

**Study Number:** C04051-01  
**Test Type:** TOX  
**Route:** Oral Gavage  
**Species/Strain:** Rat/Sprague Dawley

**PA41: Clinical Chemistry Summary**  
**Test Compound:** 1,1,2,2-Tetrahydroperfluoro-1-dodecanol  
**CAS Number:** 865-86-1

**Date Report Requested:** 12/07/2020  
**Time Report Requested:** 15:28:46  
**Lab:** Battelle

**Study Number:** C04051-01  
**Study Gender:** Both  
**PWG Approval Date:** See web page for date of PWG Approval  
**Version:** v1.1.3

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Male: Core Animals

	Phase Day	Treatment Groups (mg/kg)				
		0	0.07	0.2	0.7	2
Urea Nitrogen (mg/dL)	SD 5	16.6 ± 0.4 (9)	16.2 ± 0.8 (5)	17.0 ± 0.5 (5)	17.0 ± 0.3 (5)	17.6 ± 0.7 (5)
Percent of Control			97.9	102.7	102.7	106.3
Creatinine (mg/dL)	SD 5	0.48 ± 0.01 (9) *	0.46 ± 0.02 (5)	0.46 ± 0.02 (5)	0.50 ± 0.00 (5)	0.42 ± 0.02 (5)
Percent of Control			96.3	96.3	104.7	87.9
Glucose (mg/dL)	SD 5	238.3 ± 16.3 (9)	251.8 ± 11.9 (5)	261.6 ± 24.3 (5)	278.6 ± 14.6 (5)	268.6 ± 15.8 (5)
Percent of Control			105.7	109.8	116.9	112.7
Total Protein (g/dL)	SD 5	6.11 ± 0.08 (9)	6.10 ± 0.08 (5)	5.98 ± 0.10 (5)	6.12 ± 0.07 (5)	6.26 ± 0.04 (5)
Percent of Control			99.8	97.9	100.1	102.4
Globulin (g/dL)	SD 5	1.68 ± 0.04 (9) **	1.68 ± 0.09 (5)	1.60 ± 0.04 (5)	1.72 ± 0.04 (5)	1.78 ± 0.07 (5)
Percent of Control			100.1	95.4	102.5	106.1
A/G Ratio	SD 5	2.65 ± 0.07 (9) *	2.67 ± 0.21 (5)	2.75 ± 0.14 (5)	2.56 ± 0.05 (5)	2.54 ± 0.13 (5)
Percent of Control			100.6	103.7	96.5	95.5
Albumin (g/dL)	SD 5	4.43 ± 0.07 (9)	4.42 ± 0.12 (5)	4.38 ± 0.12 (5)	4.40 ± 0.04 (5)	4.48 ± 0.07 (5)
Percent of Control			99.7	98.8	99.2	101.1
Cholesterol (mg/dL)	SD 5	118.1 ± 3.7 (9) *	117.0 ± 5.1 (5)	110.0 ± 2.8 (5)	114.8 ± 2.5 (5)	113.8 ± 2.8 (5)
Percent of Control			99.1	93.1	97.2	96.3
Triglyceride (mg/dL)	SD 5	89.2 ± 5.2 (9)	74.6 ± 16.0 (5)	81.4 ± 12.2 (5)	69.0 ± 17.1 (5)	78.0 ± 7.6 (5)
Percent of Control			83.6	91.2	77.3	87.4
Alanine Aminotransferase (IU/L)	SD 5	61.8 ± 3.1 (9) *	54.4 ± 3.2 (5)	60.4 ± 3.5 (5)	64.2 ± 6.2 (5)	58.6 ± 2.7 (5)
Percent of Control			88.1	97.8	103.9	94.9
Alkaline Phosphatase (IU/L)	SD 5	267.8 ± 8.0 (9) **	253.4 ± 24.6 (5)	252.8 ± 8.7 (5)	277.0 ± 18.2 (5)	269.5 ± 8.2 (4)
Percent of Control			94.6	94.4	103.4	100.6

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	Phase Day	Treatment Groups (mg/kg)				
		0	0.07	0.2	0.7	2
Aspartate Aminotransferase (U/L) Percent of Control	SD 5	80.22 ± 3.53 (9) *	77.80 ± 3.02 (5) 97.0	86.00 ± 7.33 (5) 107.2	83.20 ± 6.61 (5) 103.7	78.60 ± 2.98 (5) 98.0
Creatine Kinase (IU/L) Percent of Control	SD 5	210.6 ± 17.5 (9)	230.2 ± 15.0 (5) 109.3	258.8 ± 70.0 (5) 122.9	222.0 ± 12.1 (5) 105.4	214.6 ± 13.6 (5) 101.9
Sorbitol Dehydrogenase (IU/L) Percent of Control	SD 5	22.8 ± 3.0 (9)	19.0 ± 1.5 (5) 83.4	24.4 ± 5.7 (5) 107.0	24.6 ± 4.7 (5) 107.8	13.7 ± 0.6 (5) 59.9
Bile salt/acids (umol/L) Percent of Control	SD 5	22.7 ± 2.2 (9)	25.4 ± 3.7 (5) 112.1	23.6 ± 5.1 (5) 104.1	19.0 ± 2.2 (5) 83.8	19.4 ± 2.8 (5) 85.6

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	Phase Day	Treatment Groups (mg/kg)				
		6	18	55	160	475
Urea Nitrogen (mg/dL)	SD 5	18.0 ± 0.9 (5)	18.8 ± 0.9 (5)	16.2 ± 1.0 (5)	17.2 ± 0.5 (5)	15.3 ± 0.8 (4)
Percent of Control		108.7	113.6	97.9	103.9	92.1
Creatinine (mg/dL)	SD 5	0.42 ± 0.02 (5)	0.42 ± 0.02 (5)	0.38 ± 0.05 (5)	0.44 ± 0.02 (5)	0.48 ± 0.02 (4)
Percent of Control		87.9	87.9	79.5	92.1	99.4
Glucose (mg/dL)	SD 5	267.4 ± 24.3 (5)	261.4 ± 12.6 (5)	242.6 ± 7.0 (5)	247.6 ± 24.3 (5)	246.0 ± 20.2 (4)
Percent of Control		112.2	109.7	101.8	103.9	103.2
Total Protein (g/dL)	SD 5	6.10 ± 0.16 (5)	6.00 ± 0.19 (5)	6.26 ± 0.11 (5)	6.32 ± 0.15 (5)	6.23 ± 0.12 (4)
Percent of Control		99.8	98.2	102.4	103.4	101.9
Globulin (g/dL)	SD 5	1.74 ± 0.12 (5)	1.66 ± 0.12 (5)	1.76 ± 0.05 (5)	1.90 ± 0.11 (5)	1.88 ± 0.09 (4)
Percent of Control		103.7	98.9	104.9	113.2	111.8
A/G Ratio	SD 5	2.55 ± 0.16 (5)	2.68 ± 0.23 (5)	2.56 ± 0.05 (5)	2.35 ± 0.12 (5)	2.33 ± 0.09 (4)
Percent of Control		96.1	101.0	96.5	88.7	87.9
Albumin (g/dL)	SD 5	4.36 ± 0.08 (5)	4.34 ± 0.10 (5)	4.50 ± 0.07 (5)	4.42 ± 0.05 (5)	4.35 ± 0.06 (4)
Percent of Control		98.3	97.9	101.5	99.7	98.1
Cholesterol (mg/dL)	SD 5	118.6 ± 3.7 (5)	104.6 ± 6.5 (5)	115.6 ± 5.5 (5)	107.6 ± 5.7 (5)	100.8 ± 1.4 (4) *
Percent of Control		100.4	88.6	97.9	91.1	85.3
Triglyceride (mg/dL)	SD 5	86.4 ± 7.9 (5)	94.6 ± 20.8 (5)	76.0 ± 9.1 (5)	111.0 ± 17.7 (5)	98.5 ± 9.7 (4)
Percent of Control		96.8	106.0	85.2	124.4	110.4
Alanine Aminotransferase (IU/L)	SD 5	55.8 ± 0.5 (5)	63.8 ± 2.8 (5)	64.0 ± 9.6 (5)	66.6 ± 3.3 (5)	96.0 ± 10.5 (4)
Percent of Control		90.3	103.3	103.6	107.8	155.4
Alkaline Phosphatase (IU/L)	SD 5	263.8 ± 10.7 (5)	285.0 ± 4.5 (5)	284.8 ± 20.5 (5)	326.0 ± 23.7 (5) *	351.0 ± 12.8 (4) **
Percent of Control		98.5	106.4	106.4	121.7	131.1

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	Phase Day	Treatment Groups (mg/kg)				
		6	18	55	160	475
Aspartate Aminotransferase (U/L)	SD 5	76.60 ± 2.46 (5)	76.80 ± 2.33 (5)	87.00 ± 8.84 (5)	88.40 ± 4.01 (5)	122.25 ± 11.46 (4)
Percent of Control		95.5	95.7	108.4	110.2	152.4
Creatine Kinase (IU/L)	SD 5	192.2 ± 20.7 (5)	214.6 ± 23.3 (5)	232.6 ± 24.1 (5)	240.6 ± 25.8 (5)	281.3 ± 37.1 (4)
Percent of Control		91.3	101.9	110.5	114.3	133.6
Sorbitol Dehydrogenase (IU/L)	SD 5	17.3 ± 2.4 (5)	16.5 ± 1.3 (5)	27.3 ± 7.8 (5)	21.3 ± 1.8 (5)	61.8 ± 18.7 (4)
Percent of Control		75.7	72.1	119.5	93.4	270.4
Bile salt/acids (umol/L)	SD 5	16.2 ± 2.0 (5)	19.2 ± 3.5 (5)	25.4 ± 0.9 (5)	29.6 ± 6.4 (5)	33.3 ± 4.0 (4)
Percent of Control		71.5	84.7	112.1	130.6	146.7

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Female: Core Animals

	Phase Day	Treatment Groups (mg/kg)				
		0	0.07	0.2	0.7	2
Urea Nitrogen (mg/dL)	SD 5	16.6 ± 0.7 (10) *	16.4 ± 0.5 (5)	15.2 ± 0.8 (5)	17.6 ± 0.9 (5)	16.6 ± 1.0 (5)
Percent of Control			98.8	91.6	106.0	100.0
Creatinine (mg/dL)	SD 5	0.48 ± 0.02 (10)	0.52 ± 0.02 (5)	0.52 ± 0.02 (5)	0.52 ± 0.02 (5)	0.50 ± 0.00 (5)
Percent of Control			108.3	108.3	108.3	104.2
Glucose (mg/dL)	SD 5	235.2 ± 14.7 (10) *	218.6 ± 25.6 (5)	239.4 ± 15.0 (5)	236.8 ± 7.7 (5)	215.6 ± 8.6 (5)
Percent of Control			92.9	101.8	100.7	91.7
Total Protein (g/dL)	SD 5	6.05 ± 0.10 (10)	6.42 ± 0.13 (5)	6.22 ± 0.21 (5)	6.14 ± 0.05 (5)	6.26 ± 0.11 (5)
Percent of Control			106.1	102.8	101.5	103.5
Globulin (g/dL)	SD 5	1.50 ± 0.04 (10)	1.52 ± 0.09 (5)	1.50 ± 0.10 (5)	1.50 ± 0.09 (5)	1.52 ± 0.06 (5)
Percent of Control			101.3	100.0	100.0	101.3
A/G Ratio	SD 5	3.05 ± 0.09 (10)	3.27 ± 0.23 (5)	3.20 ± 0.21 (5)	3.15 ± 0.23 (5)	3.14 ± 0.13 (5)
Percent of Control			107.2	104.9	103.2	102.8
Albumin (g/dL)	SD 5	4.55 ± 0.08 (10)	4.90 ± 0.13 (5)	4.72 ± 0.15 (5)	4.64 ± 0.06 (5)	4.74 ± 0.08 (5)
Percent of Control			107.7	103.7	102.0	104.2
Cholesterol (mg/dL)	SD 5	107.8 ± 3.4 (10)	113.6 ± 4.9 (5)	105.6 ± 7.7 (5)	101.6 ± 4.5 (5)	100.4 ± 4.2 (5)
Percent of Control			105.4	98.0	94.2	93.1
Triglyceride (mg/dL)	SD 5	57.6 ± 8.4 (10)	50.2 ± 8.4 (5)	41.6 ± 3.9 (5)	62.6 ± 9.5 (5)	43.4 ± 9.0 (5)
Percent of Control			87.2	72.2	108.7	75.3
Alanine Aminotransferase (IU/L)	SD 5	50.2 ± 2.8 (10)	48.4 ± 3.8 (5)	43.0 ± 4.5 (5)	46.2 ± 2.6 (5)	46.0 ± 3.7 (5)
Percent of Control			96.4	85.7	92.0	91.6
Alkaline Phosphatase (IU/L)	SD 5	200.1 ± 9.7 (10) **	195.6 ± 10.5 (5)	176.8 ± 8.3 (5)	191.4 ± 13.6 (5)	207.0 ± 17.8 (5)
Percent of Control			97.8	88.4	95.7	103.4

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	Phase Day	Treatment Groups (mg/kg)				
		0	0.07	0.2	0.7	2
Aspartate Aminotransferase (U/L) Percent of Control	SD 5	78.50 ± 2.13 (10) *	81.40 ± 4.21 (5) 103.7	79.40 ± 2.25 (5) 101.1	84.00 ± 5.55 (5) 107.0	80.80 ± 1.66 (5) 102.9
Creatine Kinase (IU/L) Percent of Control	SD 5	164.6 ± 10.4 (10)	201.8 ± 18.6 (5) 122.6	215.2 ± 21.8 (5) 130.7	257.4 ± 71.4 (5) 156.4	188.4 ± 15.3 (5) 114.5
Sorbitol Dehydrogenase (IU/L) Percent of Control	SD 5	12.9 ± 0.9 (10)	17.3 ± 0.6 (5) * 134.1	16.5 ± 0.3 (5) 127.7	15.2 ± 1.6 (5) 117.9	16.0 ± 0.4 (5) 124.4
Bile salt/acids (umol/L) Percent of Control	SD 5	18.6 ± 2.1 (10)	14.8 ± 3.9 (5) 79.6	20.0 ± 8.2 (5) 107.5	14.2 ± 2.3 (5) 76.3	16.6 ± 3.6 (5) 89.2

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	Phase Day	Treatment Groups (mg/kg)				
		6	18	55	160	475
Urea Nitrogen (mg/dL)	SD 5	16.6 ± 0.2 (5)	15.6 ± 1.0 (5)	15.4 ± 0.7 (5)	14.6 ± 1.0 (5)	14.2 ± 0.8 (5)
Percent of Control		100.0	94.0	92.8	88.0	85.5
Creatinine (mg/dL)	SD 5	0.48 ± 0.02 (5)	0.48 ± 0.02 (5)	0.48 ± 0.02 (5)	0.48 ± 0.02 (5)	0.44 ± 0.02 (5)
Percent of Control		100.0	100.0	100.0	100.0	91.7
Glucose (mg/dL)	SD 5	211.0 ± 2.1 (5)	197.0 ± 17.3 (5)	199.6 ± 10.6 (5)	227.4 ± 22.1 (5)	203.0 ± 13.6 (5)
Percent of Control		89.7	83.8	84.9	96.7	86.3
Total Protein (g/dL)	SD 5	6.00 ± 0.08 (5)	6.20 ± 0.09 (5)	6.28 ± 0.10 (5)	6.16 ± 0.04 (5)	6.24 ± 0.04 (5)
Percent of Control		99.2	102.5	103.8	101.8	103.1
Globulin (g/dL)	SD 5	1.46 ± 0.07 (5)	1.44 ± 0.05 (5)	1.56 ± 0.06 (5)	1.60 ± 0.07 (5)	1.70 ± 0.06 (5)
Percent of Control		97.3	96.0	104.0	106.7	113.3
A/G Ratio	SD 5	3.15 ± 0.20 (5)	3.32 ± 0.13 (5)	3.04 ± 0.12 (5)	2.88 ± 0.15 (5)	2.69 ± 0.13 (5)
Percent of Control		103.2	108.9	99.7	94.3	88.1
Albumin (g/dL)	SD 5	4.54 ± 0.07 (5)	4.76 ± 0.08 (5)	4.72 ± 0.07 (5)	4.56 ± 0.04 (5)	4.54 ± 0.05 (5)
Percent of Control		99.8	104.6	103.7	100.2	99.8
Cholesterol (mg/dL)	SD 5	104.6 ± 2.6 (5)	102.6 ± 3.6 (5)	102.4 ± 6.1 (5)	106.4 ± 3.8 (5)	103.8 ± 4.6 (5)
Percent of Control		97.0	95.2	95.0	98.7	96.3
Triglyceride (mg/dL)	SD 5	65.6 ± 5.7 (5)	61.6 ± 7.5 (5)	54.2 ± 10.9 (5)	57.4 ± 8.4 (5)	56.4 ± 4.6 (5)
Percent of Control		113.9	106.9	94.1	99.7	97.9
Alanine Aminotransferase (IU/L)	SD 5	47.4 ± 2.3 (5)	48.6 ± 3.1 (5)	57.8 ± 7.0 (5)	55.2 ± 6.5 (5)	58.4 ± 3.7 (5)
Percent of Control		94.4	96.8	115.1	110.0	116.3
Alkaline Phosphatase (IU/L)	SD 5	210.2 ± 9.6 (5)	235.4 ± 3.8 (5)	234.2 ± 6.4 (5)	235.6 ± 14.2 (5)	247.8 ± 8.0 (5) **
Percent of Control		105.0	117.6	117.0	117.7	123.8



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	Phase Day	Treatment Groups (mg/kg)				
		6	18	55	160	475
Aspartate Aminotransferase (U/L)	SD 5	75.80 ± 1.53 (5)	77.40 ± 1.66 (5)	92.80 ± 3.29 (5) *	89.20 ± 3.15 (5)	82.60 ± 0.60 (5)
Percent of Control		96.6	98.6	118.2	113.6	105.2
Creatine Kinase (IU/L)	SD 5	167.8 ± 16.8 (5)	165.2 ± 21.7 (5)	199.0 ± 16.5 (5)	199.4 ± 8.1 (5)	184.2 ± 8.9 (5)
Percent of Control		101.9	100.4	120.9	121.1	111.9
Sorbitol Dehydrogenase (IU/L)	SD 5	14.5 ± 0.4 (5)	15.4 ± 0.8 (5)	19.0 ± 2.3 (5)	15.7 ± 0.9 (5)	19.1 ± 2.6 (5)
Percent of Control		112.8	119.6	147.7	122.0	148.3
Bile salt/acids (umol/L)	SD 5	24.4 ± 7.0 (5)	17.6 ± 3.1 (5)	17.6 ± 4.4 (5)	29.8 ± 6.2 (5)	19.0 ± 4.7 (5)
Percent of Control		131.2	94.6	94.6	160.2	102.2

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#### LEGEND

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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 Alkaline Phosphatase in the male 2 mg/kg group was excluded due to an analysis problem.

**\*\* END OF REPORT \*\***