Table A-4. Model Predictions for Squamous Metaplasia of the Epiglottis in Male Rats Exposed to Molybdenum Trioxide (NTP 1997)

Model	DF	χ^2	χ^2 Goodness-of-fit p-value[a]	Scaled residuals[b] Dose below BMC	Dose above BMC	Overall largest	AIC	BMC_{10} (mg/m^3)	$BMCL_{10}$ (mg/m^3)
Gamma[c]	2	3.07	0.22	0.00	1.55	1.55	169.98	4.36	3.53
Logistic	2	9.45	0.01	1.50	0.93	-2.47	181.70	ND	ND
LogLogistic[d]	2	3.56	0.17	0.00	0.98	-1.42	170.75	3.80	2.23
LogProbit[d]	2	3.74	0.15	-0.00	0.93	-1.51	170.95	ND	ND
Multistage (1-degree)[e]	3	3.07	0.38	0.00	1.55	1.55	167.98	4.36	3.53
Multistage (2-degree)[e,f]	*3*	*3.07*	*0.38*	*0.00*	*1.55*	*1.55*	*167.98*	*4.36*	*3.53*
Multistage (3-degree)[e]	3	3.07	0.38	0.00	1.55	1.55	167.98	4.36	3.53
Probit	2	9.17	0.01	1.60	0.90	-2.37	181.01	ND	ND
Weibull[c]	2	3.07	0.22	0.00	1.55	1.55	169.98	4.36	3.53

[a]Values <0.1 fail to meet conventional goodness-of-fit criteria.
[b]Scaled residuals at doses immediately below and above the BMC; also the largest residual at any dose.
[c]Power restricted to ≥1.
[d]Slope restricted to ≥1.
[e]Betas restricted to ≥0.
[f]Selected model. BMCLs for models providing adequate fit were sufficiently close (differed by <3-fold). Therefore, the model with the lowest AIC was selected.

AIC = Akaike Information Criterion; BMC = maximum likelihood estimate of the exposure concentration associated with the selected benchmark response; BMCL = 95% lower confidence limit on the BMC (subscripts denote benchmark response: i.e., $_{10}$ = exposure concentration associated with 10% extra risk); DF = degrees of freedom; ND = not determined, goodness-of-fit criteria, p<0.10