

Experiment Number: C20613

Test Type: TOX

Route: Oral Gavage

Species/Strain: Rat/Harlan Sprague Dawley

C Number:

C20613

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: Perfluorohexanoic acid

CAS Number: 307-24-4

Date Report Requested: 04/04/2018

Time Report Requested: 13:31:37

Lab: Battelle

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CAS Number: 307-24-4

Date Report Requested: 04/04/2018

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Lab: Battelle

Male

	Phase Day	Treatment Groups (mg/kg/day)																	
		0				62.6				125				250				500	
Urea Nitrogen (mg/dL)	SD 28	17.5	± 0.5	(10)	17.4	± 0.5	(10)	17.4	± 0.6	(9)	18.0	± 0.6	(10)	18.6	± 0.7	(10)			
Percent of Control					99.4			99.7			102.9			106.3					
Creatinine (mg/dL)	SD 28	0.72	± 0.01	(10) **	0.71	± 0.02	(10)	0.70	± 0.00	(9)	0.71	± 0.01	(10)	0.68	± 0.02	(10)			
Percent of Control					98.61			97.22			98.61			94.44					
Glucose (mg/dL)	SD 28	169.0	± 7.4	(10)	172.1	± 8.4	(10)	186.6	± 9.3	(9)	173.6	± 14.9	(10)	209.8	± 6.8	(10) **			
Percent of Control					101.8			110.4			102.7			124.1					
Total Protein (g/dL)	SD 28	6.53	± 0.08	(10) **	6.24	± 0.12	(10)	6.06	± 0.10	(9) **	6.05	± 0.05	(10) **	5.87	± 0.10	(9) **			
Percent of Control					95.56			92.73			92.65			89.84					
Globulin (g/dL)	SD 28	2.49	± 0.06	(10) **	2.32	± 0.08	(10)	2.26	± 0.08	(9) *	2.13	± 0.05	(10) **	1.90	± 0.09	(9) **			
Percent of Control					93.17			90.58			85.54			76.31					
A/G Ratio	SD 28	1.63	± 0.05	(10) **	1.70	± 0.05	(10)	1.70	± 0.06	(9)	1.85	± 0.05	(10) **	2.13	± 0.10	(9) **			
Percent of Control					104.28			104.12			113.39			130.19					
Albumin (g/dL)	SD 28	4.04	± 0.05	(10) *	3.92	± 0.05	(10)	3.80	± 0.04	(9) *	3.92	± 0.04	(10)	3.97	± 0.04	(9)			
Percent of Control					97.03			94.06			97.03			98.18					
Total Bilirubin (mg/dL)	SD 28	0.174	± 0.013	(10) **	0.168	± 0.021	(10)	0.142	± 0.009	(10)	0.154	± 0.013	(10)	0.124	± 0.007	(10) **			
Percent of Control					96.720			81.473			88.838			71.059					
Direct Bilirubin (mg/dL)	SD 28	0.023	± 0.002	(10)	0.024	± 0.003	(10)	0.025	± 0.002	(10)	0.025	± 0.002	(10)	0.023	± 0.002	(10)			
Percent of Control					107.522			108.407			112.389			100.000					
Indirect Bilirubin (mg/dL)	SD 28	0.151	± 0.014	(10) **	0.144	± 0.021	(10)	0.117	± 0.008	(10)	0.129	± 0.012	(10)	0.101	± 0.008	(10) **			
Percent of Control					95.106			77.447			85.317			66.733					
Cholesterol (mg/dL)	SD 28	125.6	± 3.6	(10) **	100.9	± 4.1	(10) **	105.4	± 4.3	(9) **	104.5	± 3.4	(10) **	102.8	± 4.9	(10) **			
Percent of Control					80.3			84.0			83.2			81.8					

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Lab: Battelle

Male

	Phase Day	Treatment Groups (mg/kg/day)														
		0			62.6			125			250			500		
Triglyceride (mg/dL)	SD 28	120.6	± 16.7	(10)	107.7	± 14.0	(10)	141.8	± 20.1	(9)	146.3	± 15.6	(10)	123.5	± 10.8	(10)
Percent of Control					89.3			117.6			121.3			102.4		
Alanine Aminotransferase (IU/L)	SD 28	48.00	± 1.24	(9) **	49.70	± 1.73	(10)	50.00	± 1.61	(9)	51.60	± 1.63	(10)	60.60	± 1.26	(10) **
Percent of Control					103.54			104.17			107.50			126.25		
Alkaline Phosphatase (IU/L)	SD 28	199.7	± 7.5	(10) **	191.2	± 5.7	(10)	195.3	± 6.3	(9)	203.2	± 11.1	(10)	244.5	± 9.6	(10) **
Percent of Control					95.7			97.8			101.8			122.4		
Aspartate Aminotransferase (U/L)	SD 28	57.44	± 1.68	(9) **	58.90	± 1.57	(10)	58.20	± 1.91	(10)	61.10	± 1.21	(10)	66.80	± 1.60	(10) **
Percent of Control					102.53			101.32			106.36			116.29		
Creatine Kinase (IU/L)	SD 28	84.0	± 3.6	(10)	89.3	± 4.5	(10)	87.7	± 3.3	(9)	79.8	± 3.7	(10)	83.2	± 5.6	(10)
Percent of Control					106.3			104.4			95.0			99.0		
Sorbitol Dehydrogenase (IU/L)	SD 28	2.8	± 0.3	(9)	4.2	± 0.6	(10)	4.1	± 0.5	(9)	3.9	± 0.5	(10)	3.4	± 0.5	(10)
Percent of Control					151.2			148.0			140.4			122.4		
Bile salt/acids (umol/L)	SD 28	11.1	± 3.5	(10) **	9.9	± 2.6	(10)	8.4	± 1.9	(9)	13.8	± 3.1	(10)	16.8	± 2.5	(10)
Percent of Control					89.2			76.1			124.3			151.4		

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Lab: Battelle

Male

	Phase Day	Treatment Groups	
		1000	
Urea Nitrogen (mg/dL)	SD 28	18.0 ± 0.7	(10)
Percent of Control		102.9	
Creatinine (mg/dL)	SD 28	0.63 ± 0.02	(10) **
Percent of Control		87.50	
Glucose (mg/dL)	SD 28	171.2 ± 7.2	(10)
Percent of Control		101.3	
Total Protein (g/dL)	SD 28	5.23 ± 0.12	(10) **
Percent of Control		80.09	
Globulin (g/dL)	SD 28	1.49 ± 0.10	(10) **
Percent of Control		59.84	
A/G Ratio	SD 28	2.60 ± 0.17	(10) **
Percent of Control		159.29	
Albumin (g/dL)	SD 28	3.74 ± 0.06	(10) **
Percent of Control		92.57	
Total Bilirubin (mg/dL)	SD 28	0.103 ± 0.006	(10) **
Percent of Control		59.091	
Direct Bilirubin (mg/dL)	SD 28	0.022 ± 0.001	(10)
Percent of Control		95.133	
Indirect Bilirubin (mg/dL)	SD 28	0.081 ± 0.006	(10) **
Percent of Control		53.704	
Cholesterol (mg/dL)	SD 28	97.8 ± 4.7	(10) **
Percent of Control		77.9	

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Lab: Battelle

Male

		Treatment Groups		
	Phase Day	1000		
Triglyceride (mg/dL)	SD 28	127.0	± 12.9	(10)
Percent of Control			105.3	
Alanine Aminotransferase (IU/L)	SD 28	78.70	± 2.70	(10) **
Percent of Control			163.96	
Alkaline Phosphatase (IU/L)	SD 28	300.7	± 19.3	(9) **
Percent of Control			150.6	
Aspartate Aminotransferase (U/L)	SD 28	78.40	± 2.63	(10) **
Percent of Control			136.48	
Creatine Kinase (IU/L)	SD 28	86.7	± 1.8	(10)
Percent of Control			103.2	
Sorbitol Dehydrogenase (IU/L)	SD 28	4.6	± 0.5	(10) *
Percent of Control			165.6	
Bile salt/acids (umol/L)	SD 28	24.2	± 2.6	(10) **
Percent of Control			218.0	

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Lab: Battelle

Female

	Phase Day	Treatment Groups (mg/kg/day)														
		0		62.6		125		250		500						
Urea Nitrogen (mg/dL)	SD 28	18.0	± 0.9	(10)	17.6	± 0.5	(10)	18.0	± 0.5	(10)	16.7	± 0.5	(10)	18.7	± 1.4	(10)
Percent of Control					97.8			100.0			92.8			103.9		
Creatinine (mg/dL)	SD 28	0.79	± 0.03	(10)	0.77	± 0.02	(10)	0.76	± 0.02	(10)	0.77	± 0.02	(10)	0.81	± 0.01	(10)
Percent of Control					97.47			96.20			97.47			102.53		
Glucose (mg/dL)	SD 28	172.2	± 5.8	(10)	171.7	± 3.0	(10)	166.1	± 6.5	(10)	181.8	± 8.6	(10)	182.9	± 9.2	(10)
Percent of Control					99.7			96.5			105.6			106.2		
Total Protein (g/dL)	SD 28	6.37	± 0.09	(10) **	6.40	± 0.09	(10)	6.43	± 0.08	(10)	6.32	± 0.05	(10)	6.31	± 0.07	(10)
Percent of Control					100.47			100.94			99.22			99.06		
Globulin (g/dL)	SD 28	1.92	± 0.07	(10) **	1.81	± 0.07	(10)	1.85	± 0.07	(10)	1.75	± 0.04	(10)	1.79	± 0.06	(10)
Percent of Control					94.27			96.35			91.15			93.23		
A/G Ratio	SD 28	2.35	± 0.10	(10) **	2.57	± 0.12	(10)	2.51	± 0.11	(10)	2.63	± 0.09	(10)	2.55	± 0.10	(10)
Percent of Control					109.57			107.07			111.86			108.63		
Albumin (g/dL)	SD 28	4.45	± 0.06	(10)	4.59	± 0.06	(10)	4.58	± 0.07	(10)	4.57	± 0.06	(10)	4.52	± 0.06	(10)
Percent of Control					103.15			102.92			102.70			101.57		
Total Bilirubin (mg/dL)	SD 28	0.140	± 0.008	(10) **	0.131	± 0.007	(10)	0.122	± 0.006	(10)	0.115	± 0.005	(10)	0.124	± 0.006	(10)
Percent of Control					93.620			87.240			82.079			89.176		
Direct Bilirubin (mg/dL)	SD 28	0.025	± 0.002	(10)	0.026	± 0.001	(10)	0.029	± 0.002	(10)	0.023	± 0.002	(10)	0.025	± 0.002	(10)
Percent of Control					100.791			113.834			90.909			98.814		
Indirect Bilirubin (mg/dL)	SD 28	0.114	± 0.009	(10) *	0.105	± 0.008	(10)	0.093	± 0.006	(10)	0.092	± 0.005	(10)	0.099	± 0.007	(10)
Percent of Control					92.032			81.349			80.123			87.040		
Cholesterol (mg/dL)	SD 28	105.0	± 7.0	(10) *	103.5	± 4.1	(10)	107.2	± 5.5	(10)	109.8	± 5.6	(10)	122.0	± 5.0	(10)
Percent of Control					98.6			102.1			104.6			116.2		

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Lab: Battelle

Female

	Phase Day	Treatment Groups (mg/kg/day)														
		0		62.6		125		250		500						
Triglyceride (mg/dL)	SD 28	77.2	± 10.5	(10) *	67.2	± 4.1	(10)	77.3	± 4.8	(10)	65.9	± 7.8	(10)	76.9	± 6.1	(10)
Percent of Control					87.0			100.1			85.4			99.6		
Alanine Aminotransferase (IU/L)	SD 28	39.80	± 1.17	(10) **	44.30	± 2.28	(10)	45.80	± 1.81	(10)	43.80	± 2.50	(10)	53.70	± 1.86	(10) **
Percent of Control					111.31			115.08			110.05			134.92		
Alkaline Phosphatase (IU/L)	SD 28	137.6	± 4.3	(10) **	148.6	± 8.3	(10)	163.2	± 6.6	(10)	140.8	± 5.4	(10)	147.2	± 6.9	(10)
Percent of Control					108.0			118.6			102.3			107.0		
Aspartate Aminotransferase (U/L)	SD 28	56.00	± 3.12	(10) **	55.30	± 2.10	(10)	55.80	± 1.44	(10)	55.90	± 1.32	(10)	62.40	± 1.29	(10) **
Percent of Control					98.75			99.64			99.82			111.43		
Creatine Kinase (IU/L)	SD 28	68.6	± 3.4	(10)	64.8	± 1.6	(10)	69.2	± 1.9	(10)	62.1	± 1.0	(10)	71.5	± 4.0	(10)
Percent of Control					94.5			100.9			90.5			104.2		
Sorbitol Dehydrogenase (IU/L)	SD 28	4.1	± 0.4	(10)	3.9	± 0.5	(10)	4.1	± 0.3	(10)	4.1	± 0.3	(10)	4.9	± 0.5	(10)
Percent of Control					95.1			100.0			100.0			119.5		
Bile salt/acids (umol/L)	SD 28	10.1	± 2.5	(10) **	13.0	± 3.3	(10)	10.9	± 2.5	(10)	12.4	± 2.6	(10)	11.8	± 2.2	(10)
Percent of Control					128.7			107.9			122.8			116.8		

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Female

		Treatment Groups	
	Phase Day	1000	
Urea Nitrogen (mg/dL)	SD 28	21.1 ± 1.4	(10)
Percent of Control		117.2	
Creatinine (mg/dL)	SD 28	0.76 ± 0.02	(10)
Percent of Control		96.20	
Glucose (mg/dL)	SD 28	153.2 ± 5.3	(10)
Percent of Control		89.0	
Total Protein (g/dL)	SD 28	5.93 ± 0.06	(10) **
Percent of Control		93.09	
Globulin (g/dL)	SD 28	1.38 ± 0.05	(10) **
Percent of Control		71.88	
A/G Ratio	SD 28	3.34 ± 0.15	(10) **
Percent of Control		142.31	
Albumin (g/dL)	SD 28	4.55 ± 0.06	(10)
Percent of Control		102.25	
Total Bilirubin (mg/dL)	SD 28	0.114 ± 0.004	(10) **
Percent of Control		81.864	
Direct Bilirubin (mg/dL)	SD 28	0.023 ± 0.002	(10)
Percent of Control		90.119	
Indirect Bilirubin (mg/dL)	SD 28	0.091 ± 0.004	(10)
Percent of Control		80.035	
Cholesterol (mg/dL)	SD 28	112.9 ± 4.1	(10)
Percent of Control		107.5	

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Female

		Treatment Groups		
	Phase Day	1000		
Triglyceride (mg/dL)	SD 28	115.5	± 15.8	(10)
Percent of Control			149.6	
Alanine Aminotransferase (IU/L)	SD 28	57.30	± 3.06	(10) **
Percent of Control			143.97	
Alkaline Phosphatase (IU/L)	SD 28	190.2	± 9.9	(10) **
Percent of Control			138.2	
Aspartate Aminotransferase (U/L)	SD 28	66.00	± 2.86	(10) **
Percent of Control			117.86	
Creatine Kinase (IU/L)	SD 28	72.6	± 3.2	(10)
Percent of Control			105.8	
Sorbitol Dehydrogenase (IU/L)	SD 28	4.6	± 0.3	(10)
Percent of Control			112.2	
Bile salt/acids (umol/L)	SD 28	26.5	± 3.3	(10) **
Percent of Control			262.4	

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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.

Decrease in N for Alanine Aminotransferase, Aspartate Aminotransferase, and Sorbitol Dehydrogenase in the 0 mg/kg dose group is due to one male's values being excluded because they were outliers.

Decrease in N for Total Protein, Albumin, Globulin, and A/G Ratio in the 500 mg/kg dose group is due to one male's values being excluded because they were outliers.

**** END OF REPORT ****