957	1548	47.4	51.5	37.4	53.2	53.1
Papaya mosaic virus	Potexvirus	Coat protein	D13957	216	52.3	47.2	48.6	61.1	57.3
Pepino mosaic virus	Potexvirus	Coat protein	AF484251	238	49.4	56.3	50.4	41.6	53.8
Pepino mosaic virus	Potexvirus	Polymerase	AF484251	1440	40.7	48.3	36.7	36.9	49.8
Pepino mosaic virus	Potexvirus	TGBp1	AF484251	235	40.4	46.4	38.3	36.6	47.2
Pepino mosaic virus	Potexvirus	TGBp2	AF484251	124	40.3	41.9	38.7	40.3	47.0
Plantago asiatica mosaic virus	Potexvirus	TGBp3	Z21647	122	57.7	54.9	59.0	59.0	54.3
Plantago asiatica mosaic virus	Potexvirus	TGBp2	Z21647	111	61.0	58.6	54.1	70.3	38.3
Plantago asiatica mosaic virus	Potexvirus	TGBp1	Z21647	231	60.0	61.9	47.2	71.0	39.8
Plantago asiatica mosaic virus	Potexvirus	Polymerase	Z21647	1386	58.6	58.2	42.2	75.5	39.1
Plantago asiatica mosaic virus	Potexvirus	Coat protein	Z21647	208	63.0	59.1	55.3	74.5	38.5
Potato aucuba mosaic virus	Potexvirus	TGBp2	S73580	112	41.1	45.5	41.1	36.6	57.4
Potato aucuba mosaic virus	Potexvirus	TGBp1	S73580	233	41.9	48.1	35.6	42.1	49.4
Potato aucuba mosaic virus	Potexvirus	Polymerase	S73580	1647	43.5	49.9	36.8	43.7	54.7
Potato aucuba mosaic virus	Potexvirus	Coat protein	S73580	250	51.1	57.2	47.2	48.8	59.1
Potato virus X	Potexvirus	TGBp2	X05198	116	42.0	47.4	43.1	35.3	53.3
Potato virus X	Potexvirus	TGBp1	X05198	227	47.6	51.5	42.3	48.9	55.5
Potato virus X	Potexvirus	Polymerase	X05198	1457	46.7	50.7	38.0	51.4	55.2
Potato virus X	Potexvirus	Coat protein	X05198	238	52.4	53.8	55.0	48.3	59.5
Scallion virus X	Potexvirus	TGBp2	AJ316085	120	53.1	55.8	46.7	56.7	53.5
Scallion virus X	Potexvirus	TGBp1	AJ316085	248	53.1	59.7	42.3	57.3	51.5
Scallion virus X	Potexvirus	Polymerase	AJ316085	1632	53.0	54.9	42.0	62.3	52.1
Scallion virus X	Potexvirus	Coat protein	AJ316085	231	56.1	61.9	46.3	60.2	44.2
Strawberry mild yellow edge virus	Potexvirus	TGBp2	D12517	109	49.9	50.5	53.2	45.9	60.4
Strawberry mild yellow edge virus	Potexvirus	TGBp1	D12517	244	52.6	58.2	42.2	57.4	54.9
Strawberry mild yellow edge virus	Potexvirus	Polymerase	D12517	1324	49.5	53.6	39.1	55.9	56.1
Strawberry mild yellow edge virus	Potexvirus	Coat protein	D12517	243	59.0	62.6	53.1	61.3	51.9
Tulip virus X	Potexvirus	Coat protein	AB066288	208	62.2	59.6	54.8	72.1	36.7
Tulip virus X	Potexvirus	Polymerase	AB066288	1360	57.1	57.4	42.3	71.7	44.2

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Tulip virus X	Potexvirus	TGBp1	AB066288	231	56.9	59.3	45.0	66.2	44.8
Tulip virus X	Potexvirus	TGBp2	AB066288	110	60.0	61.8	53.6	64.6	42.7
White clover mosaic virus	Potexvirus	TGBp2	X06728	117	39.3	47.9	34.2	35.9	49.0
White clover mosaic virus	Potexvirus	TGBp1	X06728	237	45.4	49.4	40.1	46.8	45.0
White clover mosaic virus	Potexvirus	Polymerase	X06728	1295	43.5	49.5	36.5	44.4	52.2
White clover mosaic virus	Potexvirus	Coat protein	X06728	191	51.3	54.5	50.3	49.2	41.9
Bean common mosaic necrosis virus	Potyvirus	Polyprotein	U19287	3067	42.2	49.0	35.3	42.4	52.9
Bean common mosaic virus	Potyvirus	Polyprotein	AJ312437	3203	42.4	48.0	36.8	42.4	49.9
Bean yellow mosaic virus	Potyvirus	Polyprotein	D83749	3057	41.6	46.6	35.8	42.3	51.8
Chilli veinal mottle virus	Potyvirus	Polyprotein	AJ237843	3089	42.2	50.2	37.3	39.1	52.3
Clover yellow vein virus	Potyvirus	Polyprotein	AB011819	3073	41.4	46.2	36.1	41.8	48.8
Cocksfoot streak virus	Potyvirus	Polyprotein	AF499738	3090	45.2	52.2	38.0	45.3	57.0
Cowpea aphid-borne mosaic virus	Potyvirus	Polyprotein	AF348210	3054	42.0	49.0	35.5	41.3	51.1
Dasheen mosaic virus	Potyvirus	Polyprotein	AJ298033	3192	43.1	49.5	37.6	42.2	55.1
Japanese yam mosaic virus	Potyvirus	Polyprotein	AB027007	3133	41.3	49.5	36.4	38.1	51.2
Johnsongrass mosaic virus	Potyvirus	Polyprotein	Z26920	3053	41.9	49.1	35.5	41.1	50.7
Leek yellow stripe virus	Potyvirus	Polyprotein	AJ307057	3153	42.6	48.9	36.7	42.2	54.6
Lettuce mosaic virus	Potyvirus	Polyprotein	X97705	3256	45.1	50.1	38.2	47.0	55.3
Maize dwarf mosaic virus	Potyvirus	Polyprotein	AJ001691	3042	40.5	49.1	36.2	36.4	51.1
Papaya ringspot virus	Potyvirus	polyprotein	S46722	3345	41.8	49.0	35.9	40.6	54.1
Pea seed-borne mosaic virus	Potyvirus	polyprotein	D10930	3207	42.2	47.8	37.8	41.0	50.7
Peanut mottle virus	Potyvirus	Polyprotein	AF023848	3099	42.2	49.7	36.6	40.3	51.7
Pepper mottle virus	Potyvirus	Polyprotein	M96425	3069	41.7	46.9	38.3	39.9	53.1
Plum pox virus	Potyvirus	Polyprotein	D13751	3126	43.7	50.4	37.4	43.4	53.7
Potato virus A	Potyvirus	Polyprotein	AJ296311	3060	43.0	48.6	37.1	43.3	51.9
Potato virus V	Potyvirus	Polyprotein	AJ243766	3067	43.3	49.0	38.0	43.0	53.5
Potato virus Y	Potyvirus	Polyprotein	U09509	3062	42.6	48.2	37.0	42.6	53.9
Scallion mosaic virus	Potyvirus	Polyprotein	AJ316084	3002	42.5	49.6	36.8	41.2	53.8
Sorghum mosaic virus	Potyvirus	Polyprotein	AJ310197	3072	39.1	47.6	35.9	33.9	49.1
Soybean mosaic virus	Potyvirus	Polyprotein	D00507	3067	42.2	48.5	36.1	42.0	51.5
Sugarcane mosaic virus	Potyvirus	Polyprotein	AJ297628	3064	41.6	48.6	37.2	39.2	51.6
Sweet potato feathery mottle virus	Potyvirus	Polyprotein	D86371	3494	42.3	50.1	38.5	38.4	52.8
Tobacco etch virus	Potyvirus	Polyprotein	M11458	3055	43.6	48.7	36.8	45.2	53.5
Tobacco vein mottling virus	Potyvirus	Polyprotein	X04083	3024	42.5	48.9	37.2	41.3	52.9
Turnip mosaic virus	Potyvirus	Polyprotein	AF169561	3165	46.0	50.4	38.0	49.6	54.3

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Wild potato mosaic virus	Potyvirus	Polyprotein	AJ437279	3066	42.6	48.0	37.5	42.3	53.4
Yam mosaic virus	Potyvirus	Polyprotein	U42596	3104	41.0	47.9	37.2	37.9	50.7
Zucchini yellow mosaic virus	Potyvirus	Polyprotein	AF127929	3081	43.4	49.4	36.5	44.2	55.9
Petunia vein clearing virus	Petuvirus	Polyprotein ORF1	U95208	2180	38.6	45.1	37.1	33.5	45.8
Rice tungro bacilliform virus	Tungrovirus	Polyprotein ORF3	X57924	1676	32.1	42.2	31.9	22.1	38.1
Rice tungro bacilliform virus	Tungrovirus	ORF4	X57924	390	37.8	44.1	32.1	37.2	51.8
Rice tungro bacilliform virus	Tungrovirus	ORF2	X57924	111	36.3	45.1	41.4	22.5	43.1
Rice tungro bacilliform virus	Tungrovirus	ORF1	X57924	200	28.5	41.0	22.5	22.0	43.0
Ryegrass mosaic virus	Rymovirus	Polyprotein	Y09854	3087	46.2	51.5	41.0	46.0	56.0
Ageratum yellow vein virus satellite DNA beta	Satellite DNAs	C1 protein	AJ252072	119	34.2	40.3	24.4	37.8	42.1
Ageratum yellow vein virus satellite DNA	Satellite DNAs	Replication protein	AJ416153	296	41.9	52.4	36.5	36.8	50.0
Cotton leaf curl virus satellite DNA beta	Satellite DNAs	C1 protein	AJ292769	119	40.9	43.7	23.5	55.5	50.1
Cotton leaf curl virus satellite DNA	Satellite DNAs	Replication associated protein	AJ132344	316	45.2	53.5	39.6	42.4	53.9
Okra leaf curl virus satellite DNA beta	Satellite DNAs	C1 protein	AF397215	118	40.4	42.4	25.4	53.4	46.9
Peanut chlorotic streak virus	Soymovirus	Reverse transcriptase ORF5	U13988	695	34.1	42.7	32.2	27.3	40.2
Peanut chlorotic streak virus	Soymovirus	ORF7	U13988	144	29.4	37.5	22.2	28.5	43.3
Peanut chlorotic streak virus	Soymovirus	ORF3	U13988	128	36.5	44.5	39.8	25.0	47.4
Peanut chlorotic streak virus	Soymovirus	ORF2	U13988	245	32.4	40.8	28.6	27.8	41.8
Peanut chlorotic streak virus	Soymovirus	ORF1b	U13988	148	30.6	40.5	28.4	23.0	42.0
Peanut chlorotic streak virus	Soymovirus	ORF 6	U13988	421	40.5	48.5	31.1	42.0	49.2
Peanut chlorotic streak virus	Soymovirus	Movement protein ORF1a	U13988	321	30.6	41.1	31.2	19.6	39.3
Peanut chlorotic streak virus	Soymovirus	Coat protein ORF4	U13988	463	34.2	42.3	34.6	25.7	42.3
Soybean chlorotic mottle virus	Soymovirus	Reverse transcriptase ORF5	X15828	693	33.6	42.9	31.3	26.7	47.0
Soybean chlorotic mottle virus	Soymovirus	ORF7	X15828	149	29.5	38.9	26.9	22.8	50.6
Soybean chlorotic mottle virus	Soymovirus	ORF3	X15828	193	33.0	40.9	32.6	25.4	40.7
Soybean chlorotic mottle virus	Soymovirus	ORF2	X15828	202	29.9	45.1	23.8	20.8	42.5
Soybean chlorotic mottle virus	Soymovirus	ORF1b	X15828	117	34.2	37.6	36.8	28.2	43.8
Soybean chlorotic mottle virus	Soymovirus	ORF 6	X15828	463	41.6	47.1	32.2	45.6	48.5
Soybean chlorotic mottle virus	Soymovirus	Movement protein ORF1a	X15828	303	27.2	39.3	25.1	17.2	36.8
Soybean chlorotic mottle virus	Soymovirus	Coat protein ORF4	X15828	442	32.1	41.0	31.2	24.0	41.4
Parsnip yellow fleck virus	Sequivirus	Polyprotein	D14066	3028	43.7	47.3	40.9	43.0	51.3
Cocksfoot mottle virus	Sobemovirus	Polyprotein ORF2b	AB040447	505	55.4	58.2	48.5	59.4	57.5
Cocksfoot mottle virus	Sobemovirus	Polyprotein ORF2a	AB040447	569	54.8	53.4	52.2	58.7	59.7
Cocksfoot mottle virus	Sobemovirus	ORF1	AB040447	109	48.9	44.0	46.8	56.0	52.9
Cocksfoot mottle virus	Sobemovirus	Coat protein	AB040447	254	53.7	50.4	55.5	55.1	56.5

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Lucerne transient streak virus	Sobemovirus	Polyprotein ORF2	U31286	920	50.3	54.4	44.2	52.3	58.6
Lucerne transient streak virus	Sobemovirus	ORF3	U31286	169	54.0	56.8	58.6	46.8	44.3
Lucerne transient streak virus	Sobemovirus	ORF 1a	U31286	121	45.5	44.6	35.5	56.2	55.0
Lucerne transient streak virus	Sobemovirus	Coat protein	U31286	279	49.3	45.2	53.1	49.8	57.2
Rice yellow mottle virus	Sobemovirus	Polyprotein ORF2	L20893	1000	55.4	56.3	47.1	62.7	56.1
Rice yellow mottle virus	Sobemovirus	ORF3	L20893	126	56.6	67.5	56.4	46.0	50.6
Rice yellow mottle virus	Sobemovirus	ORF1	L20893	158	53.8	57.6	44.9	58.9	61.0
Rice yellow mottle virus	Sobemovirus	Coat protein	L20893	240	56.9	53.8	55.4	61.7	55.6
Ryegrass mottle virus	Sobemovirus	Polyprotein ORF2	AB040446	948	53.6	56.1	47.7	56.9	59.1
Ryegrass mottle virus	Sobemovirus	ORF3	AB040446	178	54.7	57.9	55.6	50.6	46.5
Ryegrass mottle virus	Sobemovirus	ORF1	AB040446	134	54.5	53.7	51.5	58.2	60.2
Ryegrass mottle virus	Sobemovirus	Coat protein	AB040446	236	54.0	51.7	52.1	58.1	58.7
Sesbania mosaic virus	Sobemovirus	Polyprotein ORF2	AY004291	963	50.8	51.6	47.0	53.7	55.5
Sesbania mosaic virus	Sobemovirus	ORF3	AY004291	145	51.3	55.2	52.4	46.2	53.1
Sesbania mosaic virus	Sobemovirus	ORF1	AY004291	161	48.0	54.0	41.0	49.1	59.8
Sesbania mosaic virus	Sobemovirus	Coat protein	AY004291	269	53.3	50.9	53.9	55.0	51.3
Southern bean mosaic virus	Sobemovirus	Polyprotein ORF2	AF055887	963	50.9	53.2	45.8	53.6	59.3
Southern bean mosaic virus	Sobemovirus	ORF3	AF055887	133	52.1	57.1	48.9	50.4	42.8
Southern bean mosaic virus	Sobemovirus	ORF1	AF055887	149	46.1	51.0	40.9	46.3	61.0
Southern bean mosaic virus	Sobemovirus	Coat protein	AF055887	267	51.7	47.2	53.2	54.7	56.1
Southern cowpea mosaic virus	Sobemovirus	Polyprotein ORF2	M23021	957	52.4	54.4	46.5	56.1	60.2
Southern cowpea mosaic virus	Sobemovirus	ORF3	M23021	163	53.8	54.6	54.6	52.2	49.5
Southern cowpea mosaic virus	Sobemovirus	ORF1	M23021	186	48.8	51.6	44.6	50.0	57.2
Southern cowpea mosaic virus	Sobemovirus	Coat protein	M23021	280	52.7	51.4	48.9	57.9	57.8
Subterranean clover mottle virus	Sobemovirus	Coat protein	AF208001	254	49.3	50.0	52.0	46.1	53.6
Subterranean clover mottle virus	Sobemovirus	ORF1	AF208001	180	47.8	51.7	45.6	46.1	58.2
Subterranean clover mottle virus	Sobemovirus	Polyprotein ORF2	AF208001	967	48.1	53.0	41.8	49.4	57.0
Rice grassy stunt virus	Tenuivirus	p5 protein	AB000403	192	40.5	45.3	31.8	44.3	51.2
Rice grassy stunt virus	Tenuivirus	Coat protein pC5	AB000403	326	40.5	46.6	37.4	37.4	44.5
Rice grassy stunt virus	Tenuivirus	pC6 protein	AB000404	326	39.3	47.2	32.5	38.0	49.1
Rice grassy stunt virus	Tenuivirus	p6 protein	AB000404	180	38.3	42.8	32.2	40.0	51.5
Rice grassy stunt virus	Tenuivirus	Polymerase pC1	AB009656	2926	37.2	42.3	33.1	36.1	46.1
Rice grassy stunt virus	Tenuivirus	p1 protein	AB009656	167	36.9	41.3	34.7	34.7	54.3
Rice grassy stunt virus	Tenuivirus	pC2 protein	AB010376	823	36.6	38.8	37.2	33.8	47.1
Rice grassy stunt virus	Tenuivirus	p2 protein	AB010376	201	36.3	43.3	33.3	32.3	48.3

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Rice grassy stunt virus	Tenuivirus	pC3 protein	AB010377	273	32.6	41.4	27.1	29.3	51.5
Rice grassy stunt virus	Tenuivirus	p3 protein	AB010377	196	35.2	39.8	35.7	30.1	42.5
Rice grassy stunt virus	Tenuivirus	pC4 protein	AB010378	526	36.7	43.7	31.2	35.2	46.3
Rice grassy stunt virus	Tenuivirus	p4 protein	AB010378	166	33.3	37.4	29.5	33.1	46.3
Rice stripe virus	Tenuivirus	pC4 protein	D10979	287	42.4	46.0	34.8	46.3	50.5
Rice stripe virus	Tenuivirus	Non-capsid protein p4	D10979	179	39.1	49.7	29.1	38.6	47.0
Rice stripe virus	Tenuivirus	pC2 protein	D13176	835	38.7	39.4	37.6	39.0	49.1
Rice stripe virus	Tenuivirus	p2 protein	D13176	200	41.2	48.0	34.0	41.5	49.6
Rice stripe virus	Tenuivirus	Polymerase pC1	D31879	2920	39.0	44.6	33.3	39.3	48.2
Rice stripe virus	Tenuivirus	p3 protein	X53563	212	43.1	45.8	41.0	42.5	53.3
Rice stripe virus	Tenuivirus	Coat protein pC3	X53563	323	46.4	47.1	38.4	53.9	47.5
Maize white line mosaic satellite virus	TNsatV-like satellite viruses	ORF	M55012	219	52.2	54.8	42.9	58.9	54.3
Panicum mosaic satellite virus	TNsatV-like satellite viruses	Coat protein	M17182	158	57.8	53.8	53.8	65.8	52.9
Tobacco mosaic satellite virus	TNsatV-like satellite viruses	Coat protein	M25782	160	45.6	45.0	49.4	42.5	60.8
Tobacco necrosis satellite virus	TNsatV-like satellite viruses	Coat protein	L06057	197	45.4	47.2	41.6	47.2	56.0
Cucumber fruit mottle mosaic virus	Tobamovirus	Polymerase readthrough	AF321057	1667	43.2	49.2	36.9	43.6	49.7
Cucumber fruit mottle mosaic virus	Tobamovirus	Movement protein	AF321057	259	43.5	47.1	45.6	37.8	46.5
Cucumber fruit mottle mosaic virus	Tobamovirus	Coat protein	AF321057	163	47.0	46.6	52.2	42.3	46.6
Cucumber green mottle mosaic virus	Tobamovirus	Polymerase readthrough	D12505	1649	42.7	46.7	36.5	44.9	52.8
Cucumber green mottle mosaic virus	Tobamovirus	Movement protein	D12505	265	44.0	49.8	42.6	39.6	47.2
Cucumber green mottle mosaic virus	Tobamovirus	Coat protein	D12505	162	46.5	48.8	48.8	42.0	51.6
Kyuri green mottle mosaic virus	Tobamovirus	Polymerase readthrough	AJ295948	1671	45.3	47.1	37.6	51.1	54.7
Kyuri green mottle mosaic virus	Tobamovirus	Movement protein	AJ295948	263	45.9	49.4	44.9	43.4	53.0
Kyuri green mottle mosaic virus	Tobamovirus	Coat protein	AJ295948	162	46.5	48.8	50.0	40.7	45.6
Obuda pepper virus	Tobamovirus	Polymerase readthrough	D13438	1617	41.8	46.9	35.2	43.4	53.0
Obuda pepper virus	Tobamovirus	Movement protein	D13438	275	38.8	43.6	36.0	36.7	47.9
Obuda pepper virus	Tobamovirus	Coat protein	D13438	162	43.2	40.7	45.1	43.8	48.9
Odontoglossum ringspot virus	Tobamovirus	Polymerase readthrough	X82130	1597	39.8	47.7	34.7	37.1	52.6
Odontoglossum ringspot virus	Tobamovirus	Movement protein	X82130	304	37.4	44.7	36.8	30.6	47.9
Odontoglossum ringspot virus	Tobamovirus	Coat protein	X82130	159	40.5	44.7	45.9	30.8	49.2
Paprika mild mottle virus	Tobamovirus	Coat protein	AB089381	162	42.6	41.4	46.9	39.5	44.1
Paprika mild mottle virus	Tobamovirus	Movement protein	AB089381	270	40.3	43.7	35.9	41.1	54.6
Paprika mild mottle virus	Tobamovirus	Polymerase readthrough	AB089381	1617	41.2	46.5	36.0	41.0	53.6
Pepper mild mottle virus	Tobamovirus	Polymerase readthrough	M81413	1613	42.4	47.0	35.2	45.0	54.5
Pepper mild mottle virus	Tobamovirus	Movement protein	M81413	258	40.2	45.7	36.1	38.8	51.1

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Pepper mild mottle virus	Tobamovirus	Coat protein	M81413	158	46.0	50.6	46.8	40.5	56.1
Ribgrass mosaic virus	Tobamovirus	Polymerase readthrough	AF254924	1598	44.6	47.9	36.4	49.4	53.9
Ribgrass mosaic virus	Tobamovirus	Movement protein	AF254924	265	43.5	53.2	34.7	42.6	52.5
Ribgrass mosaic virus	Tobamovirus	Coat protein	AF254924	158	47.9	50.0	43.0	50.6	57.5
Ribgrass mosaic virus	Tobamovirus	Polymerase readthrough	AB017503	1598	43.6	47.6	36.2	47.0	55.1
Ribgrass mosaic virus	Tobamovirus	Movement protein	AB017503	268	42.4	50.0	34.7	42.5	49.2
Ribgrass mosaic virus	Tobamovirus	Coat protein	AB017503	158	46.8	49.4	43.0	48.1	60.2
Tobacco mild green mosaic virus	Tobamovirus	Polymerase readthrough	M34077	1610	41.2	46.7	35.0	42.0	52.8
Tobacco mild green mosaic virus	Tobamovirus	Movement protein	M34077	257	38.8	47.1	31.5	37.7	52.3
Tobacco mild green mosaic virus	Tobamovirus	Coat protein	M34077	160	42.9	46.3	45.0	37.5	53.9
Tobacco mosaic virus	Tobamovirus	Polymerase readthrough	V01408	1617	43.6	47.9	36.4	46.4	56.0
Tobacco mosaic virus	Tobamovirus	Movement protein	V01408	269	41.4	45.4	33.8	45.0	54.9
Tobacco mosaic virus	Tobamovirus	Coat protein	V01408	160	43.5	44.4	47.5	38.8	48.3
Tomato mosaic virus	Tobamovirus	Polymerase readthrough	AF332868	1617	42.2	48.1	35.8	42.6	54.8
Tomato mosaic virus	Tobamovirus	Movement protein	AF332868	265	38.7	47.2	33.2	35.9	54.6
Tomato mosaic virus	Tobamovirus	Coat protein	AF332868	160	42.3	45.6	43.8	37.5	51.3
Turnip vein-clearing virus	Tobamovirus	Polymerase readthrough	U03387	1602	44.0	47.9	35.6	48.6	53.5
Turnip vein-clearing virus	Tobamovirus	Movement protein	U03387	268	43.4	50.0	32.8	47.4	50.2
Turnip vein-clearing virus	Tobamovirus	Coat protein	U03387	158	48.1	48.7	44.9	50.6	53.7
Zucchini green mottle mosaic virus	Tobamovirus	Polymerase readthrough	AJ295949	1671	43.8	48.1	37.9	45.4	53.2
Zucchini green mottle mosaic virus	Tobamovirus	Movement protein	AJ295949	262	44.2	48.1	43.1	41.2	48.9
Zucchini green mottle mosaic virus	Tobamovirus	Coat protein	AJ295949	162	46.1	48.2	50.0	40.1	46.9
Pea early-browning virus	Tobravirus	Polymerase readthrough	X14006	1767	41.5	46.0	35.5	43.0	49.7
Pea early-browning virus	Tobravirus	Movement protein	X14006	263	38.0	41.4	34.6	38.0	45.7
Pea early-browning virus	Tobravirus	Cysteine-rich protein	X14006	108	38.3	34.3	39.8	40.7	46.5
Pea early-browning virus	Tobravirus	Nematode transmission protein 2b	X51828	256	40.4	49.6	30.1	41.4	55.8
Pea early-browning virus	Tobravirus	Coat protein	X51828	213	46.6	54.5	44.1	41.3	50.9
Pea early-browning virus	Tobravirus	2c protein	X51828	209	41.5	44.5	39.7	40.2	56.4
Pepper ringspot virus	Tobravirus	Polymerase readthrough	L23972	1699	42.9	47.8	34.9	45.9	52.8
Pepper ringspot virus	Tobravirus	Movement protein	L23972	257	40.5	44.4	34.6	42.4	49.9
Pepper ringspot virus	Tobravirus	Cysteine-rich protein	L23972	109	36.4	38.5	34.9	35.8	45.9
Pepper ringspot virus	Tobravirus	Coat protein	X03241	224	48.2	50.9	54.0	39.7	49.9
Tobacco rattle virus	Tobravirus	Nematode transmission protein 2b	Z36974	355	40.8	50.1	31.8	40.3	51.6
Tobacco rattle virus	Tobravirus	Coat protein	Z36974	205	44.9	46.3	45.4	42.9	56.0
Tobacco rattle virus	Tobravirus	2c protein	Z36974	293	44.7	50.9	42.3	41.0	55.4

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Tobacco rattle virus	Tobravirus	Polymerase readthrough	AF166084	1708	43.3	48.7	36.1	45.0	51.5
Tobacco rattle virus	Tobravirus	Movement protein	AF166084	253	41.6	45.1	36.4	43.5	48.7
Tobacco rattle virus	Tobravirus	Cysteine-rich protein	AF166084	142	38.7	45.8	40.9	29.6	47.6
Artichoke mottled crinkle virus	Tombusvirus	Polymerase readthrough	X62493	819	49.0	55.0	42.4	49.8	55.1
Artichoke mottled crinkle virus	Tombusvirus	ORF4	X62493	173	46.8	54.3	47.4	38.7	58.7
Artichoke mottled crinkle virus	Tombusvirus	Movement protein	X62493	190	46.1	47.4	38.4	52.6	56.1
Artichoke mottled crinkle virus	Tombusvirus	Coat protein	X62493	389	48.5	49.9	47.3	48.3	60.1
Carnation Italian ringspot virus	Tombusvirus	Polymerase readthrough	X85215	852	48.9	55.8	42.0	48.9	55.7
Carnation Italian ringspot virus	Tombusvirus	ORF4	X85215	173	46.2	52.6	47.4	38.7	58.7
Carnation Italian ringspot virus	Tombusvirus	Movement protein	X85215	190	45.6	47.4	38.4	51.1	60.5
Carnation Italian ringspot virus	Tombusvirus	Coat protein	X85215	387	47.3	47.0	49.4	45.5	59.7
Cucumber necrosis virus	Tombusvirus	Polymerase readthrough	M25270	819	49.6	55.1	41.9	51.9	57.6
Cucumber necrosis virus	Tombusvirus	ORF4	M25270	174	46.4	51.2	49.4	38.5	59.9
Cucumber necrosis virus	Tombusvirus	Movement protein	M25270	191	45.7	49.2	38.2	49.7	54.6
Cucumber necrosis virus	Tombusvirus	Coat protein	M25270	381	49.6	50.7	47.0	51.2	60.1
Cymbidium ringspot virus	Tombusvirus	Polymerase readthrough	X15511	819	49.7	55.2	42.3	51.7	56.2
Cymbidium ringspot virus	Tombusvirus	ORF4	X15511	173	48.2	54.3	50.9	39.3	51.4
Cymbidium ringspot virus	Tombusvirus	Movement protein	X15511	190	47.4	50.5	38.4	53.2	57.4
Cymbidium ringspot virus	Tombusvirus	Coat protein	X15511	381	52.1	49.6	49.6	57.2	57.6
Pear redleaf-associated virus	Tombusvirus	Coat protein	AY100482	389	48.8	52.2	47.8	46.5	61.0
Pear redleaf-associated virus	Tombusvirus	Movement protein	AY100482	192	46.7	49.5	39.1	51.6	54.4
Pear redleaf-associated virus	Tombusvirus	ORF4	AY100482	173	47.2	52.6	49.7	39.3	56.2
Pear redleaf-associated virus	Tombusvirus	Polymerase readthrough	AY100482	819	49.0	55.6	42.0	49.5	58.2
Tomato bushy stunt virus	Tombusvirus	Polymerase readthrough	M21958	819	48.8	55.9	42.0	48.5	57.6
Tomato bushy stunt virus	Tombusvirus	ORF4	M21958	173	46.8	53.8	48.0	38.7	59.5
Tomato bushy stunt virus	Tombusvirus	Movement protein	M21958	190	46.1	47.9	38.4	52.1	60.5
Tomato bushy stunt virus	Tombusvirus	Coat protein	M21958	389	47.2	49.4	47.3	45.0	57.1
Tomato pseudo-curly top virus	Topocuvirus	Replicase B C2	X84735	160	47.1	50.6	45.6	45.0	60.7
Tomato pseudo-curly top virus	Topocuvirus	Replicase A C1	X84735	350	41.8	47.7	37.7	40.0	54.9
Tomato pseudo-curly top virus	Topocuvirus	Coat protein	X84735	243	42.3	45.7	45.7	35.4	49.6
Tomato pseudo-curly top virus	Topocuvirus	C3 protein	X84735	135	36.3	37.8	31.1	40.0	50.8
Groundnut bud necrosis virus	Tospovirus	Non-structural protein NSs	U27809	440	37.9	42.1	33.9	37.7	49.0
Groundnut bud necrosis virus	Tospovirus	Coat protein N	U27809	277	38.3	41.5	36.5	36.8	43.4
Groundnut bud necrosis virus	Tospovirus	Non-structural protein NSm	U42555	308	38.3	41.2	37.0	36.7	48.3
Groundnut bud necrosis virus	Tospovirus	Glycoprotein precursor	U42555	1122	35.5	38.9	34.1	33.5	47.0

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Groundnut bud necrosis virus	Tospovirus	Polymerase L protein	AF025538	2878	33.7	37.7	30.6	32.8	45.0
Impatiens necrotic spot virus	Tospovirus	Non-structural protein NSm	M74904	304	36.5	40.5	37.2	31.9	45.3
Impatiens necrotic spot virus	Tospovirus	Glycoprotein precursor	M74904	1111	35.3	38.1	38.7	29.2	43.8
Impatiens necrotic spot virus	Tospovirus	Non-structural protein NSs	X66972	450	36.6	41.3	33.8	34.7	44.5
Impatiens necrotic spot virus	Tospovirus	Coat protein N	X66972	263	38.3	44.1	36.9	33.8	49.7
Impatiens necrotic spot virus	Tospovirus	Polymerase L protein	X93218	2830	32.9	37.0	30.9	30.9	42.7
Tomato spotted wilt virus	Tospovirus	Non-structural protein NSs	D00645	465	37.9	41.7	34.6	37.4	45.9
Tomato spotted wilt virus	Tospovirus	Coat protein N	D00645	259	40.2	44.4	32.1	44.0	45.9
Tomato spotted wilt virus	Tospovirus	Polymerase L protein	D10066	2876	33.7	38.2	30.9	31.8	44.8
Tomato spotted wilt virus	Tospovirus	Non-structural protein NSm	S48091	303	39.6	42.9	37.0	38.9	46.2
Tomato spotted wilt virus	Tospovirus	Glycoprotein precursor	S48091	1136	35.9	39.0	37.9	30.8	48.1
Watermelon silver mottle virus	Tospovirus	Non-structural protein NSm	U75379	313	36.9	40.6	35.1	34.8	48.7
Watermelon silver mottle virus	Tospovirus	Glycoprotein precursor	U75379	1122	36.4	38.5	35.2	35.4	47.4
Watermelon silver mottle virus	Tospovirus	Non-structural protein NSs	U78734	440	36.7	40.7	33.9	35.5	48.1
Watermelon silver mottle virus	Tospovirus	Coat protein N	U78734	276	38.7	41.3	35.5	39.1	44.6
Watermelon silver mottle virus	Tospovirus	Polymerase L protein	AF133128	2879	34.2	37.9	30.5	34.3	45.8
Apple chlorotic leaf spot virus	Trichovirus	Polyprotein	M58152	1885	41.3	44.6	35.8	43.6	50.3
Apple chlorotic leaf spot virus	Trichovirus	Movement protein	M58152	461	44.3	48.4	42.7	41.9	52.8
Apple chlorotic leaf spot virus	Trichovirus	Coat protein	M58152	194	46.2	49.0	32.0	57.7	54.0
Cherry mottle leaf virus	Trichovirus	Polyprotein	AF170028	1888	41.2	44.8	36.4	42.3	50.4
Cherry mottle leaf virus	Trichovirus	ORF4, 15 kDa protein	AF170028	136	39.2	30.9	44.9	41.9	44.7
Cherry mottle leaf virus	Trichovirus	Movement protein	AF170028	423	42.4	45.6	41.1	40.4	51.6
Cherry mottle leaf virus	Trichovirus	Coat protein	AF170028	194	43.0	44.3	38.1	46.4	55.0
Brome streak mosaic virus	Tritimovirus	Polyprotein	Z48506	3094	46.6	53.2	38.1	48.5	55.7
Wheat streak mosaic virus	Tritimovirus	Polyprotein	AF057533	3036	44.6	50.7	37.9	45.4	53.6
Chayote mosaic virus	Tymovirus	Replication protein	AF195000	1836	56.7	57.0	47.0	66.0	43.0
Chayote mosaic virus	Tymovirus	Movement protein	AF195000	681	58.2	66.7	60.1	47.7	48.8
Chayote mosaic virus	Tymovirus	Coat protein	AF195000	192	60.9	56.8	50.5	75.5	33.9
Eggplant mosaic virus	Tymovirus	Replication protein	J04374	1840	54.0	56.5	45.4	60.2	45.1
Eggplant mosaic virus	Tymovirus	Movement protein	J04374	650	55.1	59.5	59.1	46.6	52.3
Eggplant mosaic virus	Tymovirus	Coat protein	J04374	189	55.6	51.9	51.9	63.0	43.4
Erysimum latent virus	Tymovirus	Replication protein	AF098523	1749	50.7	54.2	45.5	52.4	50.1
Erysimum latent virus	Tymovirus	Movement protein	AF098523	441	51.3	57.6	53.1	43.3	49.4
Erysimum latent virus	Tymovirus	Coat protein	AF098523	203	53.5	57.6	48.8	54.2	38.8
Kennedya yellow mosaic virus	Tymovirus	Replication protein	D00637	1875	54.4	56.3	44.3	62.6	43.9

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Kennedy yellow mosaic virus	Tymovirus	Movement protein	D00637	754	56.4	64.7	59.2	45.2	52.0
Kennedy yellow mosaic virus	Tymovirus	Coat protein	D00637	189	56.8	49.7	51.9	68.8	38.7
Ononis yellow mosaic virus	Tymovirus	Replication protein	J04375	1777	50.7	53.2	44.2	54.6	46.5
Ononis yellow mosaic virus	Tymovirus	Movement protein	J04375	598	52.2	57.2	55.5	43.8	52.5
Ononis yellow mosaic virus	Tymovirus	Coat protein	J04375	193	48.9	54.4	48.7	43.5	45.2
Physalis mottle virus	Tymovirus	Replication protein	Y16104	1933	53.7	54.6	45.4	61.2	42.3
Physalis mottle virus	Tymovirus	Movement protein	Y16104	667	54.0	59.5	57.6	44.8	51.6
Physalis mottle virus	Tymovirus	Coat protein	Y16104	189	55.0	55.6	48.7	60.9	46.9
Turnip yellow mosaic virus	Tymovirus	Replication protein	X07441	1837	56.9	57.2	46.3	67.0	44.1
Turnip yellow mosaic virus	Tymovirus	Movement protein	X07441	626	57.8	66.9	59.3	47.3	51.6
Turnip yellow mosaic virus	Tymovirus	Coat protein	X07441	189	55.9	53.4	50.3	64.0	43.1
Carrot mottle mimic virus	Umbravirus	Replication protein ORF1	U57305	343	56.3	62.4	48.7	57.7	59.5
Carrot mottle mimic virus	Umbravirus	Polymerase ORF2	U57305	570	48.0	52.8	41.8	49.3	56.8
Carrot mottle mimic virus	Umbravirus	ORF3	U57305	262	56.7	61.1	59.9	49.2	58.1
Carrot mottle mimic virus	Umbravirus	Movement protein	U57305	263	56.9	61.2	48.7	60.8	54.0
Groundnut rosette virus	Umbravirus	Replication protein ORF1	Z69910	286	59.2	65.0	50.4	62.2	52.6
Groundnut rosette virus	Umbravirus	Polymerase ORF2	Z69910	565	52.3	54.0	41.6	61.2	54.6
Groundnut rosette virus	Umbravirus	ORF3	Z69910	252	56.6	63.9	59.1	46.8	61.0
Groundnut rosette virus	Umbravirus	Movement protein	Z69910	261	57.7	60.5	47.9	64.8	54.5
Pea enation mosaic virus-2	Umbravirus	Replication protein ORF1	U03563	303	59.9	62.1	52.2	65.4	52.6
Pea enation mosaic virus-2	Umbravirus	Polymerase ORF2	U03563	582	53.4	54.3	42.8	63.1	56.3
Pea enation mosaic virus-2	Umbravirus	ORF3	U03563	237	55.6	67.1	54.0	45.6	60.4
Pea enation mosaic virus-2	Umbravirus	Movement protein	U03563	251	57.0	55.8	47.4	67.7	52.8
Beet western yellows ST9 associated virus	Unassigned virus	Replication protein readthrough	L04281	414	50.0	51.0	48.6	50.5	59.7
Beet western yellows ST9 associated virus	Unassigned virus	Polymerase	L04281	314	47.8	52.2	39.5	51.6	54.2
Carrot red leaf associated virus	Unassigned virus	Polymerase readthrough	AF020617	758	49.6	49.7	44.3	54.6	56.6
Citrus leaf blotch virus	Unassigned virus	Replication protein	AJ318061	1963	39.3	45.3	33.2	39.5	51.6
Citrus leaf blotch virus	Unassigned virus	Movement protein	AJ318061	363	42.2	49.0	38.3	39.1	45.6
Citrus leaf blotch virus	Unassigned virus	Coat protein	AJ318061	364	41.6	47.0	40.4	37.4	48.0
Indian citrus ringspot virus	Unassigned virus	TGBp2	AF406744	110	49.1	53.6	50.9	42.7	61.0
Indian citrus ringspot virus	Unassigned virus	TGBp1	AF406744	226	51.8	54.0	43.4	58.0	48.6
Indian citrus ringspot virus	Unassigned virus	Polymerase	AF406744	1659	51.7	54.9	41.4	59.0	51.6
Indian citrus ringspot virus	Unassigned virus	NABP	AF406744	223	54.3	56.5	54.7	51.6	53.0
Indian citrus ringspot virus	Unassigned virus	Coat protein	AF406744	326	55.1	58.0	47.2	60.1	50.6
Strawberry mottle virus	Unassigned virus	RNA1 Polyprotein	AJ311875	1916	44.8	50.9	38.4	45.0	54.9

Virus	Genus	Gene	accno	Codons	%GC	%GC1	%GC2	%GC3	ENC
Strawberry mottle virus	Unassigned virus	RNA2 Polyprotein	AJ311876	1453	46.7	50.0	42.0	48.0	55.8
Sugarcane striate mosaic associated virus	Unassigned virus	TGBp2	AF315308	121	42.4	42.2	47.1	38.0	48.9
Sugarcane striate mosaic associated virus	Unassigned virus	TGBp1	AF315308	207	42.2	43.0	39.1	44.4	54.1
Sugarcane striate mosaic associated virus	Unassigned virus	Polymerase	AF315308	1938	38.5	44.6	33.9	37.0	50.4
Sugarcane striate mosaic associated virus	Unassigned virus	Coat protein	AF315308	211	44.4	50.2	46.0	37.0	46.7
Grapevine virus A	Vitivirus	Replication protein	X75433	1708	49.4	51.5	36.5	60.3	51.3
Grapevine virus A	Vitivirus	ORF2	X75433	178	46.3	50.0	44.9	43.8	48.5
Grapevine virus A	Vitivirus	Movement protein	X75433	279	49.1	53.4	36.2	57.7	52.5
Grapevine virus A	Vitivirus	Coat protein	X75433	199	52.8	54.8	40.2	63.3	52.7
Grapevine virus B	Vitivirus	RNA binding protein	X75448	124	49.2	46.0	52.4	49.2	61.0
Grapevine virus B	Vitivirus	Replication protein	X75448	1708	46.3	49.7	36.5	52.8	53.8
Grapevine virus B	Vitivirus	ORF2	X75448	180	45.9	51.1	40.0	46.7	54.9
Grapevine virus B	Vitivirus	Movement protein	X75448	323	49.1	52.9	37.2	57.3	53.7
Grapevine virus B	Vitivirus	Coat protein	X75448	198	46.5	47.0	42.4	50.0	56.0
Maize chlorotic dwarf virus	Waikavirus	Polyprotein	U67839	3444	41.8	47.6	38.1	39.8	52.3
Rice tungro spherical virus	Waikavirus	Polyprotein	M95497	3474	45.9	50.7	40.3	46.8	54.4