

Table S1.1 Maximum-likelihood parameter estimates for Elapidae nerve growth factors

Model	Likelihood (t)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$
					B.E.B
M0 (One ratio)	-4971.215787	0.86	= ω_0		-
M1 (Neutral)	-4872.409131	0.46	P ₀ : 0.622 ω_0 : 0.14 P ₁ : 0.377 ω_1 : 1.0		-
M2 (Selection)*	-4806.688787	0.94	P ₀ : 0.544 ω_0 : 0.19 P ₁ : 0.335 ω_1 : 1.0 P ₂ : 0.119 ω_2 : 4.23 P ₀ : 0.633 ω_0 : 0.24	P < 0.05	13 (PP \geq 0.99) 3 (P \geq 0.95)
M3 (Discrete)*	-4806.119053	0.97	P ₁ : 0.261 ω_1 : 1.31 P ₂ : 0.104 ω_2 : 4.56	P << 0.001	-
M7 (beta)	-4884.775245	0.50	p: 0.27770 q: 0.27293 p ₀ : 0.87 p: 0.538		-
M8 (beta and ω)*	-4808.052643	0.95	q: 0.574 p ₁ : 0.130 ω : 4.09	P < 0.05	14 (PP \geq 0.99) 5 (P > 0.95)

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

Table S1.2 Maximum-likelihood parameter estimates for Viperidae nerve growth factors

Model	Likelihood (l)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$
M0 (One ratio)	-2096.277194	0.72	= ω_0		-
M1 (Neutral)	-2088.212820	0.64	P_0 : 0.359 ω_0 : 0.0 P_1 : 0.640 ω_1 : 1.0		-
M2 (Selection)*	-2087.182712	0.77	P_0 : 0.361 ω_0 : 0.0 P_1 : 0.538 ω_1 : 1.0 P_2 : 0.099 ω_2 : 2.39 P_0 : 0.362 ω_0 : 0.0 P_1 : 0.542 ω_1 : 1.0 P_2 : 0.094 ω_2 : 2.42	$P > 0.05^{N.S}$	0 (PP ≥ 0.99) 0 (P ≥ 0.95)
M3 (Discrete)*	-2087.182664	0.77	p : 0.00811 q : 0.00500 p_0 : 0.902 p : 0.007 q : 0.005 p_1 : 0.0976 ω : 2.40	$P \ll 0.001$	-
M7 (beta)	-2088.414645	0.60			-
M8 (beta and ω)*	-2087.182783	0.77		$P > 0.05^{N.S}$	0 (PP ≥ 0.99) 0 (P ≥ 0.95)

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

$P > 0.05^{N.S}$: Not significant at 0.05

Table S1.3 Maximum-likelihood parameter estimates for ‘non-front-fanged’ advanced snake nerve growth factors

Model	Likelihood (l)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$
					B.E.B
M0 (One ratio)	-1627.071386	0.54	= ω_0		-
M1 (Neutral)	-1618.386483	0.51	P_0 : 0.487 ω_0 : 0.0 P_1 : 0.512 ω_1 : 1.0		-
M2 (Selection)*	-1617.549643	0.58	P_0 : 0.561 ω_0 : 0.07 P_1 : 0.373 ω_1 : 1.0 P_2 : 0.065 ω_2 : 2.63 P_0 : 0.419 ω_0 : 0.0	$P \ll 0.001$	0 (PP \geq 0.99) 0 (P \geq 0.95)
M3 (Discrete)*	-1617.506927	0.58	P_1 : 0.481 ω_1 : 0.71 P_2 : 0.099 ω_2 : 2.41	$P \ll 0.001$	-
M7 (beta)	-1618.399985	0.50	p: 0.01595 q: 0.01445 p_0 : 0.917 p: 0.179		-
M8 (beta and ω)*	-1617.527922	0.58	q: 0.253 p_1 : 0.082 ω : 2.50	$P \ll 0.001$	0 (PP \geq 0.99) 0 (P $>$ 0.95)

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

Table S1.4 Maximum-likelihood parameter estimates for Henophidia nerve growth factors

Model	Likelihood (t)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$
					B.E.B
M0 (One ratio)	-1515.110043	0.28	= ω_0		-
M1 (Neutral)	-1504.271757	0.29	P_0 : 0.726 ω_0 : 0.02 P_1 : 0.273 ω_1 : 1.0		-
M2 (Selection)*	-1504.231832	0.30	P_0 : 0.767 ω_0 : 0.0 P_1 : 0.370 ω_1 : 1.0 P_2 : 0.232 ω_2 : 1.13 P_0 : 0.512 ω_0 : 0.04	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)
M3 (Discrete)*	-1504.231832	0.30	P_1 : 0.254 ω_1 : 0.04 P_2 : 0.232 ω_2 : 1.13	P << 0.001	-
M7 (beta)	-1504.332117	0.30	p: 0.03702 q: 0.08621 p ₀ : 0.767 p: 5.124		-
M8 (beta and ω)*	-1504.235244	0.30	q: 99.0 p ₁ : 0.232 ω : 1.13	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

Table S1.5 Maximum-likelihood parameter estimates for Iguania nerve growth factors

Model	Likelihood (l)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$	B.E.B
M0 (One ratio)	-3790.346051	0.24	= ω_0			-
M1 (Neutral)	-3702.296471	0.29	P ₀ : 0.750 ω_0 : 0.05 P ₁ : 0.249 ω_1 : 1.0			-
M2 (Selection)*	-3702.296471	0.29	P ₀ : 0.750 ω_0 : 0.05 P ₁ : 0.162 ω_1 : 1.0 P ₂ : 0.086 ω_2 : 1.0 P ₀ : 0.431 ω_0 : 0.05 P ₁ : 0.301 ω_1 : 0.05 P ₂ : 0.266 ω_2 : 0.83	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)	
M3 (Discrete)*	-3700.970435	0.25	p: 0.19627 q: 0.57899 p ₀ : 0.996 p: 0.201 q: 0.607 p ₁ : 0.003 ω : 2.77	P << 0.001		-
M7 (beta)	-3705.105730	0.25				-
M8 (beta and ω)*	-3704.801826	0.25		P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)	

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

Table S1.6 Maximum-likelihood parameter estimates for Anguimorpha nerve growth factors

Model	Likelihood (l)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$
M0 (One ratio)	-1825.008075	0.31	= ω_0		-
M1 (Neutral)	-1817.374921	0.36	P_0 : 0.684 ω_0 : 0.075 P_1 : 0.315 ω_1 : 1.0		-
M2 (Selection)*	-1817.374921	0.36	P_0 : 0.684 ω_0 : 0.07 P_1 : 0.232 ω_1 : 1.0 P_2 : 0.082 ω_2 : 1.0 P_0 : 0.506 ω_0 : 0.0	$P \ll 0.001$	0 ($PP \geq 0.99$) 0 ($P > 0.95$)
M3 (Discrete)*	-1815.825499	0.31	P_1 : 0.252 ω_1 : 0.64 P_2 : 0.240 ω_2 : 0.64	$P \ll 0.001$	-
M7 (beta)	-1816.464744	0.33	p : 0.21976 q : 0.44133 p_0 : 0.999		-
M8 (beta and ω)*	-1816.464750	0.33	p : 0.219 q : 0.441 p_1 : 0.00001 ω : 1.0	$P \ll 0.001$	0 ($PP \geq 0.99$) 0 ($P > 0.95$)

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

Table S1.7 Maximum-likelihood parameter estimates for Gekkota nerve growth factors

Model	Likelihood (t)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$
M0 (One ratio)	-1612.059249	0.23	= ω_0		-
M1 (Neutral)	-1598.686340	0.22	P_0 : 0.838 ω_0 : 0.08 P_1 : 0.161 ω_1 : 1.0		-
M2 (Selection)*	-1597.762199	0.25	P_0 : 0.858 ω_0 : 0.095 P_1 : 0.128 ω_1 : 1.0 P_2 : 0.013 ω_2 : 3.70	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)
M3 (Discrete)*	-1597.734005	0.25	P_0 : 0.811 ω_0 : 0.07 P_1 : 0.172 ω_1 : 0.78 P_2 : 0.015 ω_2 : 3.56	P << 0.001	-
M7 (beta)	-1599.515007	0.23	p: 0.15007 q: 0.48881 p ₀ : 0.980 p: 0.311		-
M8 (beta and ω)*	-1597.805828	0.25	q: 1.25 p ₁ : 0.019 ω : 3.33	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

Table S1.8 Maximum-likelihood parameter estimates for Scinciformata nerve growth factors

Model	Likelihood (t)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$
M0 (One ratio)	-1704.723234	0.20	= ω_0		-
M1 (Neutral)	-1701.003298	0.25	P ₀ : 0.818 ω_0 : 0.09 P ₁ : 0.181 ω_1 : 1.0		-
M2 (Selection)*	-1701.003298	0.25	P ₀ : 0.531 ω_0 : 0.0 P ₁ : 0.241 ω_1 : 0.46 P ₂ : 0.227 ω_2 : 0.46 P ₀ : 0.343 ω_0 : 0.0	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)
M3 (Discrete)*	-1697.979157	0.21	P ₁ : 0.592 ω_1 : 2.93 P ₂ : 0.064 ω_2 : 13.44	P << 0.001	-
M7 (beta)	-1698.961126	0.22	p: 0.34022 q: 1.17860 p ₀ : 0.999 p: 0.340		-
M8 (beta and ω)*	-1698.961169	0.22	q: 1.178 p ₁ : 0.00001 ω : 1.0	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

Table S1.9 Maximum-likelihood parameter estimates for Laterata nerve growth factors

Model	Likelihood (t)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$
M0 (One ratio)	-1687.358175	0.24	= ω_0		-
M1 (Neutral)	-1671.898713	0.27	P_0 : 0.766 ω_0 : 0.05 P_1 : 0.233 ω_1 : 1.0		-
M2 (Selection)*	-1671.898713	0.27	P_0 : 0.766 ω_0 : 0.05 P_1 : 0.166 ω_1 : 1.0 P_2 : 0.067 ω_2 : 1.0	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)
M3 (Discrete)*	-1671.696617	0.26	P_0 : 0.167 ω_0 : 0.03 P_1 : 0.538 ω_1 : 0.03 P_2 : 0.294 ω_2 : 0.80	P << 0.001	-
M7 (beta)	-1671.866588	0.26	p: 0.13468 q: 0.37099 p ₀ : 0.999		-
M8 (beta and ω)*	-1671.866589	0.26	p: 0.134 q: 0.371 p ₁ : 0.00001 ω : 1.0	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

Table S1.10 Maximum-likelihood parameter estimates for turtle nerve growth factors

Model	Likelihood (l)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$	B.E.B
M0 (One ratio)	-1348.106425	0.30	= ω_0			-
M1 (Neutral)	-1340.646247	0.34	P ₀ : 0.734 ω_0 : 0.11 P ₁ : 0.265 ω_1 : 1.0			-
M2 (Selection)*	-1340.646217	0.34	P ₀ : 0.734 ω_0 : 0.11 P ₁ : 0.183 ω_1 : 1.0 P ₂ : 0.081 ω_2 : 1.0 P ₀ : 0.365 ω_0 : 0.0	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)	
M3 (Discrete)*	-1340.152735	0.31	P ₁ : 0.323 ω_1 : 0.24 P ₂ : 0.310 ω_2 : 0.77	P << 0.001		-
M7 (beta)	-1340.175892	0.32	p: 0.31471 q: 0.66249 p ₀ : 1.0			-
M8 (beta and ω)*	-1340.175892	0.32	p: 0.314 q: 0.662 p ₁ : 0.0 ω : 1.0	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)	

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$

Table S1.11 Maximum-likelihood parameter estimates for mammalian nerve growth factors

Model	Likelihood (l)	ω_0^a	Parameters	Sign. ^b	No. of Sites with $\omega > 1^c$
					B.E.B
M0 (One ratio)	-2588.712520	0.09	= ω_0		-
M1 (Neutral)	-2575.113733	0.17	P ₀ : 0.863 ω_0 : 0.04 P ₁ : 0.136 ω_1 : 1.0		-
M2 (Selection)*	-2575.113733	0.17	P ₀ : 0.863 ω_0 : 0.04 P ₁ : 0.070 ω_1 : 1.0 P ₂ : 0.065 ω_2 : 1.0	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)
M3 (Discrete)*	-2552.967953	0.11	P ₀ : 0.475 ω_0 : 0.007 P ₁ : 0.392 ω_1 : 0.116 P ₂ : 0.132 ω_2 : 0.491	P << 0.001	-
M7 (beta)	-2553.020726	0.11	p: 0.36046 q: 2.71196 p ₀ : 1.0		-
M8 (beta and ω)*	-2553.020729	0.11	p: 0.360 q: 2.71 p ₁ : 0.0 ω : 1.0	P << 0.001	0 (PP \geq 0.99) 0 (P > 0.95)

Legend:

a: dn/ds (weighted average)

b: Significance of the model in comparison with the null model

c: Number of sites with $\omega > 1$ under the Bayes empirical Bayes approach with a posterior probability (PP) more than or equal to 0.99 and 0.95

* Models which allow $\omega > 1$