

Table S7. List of *Agave americana* genes with Ka/Ks ratio greater than one in *Agave-Arabidopsis*, *Agave-Oryza* and *Agave-Zea* pairs. P-values indicating the significance of Ka/Ks ratio greater than one, as calculated using one-sided t-test. “nd” indicates not enough positive sites for significance tests.

Gene ID	Ortholog clade	P-value (<i>Agave-Arabidopsis</i>)	P-value (<i>Agave-Oryza</i>)	P-value (<i>Agave-Zea</i>)
Aam00023	C3:CAM:C4	1.00E-04	1.57E-07	5.10E-08
Aam04413	C3:CAM:C4	nd	2.03E-24	6.11E-23
Aam04795	C3:CAM:C4	1.18E-02	6.59E-23	1.49E-25
Aam07788	C3:CAM:C4	nd	5.40E-52	1.86E-24
Aam01341	C3:CAM:C4	6.82E-09	2.59E-36	1.35E-50
Aam04567	C3:CAM:C4	1.60E-15	3.38E-71	5.71E-42
Aam00473	C3:CAM:C4	9.34E-02	3.31E-43	4.56E-56
Aam04553	C3:CAM:C4	1.27E-10	1.22E-39	9.85E-30
Aam08546	C3:CAM:C4	1.90E-07	1.14E-26	9.75E-35
Aam08778	C3:CAM:C4	1.63E-02	6.51E-38	1.58E-25
Aam08786	C3:CAM:C4	3.72E-08	1.66E-80	6.99E-72
Aam08840	C3:CAM:C4	1.28E-28	4.90E-93	2.63E-50
Aam04352	C3:CAM:C4	1.20E-03	4.49E-32	4.16E-84
Aam00635	C3:CAM:C4	1.32E-05	3.68E-25	3.52E-28
Aam04808	C3:CAM:C4	8.60E-02	1.06E-35	1.70E-109
Aam00062	C3:CAM:C4	1.25E-04	7.63E-60	1.07E-26
Aam01359	C3:CAM:C4	8.94E-08	7.88E-29	6.51E-31
Aam04423	C3:CAM:C4	nd	2.26E-21	3.98E-23
Aam05001	C3:CAM:C4	nd	2.39E-63	7.46E-95
Aam07677	C3:CAM:C4	2.53E-03	3.09E-10	9.64E-07
Aam08294	C3:CAM:C4	5.60E-02	2.96E-43	1.00E-06
Aam08295	C3:CAM:C4	4.83E-08	1.38E-12	2.88E-36
Aam08470	C3:CAM:C4	4.39E-04	2.14E-20	2.62E-11
Aam08603	C3:CAM:C4	9.53E-04	4.98E-78	9.75E-35
Aam08644	C3:CAM:C4	8.55E-03	9.45E-02	3.01E-39
Aam08710	C3:CAM:C4	3.61E-09	1.07E-24	6.85E-55
Aam08734	C3:CAM:C4	6.45E-07	4.92E-64	6.81E-45
Aam08754	C3:CAM:C4	1.60E-02	3.81E-28	2.70E-17
Aam08769	C3:CAM:C4	7.13E-14	2.18E-50	6.12E-93
Aam08821	C3:CAM:C4	3.13E-26	1.06E-104	5.81E-67
Aam08831	C3:CAM:C4	6.48E-11	2.49E-18	7.69E-49
Aam09352	C3:CAM:C4	1.31E-02	1.87E-24	5.89E-05
Aam34102	C3:CAM:C4	nd	1.95E-26	7.38E-21
Aam34501	C3:CAM:C4	3.60E-03	6.42E-26	2.17E-28
Aam07856	C3:CAM:C4	2.52E-02	2.50E-43	5.24E-34
Aam07553	C3:CAM:C4	2.60E-02	1.03E-01	nd

Aam00373	C3:CAM:C4	1.27E-15	7.49E-07	4.77E-14
Aam00252	C3:CAM:C4	8.07E-03	3.55E-36	4.32E-32
Aam01365	C3:CAM:C4	1.95E-02	9.06E-98	2.16E-63
Aam04498	C3:CAM:C4	4.39E-04	2.06E-20	3.95E-49
Aam05516	NVP:C3:CAM:C4	1.49E-08	1.10E-41	2.35E-43
Aam05793	NVP:C3:CAM:C4	2.68E-02	1.69E-56	2.59E-60
Aam08122	NVP:C3:CAM:C4	3.31E-02	1.63E-15	5.47E-36
Aam08663	NVP:C3:CAM:C4	1.16E-26	5.98E-37	2.55E-49
Aam08718	NVP:C3:CAM:C4	3.71E-25	1.61E-70	1.01E-20
Aam08782	NVP:C3:CAM:C4	6.23E-08	3.93E-34	8.42E-46
Aam34310	NVP:C3:CAM:C4	2.41E-07	5.13E-15	1.23E-32
Aam01284	NVP:C3:CAM:C4	8.48E-02	3.12E-44	1.73E-43
Aam04474	NVP:C3:CAM:C4	1.00E-01	2.96E-37	1.66E-29
Aam04431	NVP:C3:CAM:C4	5.26E-09	1.12E-14	3.33E-21
Aam05128	NVP:C3:CAM:C4	8.19E-07	3.16E-36	1.38E-07
Aam08135	NVP:C3:CAM:C4	3.08E-04	2.27E-50	2.69E-30
Aam08506	NVP:C3:CAM:C4	nd	1.10E-72	2.88E-37
Aam08000	NVP:C3:CAM:C4	7.78E-03	5.65E-51	4.14E-55
Aam00023	NVP:C3:CAM:C4	8.06E-10	2.67E-71	2.21E-51
Aam00468	NVP:C3:CAM:C4	1.11E-07	3.57E-61	1.59E-45
Aam01303	NVP:C3:CAM:C4	1.55E-10	1.11E-93	1.58E-74
Aam01357	NVP:C3:CAM:C4	1.64E-01	5.46E-33	3.24E-65
Aam01364	NVP:C3:CAM:C4	3.02E-02	1.18E-36	1.08E-43
Aam04585	NVP:C3:CAM:C4	7.08E-03	4.07E-60	1.69E-52
Aam05327	NVP:C3:CAM:C4	8.88E-02	2.11E-37	1.05E-46
Aam08025	NVP:C3:CAM:C4	2.01E-01	2.00E-23	3.70E-03
Aam08051	NVP:C3:CAM:C4	8.16E-03	9.06E-65	1.90E-65
Aam08205	NVP:C3:CAM:C4	1.87E-09	1.68E-35	5.99E-42
Aam08234	NVP:C3:CAM:C4	3.20E-07	1.53E-23	1.32E-19
Aam08283	NVP:C3:CAM:C4	2.27E-08	1.70E-69	8.70E-67
Aam08325	NVP:C3:CAM:C4	1.59E-07	6.83E-111	4.17E-90
Aam08328	NVP:C3:CAM:C4	1.99E-02	4.83E-40	5.76E-76
Aam08521	NVP:C3:CAM:C4	3.86E-18	4.36E-107	5.70E-66
Aam08581	NVP:C3:CAM:C4	1.31E-14	5.74E-84	5.18E-47
Aam08681	NVP:C3:CAM:C4	4.66E-05	7.44E-100	1.06E-48
Aam08740	NVP:C3:CAM:C4	3.39E-07	6.61E-43	1.55E-27
Aam08742	NVP:C3:CAM:C4	5.71E-25	2.84E-35	6.44E-38
Aam08747	NVP:C3:CAM:C4	5.09E-03	2.79E-32	9.51E-07
Aam08758	NVP:C3:CAM:C4	1.67E-11	6.94E-49	1.76E-49
Aam08775	NVP:C3:CAM:C4	3.18E-14	5.25E-67	5.88E-77
Aam08781	NVP:C3:CAM:C4	2.15E-14	3.47E-40	3.14E-45
Aam08806	NVP:C3:CAM:C4	1.05E-21	5.95E-140	7.44E-103
Aam08814	NVP:C3:CAM:C4	2.22E-05	5.20E-34	4.69E-13
Aam08836	NVP:C3:CAM:C4	8.67E-17	1.24E-54	4.09E-32

Aam04507	C3:CAM:C4	1.57E-06	8.86E-18	1.73E-10
Aam04509	C3:CAM:C4	8.77E-26	5.77E-89	1.14E-91
Aam04542	C3:CAM:C4	2.84E-04	5.99E-06	4.60E-35
Aam04586	C3:CAM:C4	1.20E-04	8.80E-58	1.00E-58
Aam04587	C3:CAM:C4	5.63E-02	2.09E-47	2.99E-84
Aam05283	C3:CAM:C4	2.40E-02	1.78E-18	3.56E-16
Aam07933	C3:CAM:C4	2.18E-02	4.98E-56	1.47E-91
Aam08352	C3:CAM:C4	1.93E-06	2.08E-09	5.47E-24
Aam08449	C3:CAM:C4	nd	2.29E-44	2.60E-30
Aam08609	C3:CAM:C4	1.16E-12	1.04E-45	9.14E-28
Aam08782	C3:CAM:C4	4.11E-09	4.51E-39	1.46E-39
Aam08788	C3:CAM:C4	1.86E-03	2.33E-54	1.55E-45
Aam08798	C3:CAM:C4	2.46E-03	2.62E-24	1.33E-23
Aam08828	C3:CAM:C4	9.84E-19	1.96E-48	1.66E-40
Aam08831	C3:CAM:C4	1.31E-08	1.74E-60	9.62E-68
Aam09416	C3:CAM:C4	1.29E-24	3.05E-54	3.17E-30
Aam00048	NVP:C3:CAM:C4	5.98E-05	1.75E-44	2.53E-49
Aam00918	NVP:C3:CAM:C4	3.86E-07	6.31E-18	3.14E-10
Aam01800	NVP:C3:CAM:C4	2.43E-15	2.10E-37	2.28E-44
Aam01857	NVP:C3:CAM:C4	nd	1.51E-16	8.72E-21
Aam04466	NVP:C3:CAM:C4	8.93E-08	5.74E-71	6.38E-56
Aam04875	NVP:C3:CAM:C4	1.55E-01	1.66E-09	4.09E-32
Aam05101	NVP:C3:CAM:C4	5.56E-05	4.65E-23	1.79E-57
Aam05587	NVP:C3:CAM:C4	4.19E-07	7.31E-34	1.78E-32
Aam08286	NVP:C3:CAM:C4	6.86E-13	nd	0.00E+00
Aam08442	NVP:C3:CAM:C4	2.32E-05	7.33E-95	2.90E-58
Aam04505	NVP:C3:CAM:C4	2.10E-14	9.25E-86	3.56E-55
Aam04565	NVP:C3:CAM:C4	3.45E-15	8.55E-42	9.04E-50
Aam07799	NVP:C3:CAM:C4	2.79E-08	1.38E-54	6.81E-32
Aam07894	NVP:C3:CAM:C4	2.26E-07	2.31E-79	9.84E-35
Aam07901	NVP:C3:CAM:C4	nd	2.58E-102	9.16E-61
Aam07926	NVP:C3:CAM:C4	2.98E-02	5.55E-23	2.42E-21
Aam08204	NVP:C3:CAM:C4	1.36E-08	2.86E-25	2.18E-38
Aam08497	NVP:C3:CAM:C4	nd	3.10E-39	2.81E-66
Aam08598	NVP:C3:CAM:C4	1.23E-02	2.94E-46	7.37E-72
Aam08711	NVP:C3:CAM:C4	1.07E-03	6.95E-114	1.80E-80
Aam08814	NVP:C3:CAM:C4	2.32E-03	7.02E-51	1.30E-68
Aam00476	NVP:C3:CAM:C4	5.75E-02	3.58E-14	2.20E-24
Aam01025	NVP:C3:CAM:C4	1.41E-05	3.69E-19	2.73E-37
Aam04971	NVP:C3:CAM:C4	1.86E-11	2.21E-21	4.43E-18
Aam34482	NVP:C3:CAM:C4	1.44E-05	4.14E-52	4.33E-27
Aam34534	NVP:C3:CAM:C4	2.40E-04	2.10E-18	1.37E-08
Aam34963	NVP:C3:CAM:C4	3.07E-05	3.25E-08	1.10E-17
Aam35460	NVP:C3:CAM:C4	5.17E-10	1.93E-69	3.06E-61

Aam01159	NVP:C3:CAM:C4	3.30E-02	1.83E-33	2.06E-07
Aam04932	NVP:C3:CAM:C4	1.94E-01	6.58E-67	6.41E-31
Aam08544	NVP:C3:CAM:C4	1.38E-03	6.62E-48	1.51E-52
Aam34148	NVP:C3:CAM:C4	2.76E-06	3.23E-18	4.33E-21
Aam05438	NVP:C3:CAM:C4	1.64E-10	4.12E-12	9.56E-13
Aam08176	NVP:C3:CAM:C4	1.59E-01	1.08E-38	4.59E-38
Aam08787	NVP:C3:CAM:C4	3.99E-03	1.88E-88	2.42E-63
Aam08157	NVP:C3:CAM:C4	1.47E-01	2.79E-23	1.23E-22
Aam00477	NVP:C3:CAM:C4	2.11E-15	2.32E-65	3.46E-99
Aam01020	NVP:C3:CAM:C4	6.36E-08	3.62E-71	9.82E-58
Aam04356	NVP:C3:CAM:C4	4.28E-08	4.05E-06	2.79E-20
Aam04378	NVP:C3:CAM:C4	1.73E-10	1.76E-26	1.12E-45
Aam04386	NVP:C3:CAM:C4	2.12E-02	1.39E-32	4.40E-25
Aam04520	NVP:C3:CAM:C4	9.01E-06	3.54E-68	8.64E-21
Aam04579	NVP:C3:CAM:C4	1.07E-06	2.61E-31	4.22E-42
Aam04580	NVP:C3:CAM:C4	3.25E-11	5.66E-32	3.06E-48
Aam04585	NVP:C3:CAM:C4	3.33E-09	7.08E-103	9.68E-109
Aam04589	NVP:C3:CAM:C4	6.02E-15	8.89E-135	7.70E-126
Aam04593	NVP:C3:CAM:C4	4.78E-04	6.42E-54	5.86E-88
Aam05253	NVP:C3:CAM:C4	nd	1.78E-23	1.96E-06
Aam05414	NVP:C3:CAM:C4	4.09E-03	2.05E-41	3.84E-63
Aam05729	NVP:C3:CAM:C4	1.23E-03	9.51E-30	5.19E-57
Aam07884	NVP:C3:CAM:C4	3.72E-03	4.18E-24	1.34E-31
Aam08264	NVP:C3:CAM:C4	2.95E-03	1.09E-60	1.47E-25
Aam08349	NVP:C3:CAM:C4	2.74E-06	2.40E-90	1.11E-42
Aam08512	NVP:C3:CAM:C4	2.77E-10	3.66E-26	5.13E-29
Aam08601	NVP:C3:CAM:C4	4.35E-12	3.42E-28	1.34E-43
Aam08724	NVP:C3:CAM:C4	4.97E-10	2.00E-60	4.15E-19
Aam08769	NVP:C3:CAM:C4	2.09E-14	9.41E-30	1.90E-55
Aam08770	NVP:C3:CAM:C4	2.92E-06	2.43E-28	1.36E-40
Aam08779	NVP:C3:CAM:C4	5.44E-06	2.54E-20	2.38E-79
Aam08802	NVP:C3:CAM:C4	8.59E-07	1.19E-30	6.54E-32
Aam08824	NVP:C3:CAM:C4	1.06E-07	7.76E-100	2.79E-37
Aam08834	NVP:C3:CAM:C4	3.88E-03	2.18E-47	2.08E-108
Aam08836	NVP:C3:CAM:C4	3.62E-23	1.43E-70	3.73E-71
Aam35294	NVP:C3:CAM:C4	2.83E-02	1.14E-54	3.22E-37