

**Table S2. Odds ratio for members of the family *Alphaflexiviridae***

Genus	ID	Abrev.	Name	AA	AF	AC	AG	TA	TT	TC	RG	GA	GT	CC	CA	GC	GG	Size	A	T	C	G		
Alphavirus	KY094958.1	AVS	Zika virus S	1.0202	0.844	1.0022	1.0077	0.7809	1.2411	0.8025	1.0796	1.2226	1.1208	0.962	0.7618	1.0097	0.8113	1.0772	0.9988	3549	0.29	0.21	0.30	0.21
	KX058461.1	AVV	Azovul virus	1.0188	0.845	1.0081	1.0077	0.6660	1.2511	0.8659	1.2819	1.1688	1.0978	0.9793	0.7651	1.061	0.8352	1.021	0.9983	7989	0.29	0.21	0.29	0.22
	JN053261.1	BVE	Blackberry virus E	0.9458	0.8481	1.0703	1.1504	0.7096	1.1635	1.0027	1.2009	1.2083	1.1067	0.9136	0.7741	1.0317	0.886	1.0353	1.0102	7718	0.27	0.20	0.31	0.22
	AB010940.1	GVA	Garlic virus A	1.0451	0.8074	1.0039	1.0376	0.7676	1.1205	0.9793	1.2289	1.034	1.2104	0.889	0.7604	1.118	0.8295	1.0552	0.8847	8657	0.28	0.23	0.29	0.20
	KM073441.1	GVB	Garlic virus B	0.9266	0.9076	1.0078	0.9804	0.7287	1.1708	0.9796	1.2443	1.1582	1.0992	0.8885	0.85	1.123	0.8377	1.008	1.0057	8196	0.30	0.23	0.25	0.21
	AB010943.1	GVC	Garlic virus C	1.0047	0.8613	1.1402	1.0657	0.6915	1.2323	0.9078	1.3009	1.1794	1.0661	0.8799	0.8282	1.0996	0.8606	1.0535	0.9429	8405	0.30	0.23	0.27	0.21
	MF555553.1	GVD	Garlic virus D	1.0024	0.8114	1.1478	1.0098	0.7615	1.1762	0.865	1.3389	1.088	1.1594	0.9470	0.7798	1.1558	0.885	0.9964	0.9356	8424	0.30	0.22	0.27	0.21
	AJ253221.1	GVE	Garlic virus E	0.9745	0.8757	1.1181	1.0011	0.7648	1.177	0.9135	1.2711	1.0976	1.099	0.9632	0.8318	1.1729	0.8656	0.9741	0.9398	8451	0.29	0.22	0.28	0.22
	U88241.1	GVX	Garlic virus X	0.9836	0.9336	1.092	0.9841	0.7467	1.241	0.9108	1.2622	1.1848	1.0129	0.8444	0.8444	1.1042	0.8228	1.0909	0.9294	8106	0.31	0.23	0.26	0.21
	MF072561.1	SVX	Shallot virus X	1.0251	0.881	1.0542	1.0028	0.7088	1.1553	1.0118	1.2199	1.1138	1.1334	0.8998	0.838	1.0584	0.8143	1.0514	0.9817	8881	0.29	0.22	0.29	0.21
MF550291.1	VVV	Vanilla latent virus	0.9747	0.9329	1.0437	1.0261	0.7257	1.17	1.004	1.0887	1.1889	1.0686	0.9683	0.8507	1.0678	0.838	0.9484	1.0277	7862	0.33	0.22	0.28	0.19	
Luteovirus	EJ488641.1	LUV	Luteum latent virus	0.9277	0.9376	1.019	1.1241	0.7999	1.1158	0.9631	1.2365	1.0777	1.131	1.0085	0.8386	1.051	0.8102	0.999	1.1024	7674	0.28	0.20	0.28	0.23
	CP313246.1	CVVCV	Citrus yellow vein clearing virus	1.0298	0.822	1.0783	0.9228	0.7551	1.2131	0.9634	1.2876	1.0077	1.2415	0.9463	0.8224	1.116	0.9282	1.0152	1.1003	7531	0.28	0.21	0.32	0.19
Mandarinivirus	AF607441.1	MDV	Indian citrus ringpoot virus	1.0429	0.8812	1.0839	0.9244	0.7129	1.0258	1.0598	1.115	1.0786	1.1566	0.9177	0.8621	1.0121	0.810	0.984	1.0641	7560	0.28	0.20	0.32	0.20
	KC232241.1	DDSV	Dodder orchard symptomless virus	1.0634	1.038	0.9856	0.9295	0.6820	1.0458	1.1838	1.1341	1.0981	1.0436	0.883	1.0212	1.1377	0.8369	1.0177	0.9271	7838	0.26	0.20	0.33	0.23
Potyvirus	RF872420.1	ActVX	Actinidia virus X	1.0089	0.8278	1.0388	1.1117	0.7024	1.0952	0.9638	1.3299	1.1623	1.1687	0.9583	0.8883	1.0644	0.8877	1.0488	0.9645	6888	0.27	0.22	0.30	0.21
	FG02020.1	AVXV	Adium virus X	1.058	0.9356	1.0002	1.0566	0.6263	1.0273	1.0906	1.1786	1.1443	1.1754	0.8687	0.77	1.1513	0.9268	0.9065	1.0519	7118	0.28	0.21	0.31	0.20
Tombusvirus	AF62304.1	AMV	Alternanthera mosaic virus	1.0610	0.9087	0.8516	1.2004	0.5478	1.2255	1.175	1.0986	1.2048	1.0885	1.0481	0.8046	1.1077	0.7784	0.9467	1.1598	6607	0.27	0.22	0.33	0.22
	AB03061.1	AVXV	Albizia virus X	1.1078	0.8423	1.0029	0.9838	0.6446	1.1646	1.0954	1.2599	1.1227	1.081	0.9466	0.8407	1.0384	0.9727	0.9854	1.0271	7009	0.29	0.21	0.35	0.19
Tymovirus	NC_009616.1	AVZ	Asparagus virus 3	1.1149	0.9377	0.9884	0.9745	0.6907	1.006	1.128	1.1425	1.0833	1.0741	0.9434	0.9243	1.126	0.977	0.9751	1.0508	6935	0.24	0.21	0.35	0.21
	Q65017.1	BMV	Bamboo mosaic virus	1.0584	0.8771	1.0411	0.9683	0.7522	1.1777	0.9822	1.2258	1.0867	1.1811	0.9669	0.7471	1.0202	0.7486	1.0045	1.1932	8386	0.30	0.19	0.30	0.21
Tymovirus	AF093382.1	CVX	Calceola virus X	1.0617	0.8787	0.947	1.121	0.6849	1.064	1.1685	1.2097	1.1533	1.1206	0.9714	0.8586	1.1105	0.7468	0.9279	1.2216	6614	0.27	0.20	0.30	0.23
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	HY08481.1	CVX	Cassava virus X	1.0553	0.95	0.9358	1.0611	0.7375	1.0876	0.9711	1.2887	1.1284	1.1685	1.0977	0.8622	1.064	0.7597	1.0445	1.1348	5879	0.28	0.24	0.31	0.21
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
Tymovirus	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285	1.2912	1.2348	1.0306	0.9598	0.8629	1.0653	0.8768	1.0344	1.1574	6376	0.31	0.22	0.32	0.22
	U01941.1	CCMV	Cassava common mosaic virus	1.0658	0.8745	0.9533	1.054	0.5523	1.1384	1.1285														