

Study Number: C20042-01
Test Type: TOX
Route: Oral Gavage
Species/Strain: Rat/Sprague Dawley

PA41: Clinical Chemistry Summary
Test Compound: 2,3-Benzofluorene
CAS Number: 243-17-4

Date Report Requested: 12/08/2020
Time Report Requested: 07:24:01
Lab: Battelle

Study Number: C20042-01
Study Gender: Both
PWG Approval Date: See web page for date of PWG Approval
Version: v1.1.3

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Lab: Battelle

Male: Core Animals

	Phase Day	Treatment Groups (mg/kg)				
		0	0.15	0.5	1.4	4
Urea Nitrogen (mg/dL)	SD 5	15.1 ± 0.4 (10)	14.6 ± 0.7 (5)	13.2 ± 0.6 (5)	14.0 ± 0.8 (5)	14.6 ± 0.8 (5)
Percent of Control			96.7	87.4	92.7	96.7
Creatinine (mg/dL)	SD 5	0.42 ± 0.01 (10)	0.44 ± 0.02 (5)	0.46 ± 0.02 (5)	0.36 ± 0.02 (5)	0.44 ± 0.02 (5)
Percent of Control			104.8	109.5	85.7	104.8
Glucose (mg/dL)	SD 5	226.3 ± 18.2 (10)	266.6 ± 41.4 (5)	255.8 ± 32.5 (5)	211.2 ± 29.4 (5)	281.6 ± 22.3 (5)
Percent of Control			117.8	113.0	93.3	124.4
Total Protein (g/dL)	SD 5	6.50 ± 0.13 (10)	6.44 ± 0.04 (5)	6.48 ± 0.19 (5)	6.40 ± 0.13 (5)	6.62 ± 0.07 (5)
Percent of Control			99.1	99.7	98.5	101.8
Globulin (g/dL)	SD 5	2.15 ± 0.07 (10) **	2.16 ± 0.05 (5)	2.24 ± 0.15 (5)	2.12 ± 0.10 (5)	2.18 ± 0.02 (5)
Percent of Control			100.5	104.2	98.6	101.4
A/G Ratio	SD 5	2.04 ± 0.07 (10) **	1.99 ± 0.08 (5)	1.92 ± 0.13 (5)	2.03 ± 0.07 (5)	2.04 ± 0.04 (5)
Percent of Control			97.5	94.4	99.7	99.9
Albumin (g/dL)	SD 5	4.35 ± 0.08 (10)	4.28 ± 0.07 (5)	4.24 ± 0.08 (5)	4.28 ± 0.05 (5)	4.44 ± 0.07 (5)
Percent of Control			98.4	97.5	98.4	102.1
Cholesterol (mg/dL)	SD 5	114.9 ± 5.9 (10) **	115.2 ± 2.2 (5)	119.6 ± 13.6 (5)	112.2 ± 8.0 (5)	123.0 ± 4.8 (5)
Percent of Control			100.3	104.1	97.7	107.0
Triglyceride (mg/dL)	SD 5	96.6 ± 12.1 (10)	83.6 ± 12.7 (5)	69.4 ± 15.5 (5)	123.4 ± 30.2 (5)	69.6 ± 13.6 (5)
Percent of Control			86.5	71.8	127.7	72.0
Alanine Aminotransferase (IU/L)	SD 5	60.8 ± 4.7 (10) *	57.2 ± 3.1 (5)	55.0 ± 5.0 (5)	64.2 ± 3.5 (5)	63.2 ± 5.3 (5)
Percent of Control			94.1	90.5	105.6	103.9
Alkaline Phosphatase (IU/L)	SD 5	282.7 ± 15.3 (10)	293.8 ± 19.8 (5)	293.0 ± 16.9 (5)	338.4 ± 21.6 (5)	335.2 ± 37.9 (5)
Percent of Control			103.9	103.6	119.7	118.6

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	Phase Day	Treatment Groups (mg/kg)				
		0	0.15	0.5	1.4	4
Aspartate Aminotransferase (U/L) Percent of Control	SD 5	74.90 ± 2.54 (10)	67.00 ± 1.92 (5) 89.5	74.80 ± 8.40 (5) 99.9	76.40 ± 3.50 (5) 102.0	82.80 ± 8.63 (5) 110.5
Creatine Kinase (IU/L) Percent of Control	SD 5	202.0 ± 19.0 (10)	159.6 ± 12.7 (5) 79.0	158.6 ± 14.4 (5) 78.5	176.0 ± 10.2 (5) 87.1	178.0 ± 17.2 (5) 88.1
Sorbitol Dehydrogenase (IU/L) Percent of Control	SD 5	13.4 ± 0.9 (10)	10.2 ± 0.3 (5) 76.1	18.6 ± 7.8 (5) 139.0	18.8 ± 3.1 (5) 140.4	21.7 ± 5.6 (5) 161.6
Bile salt/acids (umol/L) Percent of Control	SD 5	37.2 ± 6.3 (10)	31.0 ± 3.6 (5) 83.3	29.6 ± 3.7 (5) 79.6	26.6 ± 7.4 (5) 71.5	28.0 ± 4.7 (5) 75.3

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Male: Core Animals

	Phase Day	Treatment Groups (mg/kg)				
		12	37	111	333	1000
Urea Nitrogen (mg/dL)	SD 5	13.8 ± 0.8 (5)	15.2 ± 0.4 (5)	15.6 ± 0.5 (5)	16.8 ± 0.5 (5)	15.0 ± 0.7 (5)
Percent of Control		91.4	100.7	103.3	111.3	99.3
Creatinine (mg/dL)	SD 5	0.40 ± 0.00 (5)	0.44 ± 0.02 (5)	0.40 ± 0.00 (5)	0.44 ± 0.02 (5)	0.42 ± 0.02 (5)
Percent of Control		95.2	104.8	95.2	104.8	100.0
Glucose (mg/dL)	SD 5	246.8 ± 18.3 (5)	246.0 ± 30.0 (5)	237.0 ± 35.2 (5)	266.6 ± 48.5 (5)	216.2 ± 34.0 (5)
Percent of Control		109.1	108.7	104.7	117.8	95.5
Total Protein (g/dL)	SD 5	6.50 ± 0.06 (5)	6.66 ± 0.09 (5)	6.52 ± 0.12 (5)	6.44 ± 0.12 (5)	6.62 ± 0.07 (5)
Percent of Control		100.0	102.5	100.3	99.1	101.8
Globulin (g/dL)	SD 5	2.20 ± 0.04 (5)	2.26 ± 0.04 (5)	2.26 ± 0.07 (5)	2.30 ± 0.06 (5) *	2.30 ± 0.04 (5) *
Percent of Control		102.3	105.1	105.1	107.0	107.0
A/G Ratio	SD 5	1.96 ± 0.06 (5)	1.95 ± 0.02 (5)	1.89 ± 0.05 (5)	1.80 ± 0.06 (5)	1.88 ± 0.03 (5)
Percent of Control		96.1	95.5	92.7	88.5	92.2
Albumin (g/dL)	SD 5	4.30 ± 0.07 (5)	4.40 ± 0.05 (5)	4.26 ± 0.07 (5)	4.14 ± 0.09 (5)	4.32 ± 0.04 (5)
Percent of Control		98.9	101.1	97.9	95.2	99.3
Cholesterol (mg/dL)	SD 5	114.2 ± 3.4 (5)	117.8 ± 9.3 (5)	123.4 ± 5.9 (5)	131.0 ± 3.4 (5) *	163.6 ± 7.1 (5) **
Percent of Control		99.4	102.5	107.4	114.0	142.4
Triglyceride (mg/dL)	SD 5	78.2 ± 7.4 (5)	77.0 ± 10.1 (5)	62.2 ± 5.6 (5)	107.4 ± 8.4 (5)	85.8 ± 9.0 (5)
Percent of Control		81.0	79.7	64.4	111.2	88.8
Alanine Aminotransferase (IU/L)	SD 5	57.6 ± 2.6 (5)	50.4 ± 2.4 (5)	52.6 ± 3.2 (5)	53.6 ± 2.8 (5)	52.4 ± 5.2 (5)
Percent of Control		94.7	82.9	86.5	88.2	86.2
Alkaline Phosphatase (IU/L)	SD 5	305.8 ± 30.0 (5)	293.8 ± 15.1 (5)	320.2 ± 9.7 (5)	365.2 ± 43.8 (5)	312.2 ± 19.1 (5)
Percent of Control		108.2	103.9	113.3	129.2	110.4

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Male: Core Animals

	Phase Day	Treatment Groups (mg/kg)				
		12	37	111	333	1000
Aspartate Aminotransferase (U/L)	SD 5	73.40 ± 3.08 (5)	70.60 ± 4.12 (5)	68.80 ± 1.39 (5)	73.00 ± 2.66 (5)	72.80 ± 6.51 (5)
Percent of Control		98.0	94.3	91.9	97.5	97.2
Creatine Kinase (IU/L)	SD 5	146.6 ± 13.4 (5)	143.4 ± 16.4 (5)	157.8 ± 13.3 (5)	161.0 ± 18.2 (5)	229.4 ± 90.6 (5)
Percent of Control		72.6	71.0	78.1	79.7	113.6
Sorbitol Dehydrogenase (IU/L)	SD 5	12.3 ± 2.0 (5)	14.4 ± 3.3 (5)	11.1 ± 2.3 (5)	13.0 ± 2.4 (5)	19.0 ± 5.1 (5)
Percent of Control		91.5	107.3	82.5	97.0	141.8
Bile salt/acids (umol/L)	SD 5	32.0 ± 5.1 (5)	35.2 ± 7.1 (5)	38.8 ± 5.1 (5)	42.8 ± 11.3 (5)	20.2 ± 3.2 (5)
Percent of Control		86.0	94.6	104.3	115.1	54.3

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Female: Core Animals

	Phase Day	Treatment Groups (mg/kg)				
		0	0.15	0.5	1.4	4
Urea Nitrogen (mg/dL)	SD 5	15.6 ± 0.5 (10)	14.2 ± 1.2 (5)	15.0 ± 1.0 (5)	14.4 ± 0.6 (5)	14.8 ± 0.6 (5)
Percent of Control			91.0	96.2	92.3	94.9
Creatinine (mg/dL)	SD 5	0.46 ± 0.02 (10)	0.40 ± 0.00 (5)	0.44 ± 0.02 (5)	0.40 ± 0.00 (5)	0.44 ± 0.02 (5)
Percent of Control			87.0	95.7	87.0	95.7
Glucose (mg/dL)	SD 5	232.7 ± 11.4 (10)	211.8 ± 19.0 (5)	225.6 ± 17.9 (5)	221.2 ± 14.0 (5)	213.6 ± 11.1 (5)
Percent of Control			91.0	96.9	95.1	91.8
Total Protein (g/dL)	SD 5	6.49 ± 0.13 (10)	6.24 ± 0.12 (5)	6.32 ± 0.15 (5)	6.46 ± 0.14 (5)	6.48 ± 0.13 (5)
Percent of Control			96.1	97.4	99.5	99.8
Globulin (g/dL)	SD 5	1.93 ± 0.07 (10) *	1.66 ± 0.02 (5) *	1.88 ± 0.05 (5)	1.88 ± 0.04 (5)	1.86 ± 0.08 (5)
Percent of Control			86.0	97.4	97.4	96.4
A/G Ratio	SD 5	2.38 ± 0.08 (10)	2.76 ± 0.04 (5) *	2.36 ± 0.06 (5)	2.44 ± 0.04 (5)	2.50 ± 0.09 (5)
Percent of Control			115.7	99.2	102.2	104.8
Albumin (g/dL)	SD 5	4.56 ± 0.08 (10)	4.58 ± 0.10 (5)	4.44 ± 0.11 (5)	4.58 ± 0.11 (5)	4.62 ± 0.07 (5)
Percent of Control			100.4	97.4	100.4	101.3
Cholesterol (mg/dL)	SD 5	105.0 ± 5.3 (10) **	97.8 ± 5.8 (5)	100.8 ± 7.1 (5)	88.6 ± 4.7 (5)	101.0 ± 3.8 (5)
Percent of Control			93.1	96.0	84.4	96.2
Triglyceride (mg/dL)	SD 5	49.0 ± 2.6 (10)	48.4 ± 12.1 (5)	63.6 ± 6.0 (5)	56.2 ± 14.9 (5)	27.2 ± 7.8 (5)
Percent of Control			98.8	129.8	114.7	55.5
Alanine Aminotransferase (IU/L)	SD 5	47.3 ± 2.9 (10)	48.4 ± 6.0 (5)	48.8 ± 4.2 (5)	43.2 ± 2.3 (5)	49.2 ± 2.7 (5)
Percent of Control			102.3	103.2	91.3	104.0
Alkaline Phosphatase (IU/L)	SD 5	201.3 ± 13.1 (10) **	198.8 ± 11.9 (5)	216.2 ± 38.8 (5)	210.0 ± 19.9 (5)	218.4 ± 10.1 (5)
Percent of Control			98.8	107.4	104.3	108.5

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	Phase Day	Treatment Groups (mg/kg)				
		0	0.15	0.5	1.4	4
Aspartate Aminotransferase (U/L) Percent of Control	SD 5	69.90 ± 1.91 (10)	75.40 ± 2.86 (5) 107.9	68.60 ± 2.96 (5) 98.1	67.00 ± 0.89 (5) 95.9	74.40 ± 1.33 (5) 106.4
Creatine Kinase (IU/L) Percent of Control	SD 5	174.2 ± 32.4 (9)	143.2 ± 23.9 (5) 82.2	141.4 ± 6.2 (5) 81.2	130.4 ± 10.6 (5) 74.8	170.8 ± 17.3 (5) 98.0
Sorbitol Dehydrogenase (IU/L) Percent of Control	SD 5	9.9 ± 0.3 (10)	9.5 ± 1.0 (5) 95.9	9.1 ± 0.2 (5) 92.4	8.6 ± 0.4 (5) 86.6	10.5 ± 0.3 (5) 106.6
Bile salt/acids (umol/L) Percent of Control	SD 5	19.7 ± 3.7 (10)	20.4 ± 5.0 (5) 103.6	16.4 ± 3.6 (5) 83.2	17.0 ± 6.4 (5) 86.3	21.8 ± 4.4 (5) 110.7

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	Phase Day	Treatment Groups (mg/kg)				
		12	37	111	333	1000
Urea Nitrogen (mg/dL)	SD 5	12.8 ± 0.6 (5)	14.0 ± 0.8 (5)	14.6 ± 1.0 (5)	15.8 ± 1.0 (5)	17.2 ± 1.1 (5)
Percent of Control		82.1	89.7	93.6	101.3	110.3
Creatinine (mg/dL)	SD 5	0.42 ± 0.02 (5)	0.48 ± 0.02 (5)	0.40 ± 0.00 (5)	0.42 ± 0.02 (5)	0.46 ± 0.04 (5)
Percent of Control		91.3	104.3	87.0	91.3	100.0
Glucose (mg/dL)	SD 5	195.6 ± 19.6 (5)	249.2 ± 8.7 (5)	198.4 ± 14.7 (5)	202.2 ± 9.9 (5)	218.8 ± 21.2 (5)
Percent of Control		84.1	107.1	85.3	86.9	94.0
Total Protein (g/dL)	SD 5	6.52 ± 0.15 (5)	6.64 ± 0.25 (5)	6.52 ± 0.07 (5)	6.54 ± 0.18 (5)	6.62 ± 0.11 (5)
Percent of Control		100.5	102.3	100.5	100.8	102.0
Globulin (g/dL)	SD 5	1.84 ± 0.05 (5)	2.04 ± 0.09 (5)	1.94 ± 0.05 (5)	1.90 ± 0.09 (5)	1.98 ± 0.05 (5)
Percent of Control		95.3	105.7	100.5	98.4	102.6
A/G Ratio	SD 5	2.55 ± 0.05 (5)	2.26 ± 0.04 (5)	2.37 ± 0.06 (5)	2.46 ± 0.08 (5)	2.35 ± 0.07 (5)
Percent of Control		106.8	94.8	99.3	103.0	98.5
Albumin (g/dL)	SD 5	4.68 ± 0.11 (5)	4.60 ± 0.16 (5)	4.58 ± 0.04 (5)	4.64 ± 0.10 (5)	4.64 ± 0.09 (5)
Percent of Control		102.6	100.9	100.4	101.8	101.8
Cholesterol (mg/dL)	SD 5	109.0 ± 12.2 (5)	123.8 ± 10.4 (5)	105.6 ± 5.5 (5)	120.8 ± 6.0 (5)	162.4 ± 8.5 (5) **
Percent of Control		103.8	117.9	100.6	115.0	154.7
Triglyceride (mg/dL)	SD 5	37.6 ± 3.4 (5)	48.4 ± 15.6 (5)	52.2 ± 5.0 (5)	61.0 ± 8.8 (5)	64.0 ± 10.6 (5)
Percent of Control		76.7	98.8	106.5	124.5	130.6
Alanine Aminotransferase (IU/L)	SD 5	47.0 ± 2.9 (5)	47.2 ± 3.4 (5)	48.4 ± 1.4 (5)	42.0 ± 2.3 (5)	46.4 ± 6.3 (5)
Percent of Control		99.4	99.8	102.3	88.8	98.1
Alkaline Phosphatase (IU/L)	SD 5	208.4 ± 7.4 (5)	222.8 ± 25.0 (5)	240.0 ± 9.3 (5) *	241.4 ± 5.7 (5) *	272.2 ± 18.2 (5) **
Percent of Control		103.5	110.7	119.2	119.9	135.2

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	Phase Day	Treatment Groups (mg/kg)				
		12	37	111	333	1000
Aspartate Aminotransferase (U/L)	SD 5	70.80 ± 5.34 (5)	65.80 ± 2.27 (5)	67.40 ± 2.23 (5)	71.60 ± 3.47 (5)	71.40 ± 7.98 (5)
Percent of Control		101.3	94.1	96.4	102.4	102.1
Creatine Kinase (IU/L)	SD 5	114.0 ± 6.1 (5)	154.0 ± 20.1 (5)	156.0 ± 20.6 (5)	123.2 ± 9.1 (5)	112.4 ± 9.6 (5)
Percent of Control		65.4	88.4	89.5	70.7	64.5
Sorbitol Dehydrogenase (IU/L)	SD 5	11.5 ± 3.2 (5)	10.4 ± 1.0 (5)	10.1 ± 1.4 (5)	8.8 ± 1.8 (5)	10.6 ± 4.5 (5)
Percent of Control		116.3	105.4	102.1	89.2	106.8
Bile salt/acids (umol/L)	SD 5	27.8 ± 4.9 (5)	36.6 ± 8.9 (5)	24.0 ± 3.7 (5)	23.4 ± 4.4 (5)	19.4 ± 5.6 (5)
Percent of Control		141.1	185.8	121.8	118.8	98.5

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LEGEND

Values given as mean \pm SEM (N) with Percent of Control calculated by (dosed group mean / control group mean) x 100

SD – Study Day

Statistical analysis performed by Jonckheere (trend) and Shirley or Dunn (pairwise) tests.

Statistical significance for the control group indicates a significant trend test

Statistical significance for a treatment group indicates a significant pairwise test compared to the vehicle control group

* Statistically significant at $P \leq 0.05$

** Statistically significant at $P \leq 0.01$

One value for Creatine Kinase in the female 0 mg/kg group was excluded because it was an outlier.

**** END OF REPORT ****