

BMDS 3.0 Analysis Report

Marx et al. 2018

For

Liver weight – female – 90-day oral study in rats

18.07.2022 14:23:48

Analysis Info

Analysis Name: Marx et al. 2018 – female

Analysis Description: C:\bmds3201\BMDS3201

Model Type: Continuous

Selected Models:

- Frequentist Log-Logistic (restricted)

Option Sets:

- Option Set #1
 - BMR Type: Std. Dev.
 - BMRF: 1
 - Confidence Level: 0.95
 - Distribution: Normal
 - Variance: Constant
 - Polynomial Restriction: Use dataset adverse direction

Data

Marx et al. - Liver weight - female			
Source: Marx et al. 2018, Table 12, page 21			
CBD Dose	N	Mean	Std. Dev.
mg/kg bw/day	female	g	g
0	10	6.42	0.4
25	10	6.7	0.56
90	10	7.4	0.6
180	10	9.21	0.54

* Note: Dose levels adjusted from hemp extract to CBD assuming 26% of hemp extract are phytocannabinoids, from which 96% are CBD.

Adverse Direction: Automatic

Frequentist Polynomial Restricted Option Set #1

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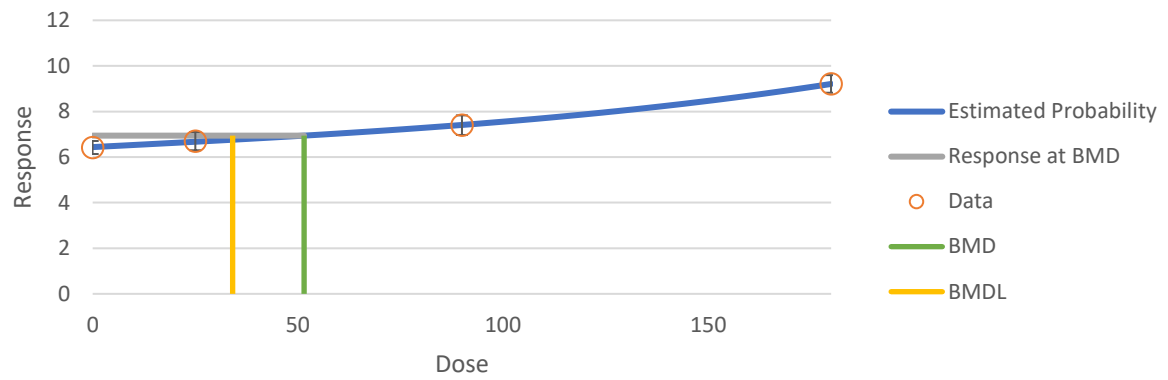
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Goodness of Fit								
Dose	Size	Estimated Median	Calc'd Median	Observed Mean	Estimated SD	Calc'd SD	Observed SD	Scaled Residual
0	10	6.438430792	6.42	6.42	0.50312864	0.4	0.4	-0.115841709
25	10	6.672899785	6.7	6.7	0.50312864	0.56	0.56	0.170330999
90	10	7.409835735	7.4	7.4	0.50312864	0.6	0.6	-0.061819829
180	10	9.209011272	9.21	9.21	0.50312864	0.54	0.54	0.006214381

Likelihoods of Interest			
Model	Log Likelihood*	# of Parameters	AIC
A1	-29.28365975	5	68.5673195
A2	-28.41912111	8	72.8382422
A3	-29.28365975	5	68.5673195
fitted	-29.30680603	3	64.6136121
R	-63.96325219	2	131.926504

Tests of Interest			
Test	-2*Log(Likelihood Ratio)	Test df	p-value
1	71.08826215	6	<0.0001
2	1.729077269	3	0.63048872
3	1.729077269	3	0.63048872
4	0.046292569	2	0.97711954

Frequentist Polynomial Degree 3 Model with BMR of 1 Std.
Dev. for the BMD and 0.95 Lower Confidence Limit for the
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Frequentist Polynomial Restricted Option Set #1

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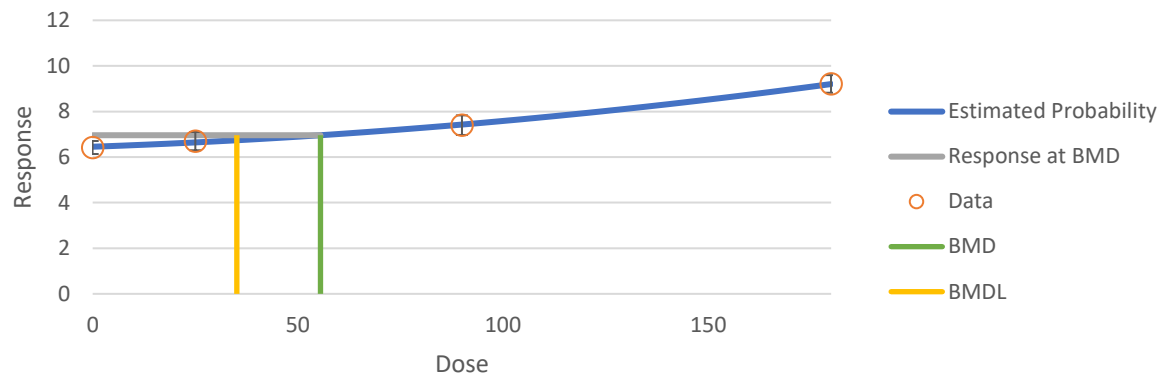
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25	10	6.6440032 35	6.7	6.7	0.504424 82	0.56	0.56	0.351047 985
90	10	7.4267885 68	7.4	7.4	0.504424 82	0.6	0.6	- 0.167939 572
180	10	9.2043830 4	9.21	9.21	0.504424 82	0.54	0.54	0.035213 153

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3	1.729077269	3	0.63048872
4	0.200846052	1	0.6540388

Frequentist Polynomial Degree 2 Model with BMR of 1 Std.
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Summary of Results

Option set #1 (Hover for details)											
Model	Analysis Type	Restriction	RiskType	BMD	BMDL	BMDU	Test 4 P-Value	AIC	Unnormalized Log Posterior Probability	BMDS Recommendation	BMDS Recommendation Notes
Polynomial Degree 3 (CV - normal)*	frequentist	Restricted	Std. Dev.	51.53386	34.11537	84.631691	0.9771195	64.61361206	-	Viable - Recommended	Lowest AIC
Polynomial Degree 2 (CV - normal)	frequentist	Restricted	Std. Dev.	55.52267	35.13466	84.530023	0.6540388	66.76816555	-	Viable - Alternate	

*Constant variance case presented (BMDS Test 2 p-value = 0.630488719567165), with the selected model in bold; scaled residuals for selected model for doses 0, 25, 90, 180 were -0.115841708701134, 0.170330999055086, -0.061819828632339, 6.21438086272044E-03 [units], respectively.

