Supplementary File
Tests for alternative tree topologies

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TABLE LEGEND/EXPLANATIONS:

deltaL : logL difference from the maximal logl in the set.
bp-RELL : bootstrap proportion using RELL method (Kishino et al. 1990).
p-KH   : p-value of one sided Kishino-Hasegawa test (1989).
p-SH   : p-value of Shimodaira-Hasegawa test (2000).
p-WKH   : p-value of weighted KH test.
p-WSH   : p-value of weighted SH test.
c-ELW   : Expected Likelihood Weight (Strimmer & Rambaut 2002).
p-AU   : p-value of approximately unbiased (AU) test (Shimodaira, 2002).

Plus signs denote the 95% confidence sets.
Minus signs denote significant exclusion.
All tests run with 10000 replicates.

1. Caterpillar clade (#12 on Figure 2) -- animal transfer from bacteria

TABLE SUMMARY

0/48 trees passing all tests violate proposed HGT

Consensus tree of trees passing all tests (newick format, UFBootstrap values provided):
(AAY61704.1__Rfel_backtransfbcat,ABV78546.1__Rbel_backtransfbcat,((ETO08121.1__Rfil_caterpillar_,ETO18216.1
  Rfil caterpillar)100,(((((PFX17342.1__coral_LRR-exp,XP_020912409.1__coral_LRR-exp)
100,XP 015773435.1 Adig caterpillar)
100,(((NP 001028379.2 Mmus caterpillar,XP_006721361.1__Hsap_caterpillar)
100,XP 018113284.1 Xlaev caterpillar)
58,((XP 026695725.1 Cint caterpillar,(EAW90326.1 Hsap caterpillar,NP 113566.2 Mmus caterpillar)100)
88,NP 001107787.1 Drer caterpillar)63)90)96,(XP_019858719.1__Aque_LRR-exp,(XP_019858744.1__Aque_LRR-
exp,XP_019852853.1__Aque_LRR-exp)92)100)
75,((((XP 030850910.1 Spur caterpillar,((XP 019643334.1 Branch LRR-exp,XP 019643331.1 Branch LRR-exp)
100,XP 002590671.1 Branch LRR-exp)100)60,XP 019632330.1 Branch caterpillar_)38,(XP_032236996.1__Nvec_LRR-
exp,XP 032226299.1 Nvec LRR-exp)100)52,((((WP 063874077.1 HTH N HEATs NH-
Cmotif,WP 127086937.1__HTH_N__HEATs_NH-Cmotif_abNX1)96,WP_068789484.1__EAD4_TRADDN_N__HEATs_NH-
Cmotif abNX1)
100,((WP 088241405.1 TMs N FGS,(WP 081656175.1 6TM N FGS GUN4 FGS,WP_096563283.1__EAD1_N__FGS_GUN4)96)
94,(WP_132172700.1__TMs_N__FGS,WP_169816302.1__N__FGS_Cterm-FGSa)96)100)
94,(((ACY15693.1 Hoch bcat,AEI64901.1 Cmac bcat)98,AKT40456.1 Ccro bcat)100,AMV27545.1 Gemm bcat)100)

94,(((ACY15693.1__Hoch_bcat,AEI64901.1__Cmac_bcat)98,AKT40456.1__Ccro_bcat)100,AMV27545.1__Gemm_bcat)100)
100)67)94)100);

Tree	logL	deltaL	bp-RELL		p-KH		p-SH		p-WKH		p-WSH		c-ELW		p-AU	
1	-37842.66532	0	0.0065	+	0.497	+	1	+	0.497	+	1	+	0.0269	+	0.963	+
2	-37886.16398	43.499	0	-	0.0003	-	0.12	+	0.0001	-	0.0035	-	2.36e-08	-	3.57e-06	-
3	-37892.37817	49.713	0	-	0.0018	-	0.0569	+	0.0006	-	0.0119	-	2.64e-06	-	0.000354	-
4	-38002.96523	160.3	0	-	0	-	0	-	0	-	0	-	1.43e-40	-	2.87e-74	-
5	-37872.30286	29.638	0.0001	-	0.0107	-	0.369	+	0.0062	-	0.0637	+	0.000131	-	0.00554	-
6	-37857.68666	15.021	0.0114	+	0.097	+	0.847	+	0.0708	+	0.678	+	0.0105	+	0.113	+
7	-37858.11228	15.447	0.0043	+	0.0719	+	0.806	+	0.0322	-	0.397	+	0.00379	+	0.0482	-
8	-37849.01728	6.352	0.0091	+	0.15	+	0.98	+	0.0923	+	0.79	+	0.0093	+	0.245	+
9	-37862.98267	20.317	0.0013	-	0.0326	-	0.666	+	0.0135	-	0.254	+	0.0012	-	0.0341	-
10	-37889.73889	47.074	0	-	0.0007	-	0.085	+	0.0001	-	0.0021	-	8.53e-11	-	2.78e-06	-
11	-37881.85677	39.191	0	-	0.0026	-	0.141	+	0.0005	-	0.0177	-	2.3e-06	-	0.000138	-
12	-37871.69068	29.025	0.0001	-	0.0134	-	0.366	+	0.0034	-	0.0687	+	0.000122	-	0.0111	-
13	-37844.01329	1.348	0.0564	+	0.398	+	1	+	0.398	+	0.999	+	0.0511	+	0.74	+
14	-37962.19224	119.53	0	-	0	-	0	-	0	-	0	-	1.99e-25	-	8.2e-157	-
15	-37849.06788	6.4026	0.0111	+	0.211	+	0.994	+	0.207	+	0.985	+	0.0147	+	0.409	+
16	-37845.40601	2.7407	0.0085	+	0.239	+	1	+	0.208	+	0.996	+	0.0132	+	0.619	+
17	-37916.49007	73.825	0	-	0	-	0.0028	-	0	-	0	-	6.53e-15	-	0.00517	-
18	-37859.65133	16.986	0.0004	-	0.0144	-	0.781	+	0.0145	-	0.261	+	0.000395	-	0.0124	-
19	-37871.79075	29.125	0	-	0.0114	-	0.357	+	0.007	-	0.123	+	6.31e-06	-	0.00407	-
20	-37873.26782	30.602	0	-	0.0097	-	0.315	+	0.003	-	0.0575	+	1.29e-05	-	0.00706	-
21	-37870.4044	27.739	0	-	0.0095	-	0.431	+	0.0011	-	0.0197	-	1.35e-05	-	0.0102	-
22	-37889.19509	46.53	0	-	0.0004	-	0.0756	+	0.0001	-	0.008	-	5.13e-10	-	0.000702	-
23	-37923.61637	80.951	0	-	0	-	0.002	-	0	-	0.0002	-	9.6e-16	-	0.00116	-
24	-37848.38771	5.7224	0.0137	+	0.166	+	0.993	+	0.131	+	0.915	+	0.014	+	0.393	+
25	-37925.48389	82.819	0	-	0	-	0.0022	-	0	-	0.0003	-	8.86e-17	-	0.000333	-
26	-37855.59435	12.929	0.003	-	0.0669	+	0.912	+	0.0667	+	0.702	+	0.00315	-	0.105	+
27	-37859.24533	16.58	0.0017	-	0.0225	-	0.745	+	0.0225	-	0.275	+	0.0016	-	0.07	+
28	-37904.99394	62.329	0	-	0.0001	-	0.0075	-	0	-	0.0006	-	4.9e-12	-	4e-06	-
29	-37856.11323	13.448	0.0025	-	0.0501	+	0.876	+	0.0405	-	0.522	+	0.00243	-	0.0714	+
30	-37842.6654	8.82e-05	0.0108	+	0.502	+	1	+	0.502	+	1	+	0.0267	+	0.964	+
31	-37894.30041	51.635	0	-	0.0011	-	0.0485	-	0.0002	-	0.0061	-	1.74e-07	-	3.76e-05	-
32	-37894.67887	52.014	0	-	0.0016	-	0.0485	-	0.0008	-	0.0087	-	1.39e-08	-	0.000392	-
33	-37844.70186	2.0365	0.0465	+	0.39	+	1	+	0.39	+	1	+	0.0462	+	0.808	+
34	-37870.52307	27.858	0.0004	-	0.0227	-	0.408	+	0.012	-	0.174	+	0.000479	-	0.00907	-
35	-37863.36964	20.704	0.0002	-	0.02	-	0.655	+	0.0161	-	0.242	+	0.000336	-	0.0174	-
36	-37843.07722	0.4119	0.0086	+	0.324	+	1	+	0.323	+	1	+	0.0196	+	0.822	+
37	-37903.83618	61.171	0	-	0.0001	-	0.0115	-	0	-	0.0002	-	9.29e-13	-	0.00115	-
38	-37864.40542	21.74	0	-	0.0196	-	0.616	+	0.0047	-	0.0817	+	0.000101	-	0.0139	-
39	-37844.79094	2.1256	0.0481	+	0.389	+	1	+	0.39	+	1	+	0.0444	+	0.746	+
40	-37874.13311	31.468	0.0001	-	0.0084	-	0.285	+	0.0045	-	0.0874	+	3.23e-05	-	0.00309	-
41	-37852.61898	9.9537	0.0057	+	0.101	+	0.96	+	0.102	+	0.837	+	0.00573	+	0.135	+
42	-37849.26697	6.6017	0.0008	-	0.0581	+	0.986	+	0.0579	+	0.703	+	0.00333	-	0.159	+
43	-37912.48397	69.819	0	-	0	-	0.002	-	0	-	0.0001	-	1.85e-14	-	0.00104	-

44	-37849.06793	6.4026	0.0135 +	0.211 +	0.994 +	0.208 +	0.988 +	0.0147 +	0.412 +
45	-37866.43657	23.771	0 -	0.0019 -	0.54 +	0.0019 -	0.0314 -	2.29e-05 -	0.00659 -
46	-37902.31736	59.652	0 -	0.0002 -	0.0135 -	0.0002 -	0.0013 -	7.68e-11 -	0.00162 -
47	-37856.59692	13.932	0.0037 -	0.0745 +	0.883 +	0.065 +	0.66 +	0.00359 -	0.0847 +
48	-37876.98503	34.32	0 -	0.0042 -	0.231 +	0.0029 -	0.0452 -	9.67e-06 -	0.0317 -
49	-37890.72846	48.063	0 -	0.0013 -	0.0554 +	0.001 -	0.0092 -	9.11e-09 -	0.000258 -
50	-37852.86507	10.2	0.0082 +	0.115 +	0.955 +	0.114 +	0.858 +	0.00755 +	0.188 +
51	-37884.99936	42.334	0 -	0.0033 -	0.116 +	0.0025 -	0.0514 +	5.46e-05 -	0.00914 -
52	-37908.63945	65.974	0 -	0 -	0.0101 -	0 -	0.0015 -	1.71e-08 -	2.75e-56 -
53	-37854.33302	11.668	0.0104 +	0.12 +	0.922 +	0.0886 +	0.744 +	0.0103 +	0.149 +
54	-37899.48908	56.824	0 -	0.0005 -	0.0194 -	0.0001 -	0.0048 -	7.34e-10 -	0.00197 -
55	-37882.94	40.275	0.0004 -	0.0038 -	0.144 +	0.0028 -	0.0463 -	0.00036 -	0.00518 -
56	-37852.44285	9.7775	0.0057 +	0.149 +	0.961 +	0.11 +	0.864 +	0.00607 +	0.196 +
57	-37867.11717	24.452	0 -	0.006 -	0.52 +	0.006 -	0.116 +	1.59e-05 -	0.0227 -
58	-37867.83364	25.168	0.0002 -	0.0047 -	0.495 +	0.005 -	0.0834 -	0.000298 -	0.0015 -
59	-37848.23903	5.5737	0.0047 +	0.111 +	0.998 +	0.111 +	0.941 +	0.00457 +	0.298 +
60	-37851.82695	9.1616	0.0116 +	0.144 +	0.97 +	0.104 +	0.845 +	0.0108 +	0.216 +
61	-37866.86468	24.199	0.0003 -	0.0057 -	0.529 +	0.0056 -	0.0781 +	0.000286 -	0.00612 -
62	-37847.66533	5	0.0083 +	0.187 +	0.997 +	0.187 +	0.976 +	0.0092 +	0.371 +
63	-37851.27888	8.6136	0.0127 +	0.138 +	0.945 +	0.105 +	0.777 +	0.0117 +	0.165 +
64	-37850.07545	7.4101	0.008 +	0.073 +	0.972 +	0.073 +	0.731 +	0.00731 +	0.266 +
65	-37850.15267	7.4874	0.0063 +	0.0547 +	0.982 +	0.0546 +	0.697 +	0.00535 +	0.16 +
66	-37844.77839	2.1131	0.0188 +	0.173 +	0.999 +	0.173 +	0.974 +	0.0171 +	0.525 +
67	-37848.94303	6.2777	0.0069 +	0.085 +	0.987 +	0.0847 +	0.806 +	0.00869 +	0.315 +
68	-37857.01343	14.348	0 -	0.0109 -	0.864 +	0.0109 -	0.218 +	0.000157 -	0.0157 -
69	-37854.24657	11.581	0.0037 -	0.0904 +	0.92 +	0.0398 -	0.536 +	0.00397 +	0.131 +
70	-37849.49762	6.8323	0.0024 -	0.0492 -	0.98 +	0.0487 -	0.639 +	0.00424 +	0.215 +
71	-37861.33206	18.667	0.0001 -	0.007 -	0.721 +	0.007 -	0.147 +	0.000105 -	0.0141 -
72	-37847.09595	4.4306	0.0318 +	0.209 +	0.995 +	0.209 +	0.973 +	0.0281 +	0.454 +
73	-37845.59717	2.9318	0.0531 +	0.36 +	0.999 +	0.361 +	0.999 +	0.0476 +	0.609 +
74	-37849.54158	6.8763	0.0042 +	0.178 +	0.991 +	0.12 +	0.915 +	0.00466 +	0.192 +
75	-37859.90195	17.237	0.0015 -	0.0155 -	0.752 +	0.0154 -	0.241 +	0.00114 -	0.0229 -
76	-37856.5128	13.847	0.005 +	0.0381 -	0.856 +	0.0381 -	0.443 +	0.00381 +	0.0768 +
77	-37847.21163	4.5463	0.0184 +	0.264 +	0.996 +	0.202 +	0.976 +	0.0183 +	0.369 +
78	-37848.55732	5.892	0.0077 +	0.166 +	0.994 +	0.166 +	0.961 +	0.008 +	0.239 +
79	-37847.28285	4.6175	0.0186 +	0.128 +	0.996 +	0.128 +	0.922 +	0.0147 +	0.387 +
80	-37847.06166	4.3963	0.0222 +	0.288 +	0.997 +	0.169 +	0.964 +	0.023 +	0.416 +
81	-37861.33388	18.669	0.0012 -	0.0252 -	0.7 +	0.0248 -	0.319 +	0.00126 -	0.0443 -
82	-37869.08473	26.419	0.0004 -	0.0135 -	0.467 +	0.0064 -	0.0786 +	0.000459 -	0.00424 -
83	-37858.76674	16.101	0.0017 -	0.0238 -	0.808 +	0.0238 -	0.32 +	0.00142 -	0.031 -
84	-37843.49746	0.83214	0.0679 +	0.393 +	1 +	0.393 +	1 +	0.0527 +	0.844 +
85	-37843.78173	1.1164	0.0331 +	0.398 +	1 +	0.399 +	1 +	0.0319 +	0.717 +
86	-37851.06017	8.3949	0.0104 +	0.157 +	0.976 +	0.0981 +	0.841 +	0.0103 +	0.213 +
87	-37871.52903	28.864	0.0001 -	0.0016 -	0.397 +	0.0016 -	0.0219 -	4.94e-05 -	1.11e-05 -
88	-37859.61912	16.954	0.0012 -	0.0204 -	0.772 +	0.0204 -	0.285 +	0.00108 -	0.0265 -
89	-37873.35649	30.691	0 -	0.0014 -	0.334 +	0.0014 -	0.0152 -	4.66e-07 -	0.00401 -
90	-37848.07919	5.4139	0.0295 +	0.174 +	0.994 +	0.145 +	0.912 +	0.0258 +	0.365 +
91	-37842.66548	0.00017	0.017 +	0.503 +	1 +	0.503 +	1 +	0.0267 +	0.966 +
92	-37860.51987	17.855	0 -	0.019 -	0.746 +	0.0151 -	0.237 +	0.000105 -	0.0172 -

#	logL	ΔL													
93	-37868.03142	25.366	0.0002	-	0.0104	-	0.495	+	0.01	-	0.141	+	0.000282	-	0.00587	-
94	-37849.08368	6.4184	0.0013	-	0.158	+	0.993	+	0.124	+	0.924	+	0.00245	-	0.187	+
95	-37847.06358	4.3983	0.0467	+	0.252	+	0.988	+	0.227	+	0.967	+	0.0403	+	0.495	+
96	-37845.78403	3.1187	0.0582	+	0.35	+	0.999	+	0.35	+	0.998	+	0.0507	+	0.639	+
97	-37855.42428	12.759	0.0006	-	0.0194	-	0.879	+	0.0194	-	0.315	+	0.000693	-	0.022	-
98	-37860.66763	18.002	0.0009	-	0.0114	-	0.735	+	0.0116	-	0.201	+	0.000956	-	0.0139	-
99	-37848.92495	6.2596	0.0046	+	0.0886	+	0.987	+	0.0884	+	0.806	+	0.00504	+	0.192	+
100	-37860.50057	17.835	0.0005	-	0.0309	-	0.745	+	0.011	-	0.199	+	0.000619	-	0.0225	-
101	-37853.77201	11.107	0.0028	-	0.0343	-	0.912	+	0.0342	-	0.508	+	0.00248	-	0.148	+
102	-37848.88683	6.2215	0.0154	+	0.16	+	0.99	+	0.159	+	0.94	+	0.0143	+	0.367	+
103	-37855.13821	12.473	0.0013	-	0.0343	-	0.911	+	0.032	-	0.473	+	0.0011	-	0.0925	+
104	-37860.97921	18.314	0.0024	-	0.0333	-	0.71	+	0.0283	-	0.31	+	0.00235	-	0.0425	-
105	-37855.71804	13.053	0.0011	-	0.0679	+	0.895	+	0.0217	-	0.368	+	0.000926	-	0.056	+
106	-37866.71138	24.046	0	-	0.0024	-	0.526	+	0.0024	-	0.0409	-	3.57e-05	-	0.021	-
107	-37848.94304	6.2777	0.0102	+	0.0849	+	0.988	+	0.085	+	0.801	+	0.00876	+	0.311	+
108	-37858.75099	16.086	0.0018	+	0.0624	+	0.778	+	0.0172	-	0.229	+	0.00171	-	0.0121	-
109	-37848.76713	6.1018	0.0009	-	0.0758	+	0.991	+	0.076	+	0.79	+	0.00172	-	0.196	+
110	-37849.49108	6.8258	0.0151	+	0.12	+	0.99	+	0.12	+	0.895	+	0.0132	+	0.288	+
111	-37849.49793	6.8326	0.0041	+	0.0488	-	0.98	+	0.0486	-	0.639	+	0.00424	+	0.226	+
112	-37852.46046	9.7951	0.0051	+	0.0944	+	0.917	+	0.0715	+	0.629	+	0.00542	+	0.0999	+
113	-37857.5369	14.872	0.0032	-	0.0409	-	0.81	+	0.0321	-	0.353	+	0.0032	-	0.153	+
114	-37845.31729	2.652	0.0206	+	0.258	+	0.999	+	0.258	+	0.994	+	0.0186	+	0.512	+
115	-37844.2378	1.5725	0.0285	+	0.241	+	1	+	0.241	+	0.994	+	0.023	+	0.614	+
116	-37853.32651	10.661	0.0004	-	0.0231	-	0.929	+	0.0231	-	0.39	+	0.00113	-	0.108	+
117	-37858.28118	15.616	0.0011	-	0.0331	-	0.768	+	0.033	-	0.367	+	0.00121	-	0.0684	+
118	-37844.59408	1.9288	0.0353	+	0.302	+	1	+	0.302	+	0.998	+	0.0296	+	0.671	+
119	-37853.43195	10.767	0.0185	+	0.103	+	0.923	+	0.0769	+	0.665	+	0.0158	+	0.146	+
120	-37843.07719	0.41187	0.0136	+	0.324	+	1	+	0.324	+	1	+	0.0196	+	0.714	+
121	-37873.53022	30.865	0.0006	-	0.0047	-	0.347	+	0.0037	-	0.0472	-	0.000463	-	0.00655	-
122	-37856.66361	13.998	0.0027	-	0.0582	+	0.857	+	0.0381	-	0.441	+	0.00306	-	0.0517	+
123	-37865.25565	22.59	0.0001	-	0.0027	-	0.572	+	0.0027	-	0.0409	-	0.000153	-	0.00496	-

2. C-terminal pentapeptides and beta-propeller clade (#10 on Figure 2) -- ciliate transfer from bacteria

TABLE SUMMARY

0/33 trees passing all tests violate proposed HGT

Consensus tree of trees passing all tests (newick format, UFBootstrap values provided):
(ETO09075.1 ciliateR N Ps_BPs,ETO29051.1__ciliateR_N_Ps_BPs,(((WP_052394068.1__ciliateb_N_Ps_BPs,WP_051213
716.1 ciliateb N Ps BPs)
100,(KAG0013349.1__ciliate_N_Ps_BPs,(KAF9117723.1__ciliate_N_Ps_BPs,OAQ28202.1__ciliate_N_Ps_BPs)100)97)
88,((XP 001446711.1 ciliate N Ps BPs,XP 001432032.1 ciliate N Ps BPs)
100,(((KYF61481.1 PNPase REase i N Ps BPs,(WP 030490998.1 Trypsin Calci REase i N Ps BPs,WP 044888278
.1 TIR Calci REase i N Ps BPs)88)100,WP 011318970.1 CASPASE REase i N Ps BPs)58,((WP 008079381.1__a-
hX3 N Ps,((WP 085052565.1 a-hX3 N Ps,(NES99197.1 a-hX3 N Ps,WP 051210891.1 a-hX3 N Ps)91)
100,(RVU85773.1 a-hX3 N Ps,WP 108194693.1 a-hX3 N Ps)94)70)100,((OII57448.1 TM TM_N__TMs_Cterm-
tail,(MSQ47516.1 TM TM N TMs Cterm-tail,WP 135201481.1 TM TM N TMs Cterm-tail)94)
88,(NEQ67966.1__TM_TM_N__TMs_Cterm-tail,WP_015393189.1__TM_TM_N__TMs_Cterm-tail)82)100)45)100)64)100);

4

Tree	logL	deltaL	bp-RELL		p-KH		p-SH		p-WKH		p-WSH		c-ELW		p-AU	
1	-24181.04336	3.17e-05	0.0179	+	0.496	+	1	+	0.496	+	1	+	0.038	+	0.927	+
2	-24186.20951	5.1662	0.0578	+	0.238	+	0.979	+	0.224	+	0.94	+	0.0516	+	0.402	+
3	-24183.82012	2.7768	0.0269	+	0.243	+	0.997	+	0.24	+	0.985	+	0.0309	+	0.475	+
4	-24262.24572	81.202	0	-	0	-	0.0004	-	0	-	0	-	2.95e-21	-	1.17e-63	-
5	-24201.69304	20.65	0	-	0.0124	-	0.542	+	0.0124	-	0.151	+	4.92e-05	-	0.00637	-
6	-24208.23649	27.193	0	-	0.0024	-	0.322	+	0.0024	-	0.0225	-	4.63e-05	-	0.00215	-
7	-24205.2476	24.204	0.0006	-	0.0086	-	0.414	+	0.0083	-	0.107	+	0.000479	-	0.00425	-
8	-24198.98704	17.944	0.0046	-	0.0356	-	0.605	+	0.0355	-	0.311	+	0.0048	-	0.0508	+
9	-24189.50082	8.4575	0.0009	-	0.0847	+	0.959	+	0.0846	+	0.769	+	0.00177	-	0.114	+
10	-24203.32459	22.281	0.0003	-	0.0069	-	0.473	+	0.0069	-	0.0741	-	0.000228	-	0.00345	-
11	-24189.47982	8.4365	0.0048	-	0.11	+	0.951	+	0.0519	+	0.565	+	0.00571	-	0.152	+
12	-24182.4095	1.3662	0.0904	+	0.382	+	1	+	0.382	+	1	+	0.0737	+	0.837	+
13	-24251.5826	70.539	0	-	0	-	0.0037	-	0	-	0	-	1.04e-12	-	0.000422	-
14	-24216.51479	35.471	0	-	0.0012	-	0.167	+	0.0006	-	0.0162	-	1.22e-05	-	0.00252	-
15	-24199.94575	18.902	0.0027	-	0.0223	-	0.572	+	0.0223	-	0.223	+	0.00275	-	0.038	-
16	-24183.76427	2.7209	0.0073	+	0.178	+	0.999	+	0.178	+	0.976	+	0.0154	+	0.391	+
17	-24187.17233	6.129	0	-	0.0887	+	0.993	+	0.0795	+	0.833	+	0.000578	-	0.225	+
18	-24204.03248	22.989	0.0004	-	0.0052	-	0.427	+	0.0052	-	0.0705	+	0.00026	-	0.0294	-
19	-24193.35994	12.317	0.0075	+	0.0751	+	0.828	+	0.0529	+	0.457	+	0.00711	+	0.0745	+
20	-24355.04298	174	0	-	0	-	0	-	0	-	0	-	1.15e-45	-	2.82e-82	-
21	-24187.08784	6.0445	0.0206	+	0.182	+	0.983	+	0.138	+	0.885	+	0.0189	+	0.34	+
22	-24183.45184	2.4085	0.0029	-	0.182	+	1	+	0.182	+	0.991	+	0.00768	+	0.44	+
23	-24181.17184	0.12851	0.0943	+	0.478	+	1	+	0.479	+	1	+	0.0748	+	0.879	+
24	-24205.19119	24.148	0.0017	-	0.0118	-	0.428	+	0.0118	-	0.111	+	0.00151	-	0.0169	-
25	-24278.72831	97.685	0	-	0	-	0.0002	-	0	-	0	-	1.83e-20	-	8.24e-40	-
26	-24185.30437	4.261	0.011	+	0.0872	+	0.997	+	0.0871	+	0.824	+	0.0121	+	0.315	+
27	-24241.71568	60.672	0	-	0	-	0.0148	-	0	-	0.0002	-	7.19e-13	-	9.65e-05	-
28	-24186.82002	5.7767	0.0222	+	0.188	+	0.975	+	0.159	+	0.886	+	0.0223	+	0.325	+
29	-24183.22435	2.181	0.0257	+	0.266	+	0.999	+	0.266	+	0.994	+	0.0254	+	0.496	+
30	-24199.82552	18.782	0.0014	-	0.0196	-	0.571	+	0.0093	-	0.109	+	0.00119	-	0.0128	-
31	-24186.89782	5.8545	0.0397	+	0.166	+	0.976	+	0.166	+	0.919	+	0.034	+	0.49	+
32	-24182.6977	1.6544	0.0783	+	0.313	+	0.999	+	0.313	+	0.997	+	0.062	+	0.663	+
33	-24208.23646	27.193	0.0001	-	0.0024	-	0.323	+	0.0024	-	0.0216	-	4.72e-05	-	0.00261	-
34	-24181.04332	0	0.0287	+	0.504	+	1	+	0.504	+	1	+	0.0381	+	0.926	+
35	-24204.14814	23.105	0.0027	-	0.0186	-	0.458	+	0.0167	-	0.165	+	0.00233	-	0.0362	-
36	-24187.16036	6.117	0.0676	+	0.2	+	0.967	+	0.19	+	0.898	+	0.0575	+	0.361	+
37	-24191.90207	10.859	0.0005	-	0.0364	-	0.895	+	0.0362	-	0.419	+	0.00117	-	0.109	+
38	-24200.03721	18.994	0.0006	-	0.0037	-	0.583	+	0.0037	-	0.0506	+	0.000436	-	0.0135	-
39	-24183.76444	2.7211	0.009	+	0.176	+	0.999	+	0.176	+	0.981	+	0.015	+	0.409	+
40	-24189.93939	8.8961	0.0209	+	0.118	+	0.902	+	0.118	+	0.759	+	0.0196	+	0.229	+
41	-24205.62944	24.586	0.0005	-	0.0166	-	0.4	+	0.0152	-	0.13	+	0.000666	-	0.0154	-
42	-24194.80814	13.765	0.0134	+	0.0789	+	0.746	+	0.0709	+	0.524	+	0.0124	+	0.11	+
43	-24186.03344	4.9901	0.0104	+	0.0864	+	0.991	+	0.0924	+	0.8	+	0.0111	+	0.25	+
44	-24188.06954	7.0262	0.0048	-	0.132	+	0.971	+	0.132	+	0.876	+	0.00607	+	0.192	+
45	-24186.90357	5.8602	0.009	+	0.174	+	0.982	+	0.104	+	0.828	+	0.0115	+	0.254	+

46	-24193.05334	12.01	0.0015	-	0.0287	-	0.819	+	0.0287	-	0.339	+	0.00163	-	0.0695 +
47	-24208.23688	27.194	0	-	0.0024	-	0.322	+	0.0024	-	0.0227	-	4.6e-05	-	0.00315 -
48	-24183.45165	2.4083	0.0022	-	0.182	+	1	+	0.182	+	0.99	+	0.00769	+	0.372 +
49	-24193.15476	12.111	0.0021	-	0.0207	-	0.835	+	0.0209	-	0.263	+	0.00192	-	0.0479 -
50	-24211.90007	30.857	0	-	0.0018	-	0.239	+	0.0008	-	0.009	-	2.38e-05	-	0.000166 -
51	-24184.9888	3.9455	0.0036	-	0.184	+	0.998	+	0.159	+	0.966	+	0.00637	+	0.258 +
52	-24195.75547	14.712	0.002	-	0.035	-	0.746	+	0.0238	-	0.244	+	0.00249	-	0.0483 -
53	-24190.79618	9.7529	0.0055	+	0.0496	-	0.92	+	0.0495	-	0.528	+	0.00494	-	0.141 +
54	-24192.79203	11.749	0.0289	+	0.115	+	0.784	+	0.101	+	0.622	+	0.0258	+	0.168 +
55	-24190.58846	9.5451	0.0422	+	0.117	+	0.856	+	0.113	+	0.679	+	0.0356	+	0.269 +
56	-24183.08876	2.0454	0.0089	+	0.236	+	1	+	0.236	+	0.995	+	0.0133	+	0.586 +
57	-24207.61634	26.573	0	-	0.0051	-	0.321	+	0.0028	-	0.0376	-	1.67e-05	-	0.00322 -
58	-24213.93021	32.887	0	-	0.0004	-	0.209	+	0.0004	-	0.0038	-	8.57e-06	-	1.2e-09 -
59	-24181.86787	0.82454	0.009	+	0.268	+	1	+	0.267	+	0.999	+	0.0195	+	0.724 +
60	-24204.61528	23.572	0.0006	-	0.0069	-	0.43	+	0.0045	-	0.0425	-	0.000556	-	0.011 -
61	-24187.39051	6.3472	0.018	+	0.173	+	0.975	+	0.169	+	0.903	+	0.0176	+	0.256 +
62	-24207.75589	26.713	0.0001	-	0.0017	-	0.337	+	0.0027	-	0.0217	-	3.78e-05	-	0.000233 -
63	-24198.5062	17.463	0.0064	+	0.032	-	0.625	+	0.032	-	0.326	+	0.00586	+	0.0625 +
64	-24182.19117	1.1478	0.0409	+	0.32	+	1	+	0.319	+	0.999	+	0.0364	+	0.75 +
65	-24183.92687	2.8835	0.0088	+	0.204	+	0.999	+	0.143	+	0.954	+	0.0118	+	0.332 +
66	-24200.01069	18.967	0.0003	-	0.0089	-	0.591	+	0.0092	-	0.11	+	0.000271	-	0.0138 -
67	-24204.04409	23.001	0.0002	-	0.0059	-	0.435	+	0.0065	-	0.064	+	0.000139	-	0.01 -
68	-24183.17182	2.1285	0.01	+	0.234	+	1	+	0.233	+	0.994	+	0.0149	+	0.585 +
69	-24181.86797	0.82465	0.012	+	0.268	+	1	+	0.268	+	0.999	+	0.0195	+	0.77 +
70	-24200.68481	19.641	0	-	0.0027	-	0.562	+	0.0027	-	0.0444	-	0.000216	-	0.0105 -
71	-24188.73272	7.6894	0.0015	-	0.104	+	0.972	+	0.0936	+	0.798	+	0.00265	-	0.267 +
72	-24202.75671	21.713	0.0001	-	0.0105	-	0.495	+	0.0079	-	0.075	+	0.00039	-	0.0101 -
73	-24183.67049	2.6272	0.0335	+	0.283	+	0.998	+	0.258	+	0.992	+	0.0303	+	0.558 +
74	-24192.56251	11.519	0.0072	+	0.0556	+	0.867	+	0.044	-	0.474	+	0.0063	+	0.123 +
75	-24183.94647	2.9031	0.0257	+	0.27	+	0.998	+	0.249	+	0.99	+	0.0241	+	0.548 +
76	-24206.89145	25.848	0.0001	-	0.0048	-	0.365	+	0.0038	-	0.053	+	8.19e-05	-	0.00981 -
77	-24186.29724	5.2539	0.0212	+	0.139	+	0.991	+	0.139	+	0.908	+	0.0182	+	0.325 +
78	-24183.96798	2.9247	0.0118	+	0.196	+	0.999	+	0.196	+	0.978	+	0.0138	+	0.43 +
79	-24193.38685	12.344	0.0049	+	0.0257	-	0.818	+	0.0258	-	0.272	+	0.00367	-	0.0521 +
80	-24197.76667	16.723	0.0019	-	0.028	-	0.693	+	0.0241	-	0.268	+	0.00162	-	0.0251 -
81	-24184.82574	3.7824	0.0008	-	0.153	+	0.999	+	0.153	+	0.971	+	0.00321	-	0.169 +

3. Ancient archeao-eukaryotic clade (#19, Figure 2) -- transfer from archaea to Kipferlia diplomonad

TABLE SUMMARY

0/40 trees passing all tests violate proposed transfer

Consensus tree of trees passing all tests (newick format, UFBootstrap values provided):
(GCA61984.1 Kbia ancient,(GIQ85004.1 Kbia ancient,GIQ86837.1 Kbia ancient)
93,(((MCD6484933.1 Odin ancient N FHA,UCE10343.1 Thor ancient N HEATs)55,MBD3349954.1 Loki ancient)
53,(WP 167424763.1 N TPRs REase,((PYT57412.1 N TPRs REase,((KYF62697.1 N__TPRs_PNPase,OGV08813.1__N__T
PRs REase)73,(WP 013718337.1 N TPRs REase,OQZ04106.1 N TPRs REase)70)45)
88,(MBS82255.1__N_____GT4,WP_069042340.1__N_____GT4)75)100)100)95);

```
Tree      logL    deltaL   bp-RELL      p-KH        p-SH       p-WKH      p-WSH        c-ELW        p-AU
---------------------------------------------------------------------------------------------------------------
  1 -12784.21843        0  0.0053 +    0.491 +       1 +    0.507 +        1 +    0.0395 +      0.921 +
  2 -12786.94517   2.7267  0.0047 -    0.188 +   0.998 +    0.188 +    0.977 +    0.0101 +      0.566 +
  3 -12803.88756   19.669  0.0006 -   0.0273 -   0.361 +   0.0165 -    0.237 +  0.000515 -      0.044 -
  4 -12803.40371   19.185  0.0008 -   0.0162 -   0.401 +   0.0162 -    0.195 +  0.000655 -     0.0241 -
  5 -12786.63166   2.4132  0.0157 +    0.252 +   0.992 +    0.252 +    0.979 +    0.0255 +      0.569 +
  6 -12791.09177   6.8733  0.0068 +    0.195 +   0.941 +    0.102 +    0.797 +   0.00725 +      0.262 +
  7 -12795.94777   11.729  0.0003 -   0.0706 +   0.752 +   0.0241 -    0.348 +  0.000735 -      0.112 +
  8 -12794.36888    10.15  0.0057 +    0.119 +   0.817 +   0.0901 +    0.711 +   0.00482 +      0.135 +
  9 -12798.47122   14.253  0.0008 -    0.051 +   0.633 +   0.0448 -    0.491 +  0.000956 -     0.0419 -
 10 -12792.61908   8.4006  0.0003 -    0.115 +   0.873 +   0.0315 -    0.413 +   0.00222 -     0.0876 +
 11 -12786.84583   2.6274  0.0436 +    0.145 +   0.987 +    0.143 +    0.839 +    0.0315 +      0.395 +
 12 -12791.84164   7.6232   0.005 +    0.165 +   0.907 +   0.0773 +    0.673 +    0.0052 +      0.161 +
 13 -12800.43035   16.212   0.002 -   0.0435 -   0.532 +   0.0243 -     0.32 +     0.002 -      0.042 -
 14 -12802.36236   18.144  0.0003 -   0.0131 -   0.432 +    0.013 -    0.193 +  0.000392 -      0.053 +
 15 -12794.64221   10.424  0.0009 -   0.0906 +   0.774 +   0.0241 -    0.337 +   0.00178 -      0.114 +
 16 -12841.71886     57.5       0 -        0 -  0.0032 -        0 -        0 -  1.03e-07 -   8.56e-06 -
 17 -12805.35665   21.138       0 -   0.0251 -   0.325 +   0.0083 -    0.132 +  5.17e-05 -    0.00412 -
 18 -12804.66904   20.451  0.0002 -   0.0237 -   0.342 +   0.0147 -    0.218 +   0.00026 -      0.024 -
 19 -12813.96923   29.751       0 -   0.0008 -   0.124 +   0.0008 -   0.0066 -  1.57e-05 -    0.00117 -
 20 -12794.36321   10.145  0.0124 +    0.149 +   0.798 +    0.102 +    0.712 +    0.0114 +      0.191 +
 21  -12801.9468   17.728  0.0001 -   0.0322 -   0.454 +   0.0238 -    0.323 +  0.000307 -     0.0058 -
 22 -12814.92132   30.703       0 -   0.0012 -   0.113 +   0.0016 -   0.0263 -  1.99e-05 -   0.000566 -
 23 -12788.53353   4.3151  0.0314 +    0.231 +   0.976 +    0.231 +    0.969 +    0.0311 +      0.611 +
 24 -12816.90969   32.691       0 -   0.0026 -  0.0851 +   0.0005 -   0.0083 -  8.45e-07 -    0.00208 -
 25 -12809.57234   25.354  0.0004 -   0.0076 -   0.209 +   0.0038 -   0.0507 +  0.000265 -    0.00109 -
 26 -12838.89299   54.675       0 -   0.0001 -  0.0039 -   0.0001 -   0.0011 -  4.78e-11 -     0.0012 -
 27 -12797.89338   13.675  0.0001 -   0.0121 -   0.662 +   0.0121 -    0.197 +  0.000269 -     0.0389 -
 28  -12814.4733   30.255       0 -   0.0009 -   0.122 +   0.0009 -   0.0111 -  1.64e-05 -    0.00147 -
 29 -12789.11106   4.8926  0.0012 -    0.248 +   0.984 +    0.144 +    0.918 +   0.00556 +       0.23 +
 30 -12786.45705   2.2386  0.0275 +    0.194 +   0.996 +    0.195 +    0.956 +    0.0224 +       0.49 +
 31 -12786.49594   2.2775  0.0055 +    0.301 +   0.998 +     0.26 +    0.991 +   0.00946 +      0.367 +
 32 -12784.21865  0.00022  0.0199 +    0.498 +       1 +    0.498 +        1 +    0.0397 +      0.923 +
 33  -12796.0416   11.823  0.0066 +   0.0795 +    0.73 +   0.0757 +    0.549 +   0.00625 +      0.124 +
 34 -12805.53194   21.314  0.0001 -   0.0075 -   0.309 +   0.0029 -   0.0632 +  9.24e-05 -    0.00125 -
 35  -12785.5419   1.3235   0.132 +    0.417 +   0.995 +     0.41 +    0.994 +     0.103 +      0.661 +
 36 -12792.11273   7.8943  0.0065 +   0.0891 +   0.921 +   0.0886 +    0.734 +   0.00578 +      0.186 +
 37 -12820.79787   36.579       0 -   0.0018 -   0.047 -   0.0007 -   0.0079 -  1.81e-06 -    0.00035 -
 38 -12795.31265   11.094  0.0001 -   0.0491 -   0.771 +   0.0363 -     0.42 +  0.000305 -     0.0196 -
 39  -12784.7963  0.57787  0.0483 +    0.457 +       1 +    0.457 +        1 +    0.0481 +      0.839 +
 40 -12795.89976   11.681  0.0025 -   0.0262 -   0.754 +   0.0261 -    0.336 +   0.00241 -      0.054 +
 41 -12798.14195   13.924  0.0013 -   0.0673 +   0.633 +   0.0295 -    0.355 +   0.00123 -     0.0417 -
 42 -12787.57204   3.3536  0.0526 +    0.325 +   0.992 +    0.271 +    0.988 +    0.0398 +      0.623 +
 43 -12798.30674   14.088  0.0001 -   0.0092 -   0.637 +   0.0092 -    0.166 +  0.000167 -     0.0115 -
 44 -12794.64234   10.424  0.0015 -   0.0901 +   0.774 +   0.0241 -    0.333 +   0.00177 -      0.117 +
 45 -12794.04645    9.828  0.0169 +   0.0993 +   0.795 +   0.0988 +    0.653 +    0.0141 +      0.148 +
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46 -12820.94593  36.727       0 - 0.0036 -  0.067 + 0.0006 - 0.0058 -  2.22e-06 - 3.14e-05 -
47 -12802.43485  18.216       0 - 0.0031 -   0.44 + 0.0031 - 0.0723 +  0.000173 -   0.0197 -
48 -12797.81776  13.599  0.0013 - 0.0682 +  0.627 + 0.0211 -  0.282 +   0.00115 -   0.0466 -
49 -12795.97244  11.754  0.0007 - 0.0331 -  0.758 + 0.0329 -  0.419 +  0.000974 -   0.0608 +
50 -12798.66996  14.452  0.0004 - 0.0537 +  0.618 + 0.0267 -  0.342 +  0.000643 -   0.0127 -
51 -12806.30524  22.087       0 - 0.0079 -   0.29 + 0.0079 -  0.142 +  1.41e-05 - 2.61e-05 -
52 -12806.65934  22.441       0 - 0.0068 -  0.282 + 0.0017 - 0.0314 -  3.95e-05 -   0.0229 -
53 -12787.58331  3.3649  0.0043 -  0.309 +  0.996 +  0.176 +  0.966 +   0.00966 +    0.443 +
54 -12796.63074  12.412  0.0015 - 0.0424 -  0.714 + 0.0422 -  0.448 +   0.00164 -    0.11 +
55 -12787.41535  3.1969  0.0193 +  0.315 +  0.989 +  0.241 +  0.966 +    0.0219 +    0.465 +
56 -12787.58322  3.3648  0.0053 +  0.309 +  0.996 +  0.176 +  0.974 +   0.00964 +    0.438 +
57 -12793.22729  9.0089  0.0214 +  0.102 +   0.83 +  0.102 +  0.652 +    0.0169 +    0.169 +
58 -12802.32836   18.11  0.0005 - 0.0205 -  0.438 + 0.0101 -  0.152 +  0.000562 -   0.0171 -
59 -12787.41538   3.197  0.0223 +  0.315 +  0.989 +   0.24 +  0.984 +    0.0218 +    0.441 +
60 -12788.64548   4.427  0.0003 -  0.239 +  0.983 + 0.0954 +  0.807 +   0.00356 -   0.0971 +
61 -12795.77468  11.556  0.0205 + 0.0733 +  0.728 + 0.0731 +  0.561 +    0.0172 +    0.181 +
62 -12786.94523  2.7268  0.0082 +  0.188 +  0.998 +  0.188 +  0.978 +    0.0101 +    0.571 +
63 -12793.37546   9.157  0.0101 + 0.0715 +  0.872 + 0.0714 +  0.638 +   0.00718 +    0.198 +
64 -12794.64221  10.424  0.0012 - 0.0906 +  0.774 + 0.0241 -  0.344 +   0.00178 -    0.115 +
65 -12818.65065  34.432       0 - 0.0021 - 0.0691 + 0.0009 -   0.01 -  1.24e-06 - 0.000349 -
66 -12827.22104  43.003       0 -      0 -  0.022 -      0 -  0.001 -  9.67e-10 - 6.12e-44 -
67 -12794.72071  10.502  0.0111 + 0.0967 +  0.793 + 0.0965 +   0.72 +   0.00893 +     0.17 +
68 -12801.12608  16.908  0.0025 - 0.0352 -  0.486 + 0.0138 -  0.194 +   0.00168 -   0.0433 -
69 -12790.60696  6.3885  0.0001 - 0.0931 +  0.958 + 0.0926 +  0.779 +   0.00117 -   0.0312 -
70 -12784.21852 8.5e-05  0.0259 +  0.508 +      1 +  0.508 +      1 +    0.0394 +    0.922 +
71 -12802.43424  18.216  0.0002 - 0.0031 -   0.44 + 0.0031 - 0.0613 +  0.000176 -   0.0195 -
72 -12786.63155  2.4131  0.0258 +  0.254 +  0.992 +  0.254 +  0.974 +    0.0261 +    0.553 +
73 -12796.51177  12.293  0.0003 - 0.0552 +  0.726 + 0.0143 -  0.257 +  0.000367 -   0.0323 -
74 -12788.64551  4.4271  0.0007 -  0.239 +  0.983 + 0.0955 +  0.833 +   0.00356 -   0.0939 +
75 -12784.21866 0.00023  0.0398 +  0.505 +      1 +  0.496 +      1 +    0.0393 +    0.924 +
76 -12815.67158  31.453       0 - 0.0005 -  0.102 + 0.0005 - 0.0162 -  6.14e-06 -  0.00531 -
77 -12788.53339   4.315  0.0359 +  0.231 +  0.975 +  0.231 +  0.957 +    0.0318 +    0.609 +
78 -12798.73932  14.521  0.0008 - 0.0187 -  0.614 + 0.0188 -  0.278 +  0.000657 -   0.0319 -
79 -12786.49594  2.2775  0.0064 +  0.302 +  0.998 +   0.26 +  0.994 +   0.00941 +    0.408 +
80 -12784.79628 0.57785  0.0514 +  0.457 +      1 +  0.457 +      1 +    0.0481 +    0.812 +
81 -12784.21858 0.00014  0.0531 +  0.493 +      1 +  0.493 +      1 +    0.0397 +     0.82 +
82 -12798.60699  14.389  0.0009 - 0.0392 -  0.616 + 0.0212 -  0.308 +  0.000747 -   0.0471 -
83 -12792.61917  8.4007  0.0014 -  0.115 +  0.873 + 0.0314 -  0.395 +   0.00223 -   0.0873 +
84 -12812.21799      28       0 - 0.0009 -  0.151 + 0.0008 -  0.022 -  1.11e-05 - 0.000391 -
85 -12798.36576  14.147  0.0011 - 0.0703 +  0.603 +  0.018 -  0.242 +   0.00123 -   0.0488 -
86 -12802.32857   18.11  0.0001 -  0.016 -  0.443 + 0.0101 -  0.181 +  0.000136 -   0.0129 -
87 -12797.20467  12.986   0.001 - 0.0752 +  0.684 +  0.024 -  0.326 +   0.00112 -   0.0558 +
88 -12797.18369  12.965  0.0006 - 0.0694 +  0.682 + 0.0159 -  0.255 +  0.000859 -   0.0181 -
89 -12807.42679  23.208       0 - 0.0007 -  0.247 + 0.0007 - 0.0188 -   3.3e-05 - 0.000316 -
90 -12794.42024  10.202  0.0107 + 0.0576 +  0.793 + 0.0573 +  0.511 +   0.00871 +     0.12 +
91 -12787.58326  3.3648  0.0067 +  0.309 +  0.996 +  0.177 +  0.967 +   0.00964 +    0.448 +
92 -12804.17509  19.957   0.001 - 0.0208 -  0.369 + 0.0089 -  0.137 +  0.000738 -   0.0156 -
93 -12819.32203  35.104       0 - 0.0005 - 0.0573 +      0 - 0.0049 -  1.82e-08 -  0.00268 -
94 -12789.53683  5.3184  0.0163 +  0.217 +  0.949 +  0.111 +  0.763 +    0.0134 +    0.287 +
```

Tree	logL	deltaL	bp-RELL		p-KH		p-SH		p-WKH		p-WSH		c-ELW		p-AU	
95	-12788.89715	4.6787	0.0043	-	0.202	+	0.993	+	0.161	+	0.959	+	0.00426	+	0.395	+
96	-12790.78039	6.562	0.006	+	0.19	+	0.951	+	0.153	+	0.905	+	0.00745	+	0.259	+
97	-12821.28915	37.071	0	-	0.0005	-	0.0396	-	0.0001	-	0.0044	-	1.25e-07	-	5.22e-14	-
98	-12786.63169	2.4133	0.032	+	0.255	+	0.992	+	0.254	+	0.973	+	0.0262	+	0.558	+
99	-12787.17701	2.9586	0.0099	+	0.17	+	0.998	+	0.168	+	0.957	+	0.00939	+	0.526	+
100	-12794.67039	10.452	0.0158	+	0.136	+	0.778	+	0.0902	+	0.63	+	0.0134	+	0.175	+
101	-12795.95721	11.739	0.0004	-	0.0703	+	0.751	+	0.0234	-	0.347	+	0.000741	-	0.0926	+
102	-12790.72177	6.5033	0.0002	-	0.0773	+	0.978	+	0.077	+	0.807	+	0.000573	-	0.082	+
103	-12789.87216	5.6537	0.0501	+	0.261	+	0.948	+	0.222	+	0.925	+	0.0384	+	0.397	+
104	-12791.03157	6.8131	0.0077	+	0.0402	-	0.928	+	0.0393	-	0.45	+	0.00519	+	0.148	+
105	-12794.07212	9.8537	0.0009	-	0.036	-	0.855	+	0.036	-	0.458	+	0.000929	-	0.11	+
106	-12815.44845	31.23	0	-	0.0028	-	0.105	+	0.0008	-	0.0057	-	9.54e-07	-	0.00342	-
107	-12792.61909	8.4007	0.0015	-	0.115	+	0.873	+	0.0316	-	0.412	+	0.00222	-	0.0873	+

4. FGS fungal clade (#25, Figure 2) -- transfer from bacteria to fungi

TABLE SUMMARY

0/31 trees passing all tests violate proposed HGT

Consensus tree of trees passing all tests (newick format, UFBootstrap values provided):
(MBS82255.1 N   GT4:0.3224437721,((PYT57412.1 N TPRs_REase:0.4601411188,((WP_013718337.1__N__TPRs_REas
e:0.4735340707,OQZ04106.1 N TPRs REase:0.2843763309)
57:0.0759619584,(KYF62697.1__N__TPRs_PNPase:0.7550867126,OGV08813.1__N__TPRs_REase:1.0213783886)
93:0.2357060982)71:0.1478463297)100:1.1303479686,WP 069042340.1 N   GT4:1.2136221582)
77:0.2938474793,(((TGO55078.1 fungaltran N FGS:0.1010656496,TGO34536.1__fungaltran_N_FGS:0.1285375924)
99:0.6159524469,RDW59160.1 fungaltran N FGS:0.4077773105)
60:0.0000028503,(TEA17700.1 fungaltran N FGS:0.5984228430,((KAF2994206.1 fungaltran N FGS:0.9969535327,(W
P 051977175.1 bfungaltran N FGS:0.3352793208,WP 136954386.1 bfungaltran N FGS:0.5518245400)
100:0.5741939265)35:0.0872225414,RAO64702.1__fungaltran_N_FGS:0.6072097770)26:0.0969540410)58:0.2085147687)
100:4.6755786689);

Tree	logL	deltaL	bp-RELL		p-KH		p-SH		p-WKH		p-WSH		c-ELW		p-AU	
1	-13581.2866	0	0.0023	-	0.504	+	1	+	0.491	+	1	+	0.0247	+	0.846	+
2	-13585.20908	3.9225	0.0009	-	0.185	+	0.992	+	0.113	+	0.883	+	0.00373	+	0.171	+
3	-13659.799	78.512	0	-	0	-	0.0005	-	0	-	0	-	7.63e-20	-	3.03e-05	-
4	-13590.75813	9.4715	0.0021	-	0.0628	+	0.924	+	0.0628	+	0.673	+	0.00216	+	0.133	+
5	-13657.10799	75.821	0	-	0	-	0.0011	-	0	-	0	-	1.57e-14	-	2.37e-76	-
6	-13593.90755	12.621	0.0089	+	0.0974	+	0.799	+	0.0749	+	0.587	+	0.00837	+	0.124	+
7	-13585.75863	4.472	0.0003	-	0.154	+	0.991	+	0.11	+	0.883	+	0.00104	-	0.0789	+
8	-13589.19333	7.9067	0.002	-	0.06	+	0.956	+	0.0601	+	0.66	+	0.00198	-	0.138	+
9	-13585.38739	4.1008	0.0308	+	0.248	+	0.979	+	0.208	+	0.934	+	0.0277	+	0.395	+
10	-13621.81951	40.533	0	-	0.0006	-	0.0669	+	0.0003	-	0.0105	-	9.77e-08	-	0.000543	-
11	-13608.83135	27.545	0.0002	-	0.0101	-	0.273	+	0.0078	-	0.104	+	0.000185	-	0.00334	-
12	-13654.6103	73.324	0	-	0	-	0.0022	-	0	-	0.0004	-	2.52e-15	-	1.86e-06	-
13	-13673.5292	92.243	0	-	0	-	0.0001	-	0	-	0	-	8.34e-19	-	0.000164	-
14	-13588.54962	7.263	0.0208	+	0.143	+	0.951	+	0.1	+	0.737	+	0.0183	+	0.237	+
15	-13588.28193	6.9953	0.0369	+	0.179	+	0.934	+	0.155	+	0.825	+	0.0308	+	0.277	+

#									
16	-13601.21806	19.931	0.0009 -	0.0317 -	0.498 +	0.0188 -	0.217 +	0.000974 -	0.00943 -
17	-13591.37788	10.091	0.0032 +	0.0976 +	0.875 +	0.0404 -	0.48 +	0.00256 +	0.087 +
18	-13611.17828	29.892	0.0005 -	0.0075 -	0.214 +	0.0037 -	0.0503 +	0.000323 -	0.00367 -
19	-13633.47253	52.186	0 -	0.0002 -	0.0289 -	0 -	0.0002 -	2.95e-10 -	9.44e-08 -
20	-13603.86592	22.579	0.0002 -	0.0134 -	0.411 +	0.0045 -	0.0943 +	0.000213 -	0.00112 -
21	-13585.5917	4.3051	0.0003 -	0.259 +	0.992 +	0.106 +	0.894 +	0.00186 -	0.0692 +
22	-13581.52031	0.23371	0.0015 -	0.485 +	1 +	0.485 +	1 +	0.0223 +	0.833 +
23	-13618.12236	36.836	0 -	0.0069 -	0.13 +	0.0036 -	0.0422 -	4.07e-05 -	0.0049 -
24	-13583.91425	2.6276	0.0279 +	0.309 +	0.997 +	0.271 +	0.99 +	0.0238 +	0.627 +
25	-13587.39605	6.1095	0.0017 -	0.184 +	0.96 +	0.0577 +	0.62 +	0.00271 +	0.163 +
26	-13582.259	0.9724	0.0539 +	0.426 +	0.998 +	0.397 +	0.997 +	0.0445 +	0.621 +
27	-13581.52036	0.23376	0.0064 +	0.485 +	1 +	0.485 +	1 +	0.0223 +	0.837 +
28	-13581.3907	0.1041	0.0514 +	0.493 +	1 +	0.493 +	1 +	0.0445 +	0.829 +
29	-13626.98853	45.702	0 -	0.0004 -	0.0345 -	0.0003 -	0.0035 -	1.22e-09 -	0.00038 -
30	-13587.78449	6.4979	0.0083 +	0.199 +	0.963 +	0.154 +	0.893 +	0.00852 +	0.206 +
31	-13583.94996	2.6634	0.0415 +	0.329 +	0.996 +	0.305 +	0.99 +	0.0335 +	0.572 +
32	-13601.01179	19.725	0.0001 -	0.016 -	0.508 +	0.0048 -	0.0948 +	0.00014 -	0.0215 -
33	-13583.8218	2.5352	0.0352 +	0.372 +	0.996 +	0.328 +	0.995 +	0.029 +	0.662 +
34	-13594.65498	13.368	0.0045 +	0.0486 -	0.754 +	0.0433 -	0.446 +	0.00407 +	0.0879 +
35	-13584.96705	3.6805	0.0057 +	0.304 +	0.992 +	0.214 +	0.972 +	0.00766 +	0.31 +
36	-13586.46771	5.1811	0.001 -	0.231 +	0.99 +	0.15 +	0.951 +	0.00228 -	0.207 +
37	-13591.69506	10.408	0.0061 +	0.122 +	0.866 +	0.0635 +	0.591 +	0.00487 +	0.0974 +
38	-13581.52034	0.23374	0.0098 +	0.486 +	1 +	0.486 +	1 +	0.0222 +	0.837 +
39	-13595.41567	14.129	0.0013 -	0.0689 +	0.732 +	0.0216 -	0.3 +	0.00149 -	0.0699 +
40	-13604.36611	23.08	0.0008 -	0.0319 -	0.389 +	0.006 -	0.0732 +	0.000598 -	0.0129 -
41	-13585.13379	3.8472	0.008 +	0.247 +	0.99 +	0.209 +	0.965 +	0.00725 +	0.316 +
42	-13592.27308	10.986	0.0001 -	0.125 +	0.824 +	0.0358 -	0.432 +	0.00183 -	0.108 +
43	-13585.59152	4.3049	0.0002 -	0.259 +	0.992 +	0.106 +	0.894 +	0.00189 -	0.117 +
44	-13592.27548	10.989	0.0008 -	0.125 +	0.824 +	0.0358 -	0.422 +	0.00185 -	0.112 +
45	-13584.7934	3.5068	0.0612 +	0.286 +	0.982 +	0.249 +	0.955 +	0.0497 +	0.485 +
46	-13599.77539	18.489	0 -	0.0165 -	0.565 +	0.0028 -	0.0567 +	9.27e-06 -	0.00186 -
47	-13585.59167	4.3051	0.0004 -	0.259 +	0.992 +	0.106 +	0.904 +	0.00186 -	0.0704 +
48	-13589.19992	7.9133	0.0001 -	0.0379 -	0.949 +	0.0348 -	0.51 +	0.00049 -	0.0573 +
49	-13581.52036	0.23376	0.0138 +	0.485 +	1 +	0.485 +	1 +	0.0223 +	0.834 +
50	-13606.99709	25.71	0.0007 -	0.0196 -	0.324 +	0.0089 -	0.12 +	0.000593 -	0.0163 -
51	-13590.66951	9.3829	0.0059 +	0.143 +	0.894 +	0.0857 +	0.705 +	0.00538 +	0.127 +
52	-13584.68149	3.3949	0.0522 +	0.338 +	0.99 +	0.291 +	0.984 +	0.0394 +	0.608 +
53	-13586.95075	5.6642	0.0039 +	0.0674 +	0.97 +	0.067 +	0.673 +	0.00381 +	0.162 +
54	-13581.29565	0.00905	0.0098 +	0.447 +	1 +	0.447 +	1 +	0.0245 +	0.743 +
55	-13591.9575	10.671	0.0016 -	0.0355 -	0.849 +	0.0149 -	0.245 +	0.00174 -	0.0681 +
56	-13586.44704	5.1604	0.003 +	0.0717 +	0.973 +	0.065 +	0.642 +	0.00462 +	0.269 +
57	-13586.157	4.8704	0.0138 +	0.192 +	0.983 +	0.192 +	0.95 +	0.0131 +	0.404 +
58	-13583.64202	2.3554	0.004 +	0.188 +	0.999 +	0.181 +	0.975 +	0.00602 +	0.399 +
59	-13600.9955	19.709	0.0003 -	0.0189 -	0.515 +	0.0193 -	0.257 +	0.000281 -	0.0361 -
60	-13609.34697	28.06	0.0001 -	0.0114 -	0.251 +	0.0054 -	0.0775 +	0.00016 -	0.00331 -
61	-13581.52033	0.23373	0.0156 +	0.485 +	1 +	0.485 +	1 +	0.0223 +	0.836 +
62	-13590.72017	9.4336	0.0046 +	0.069 +	0.879 +	0.0697 +	0.596 +	0.00398 +	0.108 +
63	-13582.49841	1.2118	0.0311 +	0.356 +	0.998 +	0.356 +	0.996 +	0.0218 +	0.513 +
64	-13592.68887	11.402	0.0008 -	0.0735 +	0.864 +	0.0545 +	0.597 +	0.000983 -	0.0619 +

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 65 -13587.07021  5.7836  0.0111 +   0.225 +  0.968 +  0.146 +  0.871 +   0.00993 +    0.276 +
 66 -13581.29572 0.00912  0.0148 +   0.448 +      1 +  0.448 +      1 +    0.0244 +    0.758 +
 67 -13584.26327  2.9767  0.0179 +   0.235 +  0.996 +  0.235 +  0.982 +    0.0152 +    0.544 +
 68 -13600.61419  19.328  0.0019 -  0.0387 -  0.522 +  0.0389 -  0.339 +   0.00192 -   0.0208 -
 69 -13599.61893  18.332  0.0008 -  0.0171 -   0.57 +  0.0147 -  0.199 +  0.000815 -   0.0302 -
 70 -13593.02083  11.734  0.0009 -   0.022 -  0.816 +  0.0222 -  0.323 +  0.000855 -   0.0342 -
 71 -13594.26268  12.976  0.0063 +  0.0898 +  0.778 +   0.055 +  0.495 +   0.00532 +    0.106 +
 72 -13597.63473  16.348  0.0018 -  0.0349 -   0.63 +  0.0342 -   0.36 +   0.00171 -   0.0291 -
 73 -13589.98998  8.7034   0.006 +   0.079 +  0.897 +  0.0777 +  0.639 +    0.0048 +    0.103 +
 74 -13596.44034  15.154  0.0001 -   0.033 -  0.699 +  0.0045 - 0.0916 +  4.57e-05 - 0.000374 -
 75 -13583.19252  1.9059  0.0049 +    0.38 +      1 +  0.183 +  0.976 +   0.00789 +    0.528 +
 76 -13586.48652  5.1999  0.0056 +  0.0704 +  0.974 +  0.0636 +  0.643 +   0.00427 +    0.187 +
 77 -13585.54484  4.2582  0.0445 +   0.287 +  0.975 +  0.207 +  0.923 +    0.0321 +    0.387 +
 78 -13585.19435  3.9077  0.0058 +   0.246 +  0.991 +  0.207 +   0.97 +   0.00637 +    0.383 +
 79 -13600.99006  19.703  0.0001 - 0.0139 -  0.515 +  0.0057 - 0.0998 +  0.000195 -  0.00654 -
 80 -13592.21403  10.927  0.0017 -   0.114 +  0.838 +  0.0302 -  0.414 +     0.002 -   0.0758 +
 81 -13622.39167  41.105       0 -  0.0001 - 0.0605 +  0.0002 - 0.0027 -  4.89e-10 -  1.8e-240 -
 82  -13581.6517  0.3651  0.0263 +   0.475 +      1 +   0.46 +      1 +    0.0238 +    0.748 +
 83 -13609.16712  27.881       0 -   0.006 -  0.255 +  0.0029 -  0.033 -  9.63e-06 -  0.00912 -
 84  -13586.9424  5.6558  0.0059 +   0.215 +  0.968 +  0.0693 +  0.675 +   0.00443 +     0.22 +
 85 -13587.43868  6.1521  0.0025 -    0.18 +  0.961 +  0.055 +  0.633 +   0.00235 -    0.177 +
 86 -13608.15901  26.872       0 -  0.0074 -  0.276 +  0.0045 - 0.0768 +  6.39e-06 -   0.0093 -
 87 -13590.75283  9.4662  0.0003 -  0.0541 +  0.903 +  0.0322 -  0.474 +  0.000803 -   0.0515 +
 88 -13589.74847  8.4619  0.0107 +   0.129 +  0.919 +  0.129 +  0.838 +   0.00939 +    0.175 +
 89  -13584.5463  3.2597  0.0055 +   0.322 +  0.997 +   0.23 +   0.99 +   0.00738 +    0.423 +
 90 -13581.29565 0.00905  0.0181 +   0.448 +      1 +  0.448 +      1 +    0.0245 +    0.606 +
 91 -13591.10115  9.8146  0.0017 -  0.0641 +  0.907 +  0.0613 +  0.639 +   0.00174 -    0.104 +
 92 -13581.28696 0.00036   0.024 +   0.509 +      1 +  0.509 +      1 +    0.0249 +    0.868 +
 93 -13585.75871  4.4721  0.0003 -   0.154 +  0.991 +   0.11 +  0.891 +   0.00104 -   0.0806 +
 94 -13587.43868  6.1521  0.0017 -    0.18 +  0.961 +  0.055 +  0.639 +   0.00235 +    0.171 +
 95 -13581.65185 0.36525  0.0249 +   0.475 +      1 +   0.46 +      1 +    0.0239 +    0.748 +
 96 -13592.27458  10.988  0.0019 -   0.124 +  0.824 +  0.0358 -  0.428 +   0.00179 -    0.108 +
 97 -13585.26811  3.9815  0.0022 -   0.109 +  0.993 +  0.109 +  0.871 +   0.00311 +    0.284 +
 98 -13581.28675 0.00016  0.0316 +   0.496 +      1 +  0.496 +      1 +    0.0246 +    0.848 +
 99  -13597.2356  15.949  0.0004 -   0.038 -  0.679 +  0.0148 -   0.25 +  0.000453 -   0.0174 -
100 -13592.84592  11.559  0.0026 -  0.0479 -  0.831 +  0.0478 -   0.51 +   0.00206 -    0.081 +
101 -13583.30391  2.0173  0.0132 +    0.18 +  0.997 +   0.18 +  0.954 +   0.00893 +    0.413 +
102 -13596.26849  14.982  0.0036 +  0.0398 -  0.684 +  0.0399 -  0.391 +   0.00288 +    0.102 +
103 -13581.52098 0.23438  0.0278 +   0.485 +      1 +  0.485 +      1 +    0.0221 +    0.847 +
104 -13592.27445  10.988  0.0024 -   0.124 +  0.823 +  0.0356 -   0.43 +   0.00183 -     0.11 +
105 -13595.39112  14.105  0.0056 +  0.0912 +  0.705 +  0.0554 +  0.498 +   0.00483 +   0.0811 +
106 -13592.02818  10.742  0.0014 -  0.0801 +  0.851 +  0.0145 -  0.246 +  0.000971 -   0.0553 +
107 -13595.40474  14.118  0.0016 -   0.031 -  0.726 +  0.0266 -   0.33 +   0.00164 -   0.0875 +
108 -13591.45064  10.164  0.0046 +  0.0789 +  0.865 +  0.0348 -   0.42 +   0.00457 +   0.0828 +
109 -13582.74176  1.4552  0.0353 +   0.406 +  0.999 +  0.308 +  0.997 +     0.022 +    0.611 +
110 -13613.42732  32.141       0 -  0.0011 -  0.151 +  0.0011 - 0.0251 -  5.61e-08 - 0.000411 -
111 -13595.00669   13.72  0.0014 -  0.0219 -  0.741 +  0.0218 -  0.282 +   0.00111 -   0.0234 -
112  -13586.9845  5.6979  0.0058 +   0.212 +  0.968 +  0.0774 +  0.717 +   0.00529 +     0.19 +
113 -13594.42551  13.139  0.0035 +  0.0993 +  0.749 +  0.0384 -  0.422 +   0.00264 +   0.0783 +
```

114 -13586.31105 5.0244 0.0096 +   0.17 + 0.978 + 0.0881 + 0.768 +   0.00944 +   0.305 +