

Supplementary file S7 – RELAX Tables

Gene		Comparison	K	P-value	LR	$\omega 1$	$\omega 2$	$\omega 3$
AMEL	G	Reptiles [T] Mammals [R] RELAXATION	0.43	0	96.01	Null: 0.02 (55.31%) Alt [T] : 0.00 (57.04%) Alt [R] : 0.00 (57.04%)	Null: 0.56 (40.19%) Alt [T] : 0.64 (36.07%) Alt [R] : 0.36 (36.07%)	Null: 50.57 (4.50%) Alt [T] : 8.26 (6.89%) Alt [R] : 133.38 (6.89%)
		RELAX - Partitioned Descriptive Model				[T] : 0.00 (61.50%) [R] : 0.15 (58.07%)	[T] : 1.00 (37.20%) [R] : 0.15 (34.99%)	[T] : 103.95 (1.30%) [R] : 103.95 (6.94%)
	I	Crocodylian [T] Squamates [R] RELAXATION	0	0.001	10.61	Null: 0.02 (56.25%) Alt [T] : 0.00 (57.04%) Alt [R] : 0.00 (57.04%)	Null: 1.00 (42.00%) Alt [T] : 1.00 (44.16%) Alt [R] : 1.00 (44.16%)	Null: 28.77 (1.75%) Alt [T] : 1.00 (1.97%) Alt [R] : 37.01 (1.97%)
		RELAX - Partitioned Descriptive Model				[T] : 0.00 (75.94%) [R] : 0.01 (54.45%)	[T] : 0.07 (23.52%) [R] : 1.00 (43.57%)	[T] : 35.33 (0.54%) [R] : 35.33 (1.99%)
	K	Snakes [T] Crocodylian+ Lizards [R]	0.79	0.184	1.77			
	L	Snakes [T] Lizards [R] RELAXATION	.55	0.007	7.20	Null: 0.00 (55.84%) Alt [T] : 0.00 (55.82%) Alt [R] : 0.00 (55.82%)	Null: 1:00 (42.11%) Alt [T] : 1.00 (41.63%) Alt [R] : 1.00 (41.63%)	Null: 33.85 (2.05%) Alt [T] : 12.85 (2.55%) Alt [R] : 102.61 (2.55%)

*K=Relaxation Coefficient

*Partitioned Descriptive - This model, like a more standard branch-site model, fits three ω classes separately to each branch partition (reference and test, producing a total of six estimated ω rates estimated). The selection intensity parameter k is not included.

Gene		Comparison	K	P-value	LR	$\omega 1$	$\omega 2$	$\omega 3$
AMBN	A	Reptiles [T] Mammals [R] RELAXATION	0.66	0.000	17.18	Null: 0.00 (53.37%) Alt [T] : 0.00 (54.26%) Alt [R] : 0.00 (54.26%)	Null: 0.85 (44.21%) Alt [T] : 0.93 (43.16%) Alt [R] : 0.89 (43.16%)	Null: 20.50 (2.42%) Alt [T] : 9.7 (2.58%) Alt [R] : 31.29 (2.58%)
		RELAX - Partitioned Descriptive Model				[T] : 0.00 (50.54%) [R] : 0.00 (57.29%)	[T] : 0.70 (48.56%) [R] : 1.00 (39.79%)	[T] : 26.35 (0.91%) [R] : 26.35 (2.92%)
		C				Crocodylian [T] Squamates [R]	0.77	0.194
	E	Snakes [T] Crocodylian+ Lizards [R]	0.90	0.378	0.78			
	F	Snakes [T] Lizards [R]	1.09	0.746	0.11			

Gene		Comparison	K	P-value	LR	$\omega 1$	$\omega 2$	$\omega 3$			
ENAM	M	Reptiles [T] Mammals [R]	.95	0.307	1.05						
		Crocodylian [T] Squamates [R] RELAXATION				0.51	0	31.77	Null: 0.10 (51.93%) Alt [T] : 0.30 (50.84%) Alt [R] : 0.09 (50.84%)	Null: 1:00 (46.48%) Alt [T] : 1.00 (47.58%) Alt [R] : 1.00 (47.58%)	Null: 40.13 (1.59%) Alt [T] : 7.77 (1.59%) Alt [R] : 57.34 (1.59%)
		RELAX - Partitioned Descriptive Model							[T] : 0.12 (55.54%) [R] : 0.10 (50.70%)	[T] : 1.00 (44.43%) [R] : 1.00 (47.70%)	[T] : 57.92 (0.04%) [R] : 57.92 (1.60%)
	Q	Snakes [T] Crocodylian+ Lizards [R]	1.07	0.197	1.67						
	S	Snakes [T] Lizards [R]	0.92	0.199	1.65						