

Experiment Number: C20617

Test Type: TOX

Route: Oral Gavage

Species/Strain: Rat/Harlan Sprague Dawley

C Number:

C20617

Cage Range:

All

Date Range:

All

Reasons For Removal:

All

Removal Date Range:

All

Treatment Groups:

All

Study Gender:

Both

PA41: Clinical Chemistry Summary

Test Compound: Perfluorooctane Sulfonate

CAS Number: 1763-23-1

Date Report Requested: 04/04/2018

Time Report Requested: 13:43:58

Lab: Battelle

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Lab: Battelle

Male

	Phase Day	Treatment Groups (mg/kg/day)																		
		0				0.312				0.625				1.25				2.5		
Urea Nitrogen (mg/dL)	SD 28	17.7	± 0.4	(10) **	18.1	± 1.0	(10)	16.8	± 0.5	(10)	19.1	± 0.8	(10)	18.0	± 0.5	(10)				
Percent of Control					102.3			94.9			107.9			101.7						
Creatinine (mg/dL)	SD 28	0.77	± 0.02	(10) *	0.75	± 0.02	(10)	0.77	± 0.02	(10)	0.75	± 0.02	(10)	0.74	± 0.02	(10)				
Percent of Control					97.40			100.00			97.40			96.10						
Glucose (mg/dL)	SD 28	189.8	± 8.7	(10)	229.2	± 21.4	(10)	209.2	± 19.4	(10)	177.7	± 8.8	(10)	180.4	± 18.8	(10)				
Percent of Control					120.8			110.2			93.6			95.0						
Total Protein (g/dL)	SD 28	6.50	± 0.08	(10)	6.44	± 0.08	(10)	6.47	± 0.09	(10)	6.68	± 0.07	(10)	6.54	± 0.06	(10)				
Percent of Control					99.08			99.54			102.77			100.62						
Globulin (g/dL)	SD 28	2.24	± 0.05	(10) **	2.27	± 0.06	(10)	2.26	± 0.06	(10)	2.29	± 0.06	(10)	2.13	± 0.03	(10)				
Percent of Control					101.34			100.89			102.23			95.09						
A/G Ratio	SD 28	1.91	± 0.05	(10) **	1.85	± 0.05	(10)	1.87	± 0.05	(10)	1.93	± 0.05	(10)	2.07	± 0.04	(10) *				
Percent of Control					96.82			98.06			101.07			108.68						
Albumin (g/dL)	SD 28	4.26	± 0.06	(10) **	4.17	± 0.03	(10)	4.21	± 0.05	(10)	4.39	± 0.02	(10)	4.41	± 0.05	(10)				
Percent of Control					97.89			98.83			103.05			103.52						
Total Bilirubin (mg/dL)	SD 28	0.161	± 0.008	(10)	0.169	± 0.016	(10)	0.172	± 0.008	(10)	0.183	± 0.019	(10)	0.172	± 0.011	(10)				
Percent of Control					105.227			106.783			113.815			107.218						
Direct Bilirubin (mg/dL)	SD 28	0.016	± 0.002	(10) **	0.019	± 0.002	(10)	0.017	± 0.002	(10)	0.017	± 0.003	(10)	0.021	± 0.002	(10)				
Percent of Control					114.634			103.049			100.610			126.829						
Indirect Bilirubin (mg/dL)	SD 28	0.144	± 0.008	(10)	0.150	± 0.015	(10)	0.155	± 0.008	(10)	0.166	± 0.017	(10)	0.152	± 0.010	(10)				
Percent of Control					104.158			107.207			115.315			104.990						
Cholesterol (mg/dL)	SD 28	115.3	± 1.8	(10) **	97.4	± 2.5	(10) **	84.0	± 2.4	(10) **	82.8	± 3.7	(10) **	53.8	± 2.9	(10) **				
Percent of Control					84.5			72.9			71.8			46.7						

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Lab: Battelle

Male

	Phase Day	Treatment Groups (mg/kg/day)														
		0			0.312			0.625			1.25			2.5		
Triglyceride (mg/dL)	SD 28	104.3	± 6.0	(10) **	155.7	± 17.8	(10)	107.5	± 9.5	(10)	117.7	± 11.9	(10)	82.4	± 9.5	(10)
Percent of Control					149.3			103.1			112.8			79.0		
Alanine Aminotransferase (IU/L)	SD 28	48.20	± 1.29	(10) **	52.40	± 1.57	(10)	65.60	± 4.50	(10) **	55.50	± 2.86	(10) **	74.50	± 8.25	(10) **
Percent of Control					108.71			136.10			115.15			154.56		
Alkaline Phosphatase (IU/L)	SD 28	186.5	± 7.0	(10) **	191.9	± 5.0	(10)	217.2	± 8.7	(10) *	218.3	± 6.3	(10) **	215.1	± 9.7	(10) *
Percent of Control					102.9			116.5			117.1			115.3		
Aspartate Aminotransferase (U/L)	SD 28	55.90	± 1.62	(10)	60.30	± 1.89	(10)	68.20	± 3.68	(10) **	63.20	± 2.13	(10)	68.40	± 4.87	(10) *
Percent of Control					107.87			122.00			113.06			122.36		
Creatine Kinase (IU/L)	SD 28	98.3	± 4.7	(10) **	95.1	± 4.6	(10)	114.9	± 8.5	(10)	93.1	± 4.2	(10)	88.0	± 3.5	(10)
Percent of Control					96.7			116.9			94.7			89.5		
Sorbitol Dehydrogenase (IU/L)	SD 28	5.9	± 0.7	(10) *	5.5	± 0.5	(10)	9.1	± 1.4	(10)	7.4	± 0.7	(10)	8.6	± 1.7	(10)
Percent of Control					93.2			154.2			125.4			145.8		
Bile salt/acids (umol/L)	SD 28	10.1	± 3.8	(10) **	12.3	± 2.3	(10)	6.6	± 1.2	(10)	10.8	± 1.8	(10)	16.2	± 1.7	(10) **
Percent of Control					121.8			65.3			106.9			160.4		

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Date Report Requested: 04/04/2018

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Lab: Battelle

Male

	Phase Day	Treatment Groups	
		5	
Urea Nitrogen (mg/dL)	SD 28	21.1 ± 0.7	(10) **
Percent of Control		119.2	
Creatinine (mg/dL)	SD 28	0.72 ± 0.01	(10)
Percent of Control		93.51	
Glucose (mg/dL)	SD 28	187.0 ± 13.2	(10)
Percent of Control		98.5	
Total Protein (g/dL)	SD 28	6.55 ± 0.08	(10)
Percent of Control		100.77	
Globulin (g/dL)	SD 28	1.87 ± 0.05	(10) **
Percent of Control		83.48	
A/G Ratio	SD 28	2.52 ± 0.07	(10) **
Percent of Control		131.97	
Albumin (g/dL)	SD 28	4.68 ± 0.04	(10) **
Percent of Control		109.86	
Total Bilirubin (mg/dL)	SD 28	0.170 ± 0.005	(10)
Percent of Control		105.538	
Direct Bilirubin (mg/dL)	SD 28	0.036 ± 0.003	(10) **
Percent of Control		221.951	
Indirect Bilirubin (mg/dL)	SD 28	0.133 ± 0.005	(10)
Percent of Control		92.308	
Cholesterol (mg/dL)	SD 28	24.2 ± 3.3	(10) **
Percent of Control		21.0	

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Lab: Battelle

Male

		Treatment Groups		
	Phase Day	5		
Triglyceride (mg/dL)	SD 28	24.1	± 4.8	(10) **
Percent of Control			23.1	
Alanine Aminotransferase (IU/L)	SD 28	70.50	± 4.21	(10) **
Percent of Control			146.27	
Alkaline Phosphatase (IU/L)	SD 28	251.5	± 10.2	(10) **
Percent of Control			134.9	
Aspartate Aminotransferase (U/L)	SD 28	60.60	± 2.03	(10)
Percent of Control			108.41	
Creatine Kinase (IU/L)	SD 28	87.4	± 7.3	(10)
Percent of Control			88.9	
Sorbitol Dehydrogenase (IU/L)	SD 28	8.3	± 1.0	(10)
Percent of Control			140.7	
Bile salt/acids (umol/L)	SD 28	34.7	± 2.0	(10) **
Percent of Control			343.6	

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Lab: Battelle

Female

	Phase Day	Treatment Groups (mg/kg/day)									
		0		0.312		0.625		1.25		2.5	
Urea Nitrogen (mg/dL)	SD 28	18.7 ± 0.7 (10)	16.5 ± 0.4 (10)	17.2 ± 0.7 (10)	17.8 ± 0.4 (10)	18.0 ± 0.6 (10)					
Percent of Control			88.2	92.0	95.2	96.3					
Creatinine (mg/dL)	SD 28	0.82 ± 0.01 (10)	0.80 ± 0.00 (10)	0.83 ± 0.02 (10)	0.84 ± 0.02 (10)	0.82 ± 0.01 (10)					
Percent of Control			97.56	101.22	102.44	100.00					
Glucose (mg/dL)	SD 28	234.7 ± 13.5 (10)	218.6 ± 11.5 (10)	226.3 ± 7.4 (10)	241.6 ± 10.5 (10)	224.3 ± 6.6 (10)					
Percent of Control			93.1	96.4	102.9	95.6					
Total Protein (g/dL)	SD 28	6.41 ± 0.08 (10) **	6.27 ± 0.10 (10)	6.60 ± 0.08 (10)	6.70 ± 0.09 (10)	6.66 ± 0.09 (10)					
Percent of Control			97.82	102.96	104.52	103.90					
Globulin (g/dL)	SD 28	1.91 ± 0.03 (10)	1.83 ± 0.04 (10)	1.93 ± 0.07 (10)	1.96 ± 0.05 (10)	1.86 ± 0.06 (10)					
Percent of Control			95.81	101.05	102.62	97.38					
A/G Ratio	SD 28	2.36 ± 0.06 (10) **	2.43 ± 0.03 (10)	2.45 ± 0.11 (10)	2.43 ± 0.05 (10)	2.60 ± 0.07 (10) *					
Percent of Control			102.80	103.83	102.72	109.92					
Albumin (g/dL)	SD 28	4.50 ± 0.08 (10) **	4.44 ± 0.07 (10)	4.67 ± 0.07 (10)	4.74 ± 0.07 (10) *	4.80 ± 0.05 (10) **					
Percent of Control			98.67	103.78	105.33	106.67					
Total Bilirubin (mg/dL)	SD 28	0.140 ± 0.007 (10) *	0.146 ± 0.010 (10)	0.129 ± 0.005 (10)	0.140 ± 0.008 (10)	0.145 ± 0.008 (10)					
Percent of Control			104.649	92.203	99.785	103.720					
Direct Bilirubin (mg/dL)	SD 28	0.017 ± 0.003 (10) **	0.019 ± 0.002 (10)	0.018 ± 0.003 (10)	0.020 ± 0.002 (10)	0.025 ± 0.002 (10) *					
Percent of Control			108.621	102.299	113.793	145.977					
Indirect Bilirubin (mg/dL)	SD 28	0.122 ± 0.008 (10)	0.127 ± 0.009 (10)	0.111 ± 0.005 (10)	0.120 ± 0.008 (10)	0.120 ± 0.008 (10)					
Percent of Control			104.085	90.768	97.794	97.712					
Cholesterol (mg/dL)	SD 28	105.1 ± 4.6 (10) **	112.8 ± 2.6 (10)	100.1 ± 3.8 (10)	108.8 ± 5.6 (10)	93.2 ± 3.3 (10)					
Percent of Control			107.3	95.2	103.5	88.7					

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Lab: Battelle

Female

	Phase Day	Treatment Groups (mg/kg/day)														
		0			0.312			0.625			1.25			2.5		
Triglyceride (mg/dL)	SD 28	73.1	± 9.1	(10) **	74.6	± 6.6	(10)	65.9	± 3.4	(10)	64.2	± 5.8	(10)	48.7	± 3.4	(10) *
Percent of Control					102.1			90.2			87.8			66.6		
Alanine Aminotransferase (IU/L)	SD 28	45.20	± 2.11	(10) **	44.40	± 1.55	(10)	46.80	± 1.06	(10)	47.90	± 2.75	(10)	55.20	± 2.17	(10) **
Percent of Control					98.23			103.54			105.97			122.12		
Alkaline Phosphatase (IU/L)	SD 28	146.9	± 5.2	(10) **	142.2	± 5.6	(10)	150.2	± 6.1	(10)	170.2	± 7.8	(10)	167.9	± 8.3	(10) *
Percent of Control					96.8			102.2			115.9			114.3		
Aspartate Aminotransferase (U/L)	SD 28	58.50	± 1.31	(10)	59.20	± 2.67	(10)	58.90	± 1.55	(10)	58.80	± 1.72	(10)	60.40	± 1.74	(10)
Percent of Control					101.20			100.68			100.51			103.25		
Creatine Kinase (IU/L)	SD 28	99.0	± 7.1	(10) *	99.0	± 5.1	(10)	100.1	± 4.5	(10)	93.8	± 3.7	(10)	107.2	± 6.4	(10)
Percent of Control					100.0			101.1			94.7			108.3		
Sorbitol Dehydrogenase (IU/L)	SD 28	6.7	± 0.6	(10)	5.3	± 0.6	(10)	6.7	± 0.6	(10)	6.5	± 0.5	(10)	7.6	± 1.2	(10)
Percent of Control					79.1			100.0			97.0			113.4		
Bile salt/acids (umol/L)	SD 28	16.6	± 2.8	(10) **	12.5	± 2.4	(10)	13.3	± 1.9	(10)	21.0	± 3.3	(10)	36.3	± 4.3	(10) **
Percent of Control					75.3			80.1			126.5			218.7		

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Female

	Phase Day	Treatment Groups	
		5	
Urea Nitrogen (mg/dL)	SD 28	17.3 ± 0.6	(9)
Percent of Control		92.7	
Creatinine (mg/dL)	SD 28	0.81 ± 0.02	(9)
Percent of Control		98.92	
Glucose (mg/dL)	SD 28	191.1 ± 8.5	(9)
Percent of Control		81.4	
Total Protein (g/dL)	SD 28	6.91 ± 0.10	(9) **
Percent of Control		107.82	
Globulin (g/dL)	SD 28	1.93 ± 0.06	(9)
Percent of Control		101.22	
A/G Ratio	SD 28	2.59 ± 0.08	(9) *
Percent of Control		109.58	
Albumin (g/dL)	SD 28	4.98 ± 0.08	(9) **
Percent of Control		110.62	
Total Bilirubin (mg/dL)	SD 28	0.192 ± 0.009	(9) *
Percent of Control		137.101	
Direct Bilirubin (mg/dL)	SD 28	0.046 ± 0.003	(9) **
Percent of Control		261.814	
Indirect Bilirubin (mg/dL)	SD 28	0.146 ± 0.009	(9)
Percent of Control		119.372	
Cholesterol (mg/dL)	SD 28	68.8 ± 4.7	(9) **
Percent of Control		65.4	

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Lab: Battelle

Female

		Treatment Groups		
	Phase Day	5		
Triglyceride (mg/dL)	SD 28	51.9	± 6.8	(9) *
Percent of Control		71.0		
Alanine Aminotransferase (IU/L)	SD 28	73.44	± 3.00	(9) **
Percent of Control		162.49		
Alkaline Phosphatase (IU/L)	SD 28	197.7	± 9.8	(9) **
Percent of Control		134.6		
Aspartate Aminotransferase (U/L)	SD 28	63.22	± 1.97	(9)
Percent of Control		108.07		
Creatine Kinase (IU/L)	SD 28	121.7	± 8.9	(9)
Percent of Control		122.9		
Sorbitol Dehydrogenase (IU/L)	SD 28	6.9	± 0.9	(9)
Percent of Control		102.8		
Bile salt/acids (umol/L)	SD 28	61.7	± 7.4	(9) **
Percent of Control		371.5		

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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; GD – Gestation Day; LD – Lactation Day; PND – Postnatal Day, adults post-weaning

Clinical Chemistry for gestation phase includes pregnant females only

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

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 $P \leq 0.01$

Indirect Bilirubin calculated as Total Bilirubin - Direct Bilirubin.

**** END OF REPORT ****