

Experiment Number: C20615

Test Type: TOX

Route: Oral Gavage

Species/Strain: Rat/Harlan Sprague Dawley

C Number:

C20615

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: Perfluorodecanoic Acid

CAS Number: 335-76-2

Date Report Requested: 04/04/2018

Time Report Requested: 14:00:00

Lab: Battelle

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PA41: Clinical Chemistry Summary

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CAS Number: 335-76-2

Date Report Requested: 04/04/2018

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Lab: Battelle

Male

	Phase Day	Treatment Groups (mg/kg/day)																	
		0				0.156				0.312				0.625				1.25	
Urea Nitrogen (mg/dL)	SD 28	18.2	± 0.9	(10) **	16.5	± 0.4	(10)	15.9	± 0.4	(10)	19.1	± 0.6	(10)	22.8	± 0.9	(10) **			
Percent of Control					90.7			87.4			104.9			125.3					
Creatinine (mg/dL)	SD 28	0.71	± 0.02	(10) **	0.71	± 0.02	(10)	0.74	± 0.02	(10)	0.65	± 0.02	(10)	0.63	± 0.02	(10) *			
Percent of Control					100.00			104.23			91.55			88.73					
Glucose (mg/dL)	SD 28	213.9	± 21.3	(10) **	203.4	± 16.7	(10)	251.8	± 24.0	(10)	179.6	± 9.0	(10)	147.6	± 10.0	(10) **			
Percent of Control					95.1			117.7			84.0			69.0					
Total Protein (g/dL)	SD 28	6.41	± 0.06	(10) **	6.17	± 0.07	(10) *	6.11	± 0.08	(10) *	5.80	± 0.08	(10) **	5.30	± 0.10	(10) **			
Percent of Control					96.26			95.32			90.48			82.68					
Globulin (g/dL)	SD 28	2.19	± 0.05	(10) **	1.91	± 0.04	(10) **	1.77	± 0.05	(10) **	1.59	± 0.07	(10) **	1.40	± 0.07	(10) **			
Percent of Control					87.21			80.82			72.60			63.93					
A/G Ratio	SD 28	1.94	± 0.05	(10) **	2.24	± 0.05	(10) **	2.47	± 0.06	(10) **	2.71	± 0.16	(10) **	2.85	± 0.15	(10) **			
Percent of Control					115.56			127.24			139.91			147.22					
Albumin (g/dL)	SD 28	4.22	± 0.04	(10) **	4.26	± 0.05	(10)	4.34	± 0.05	(10)	4.21	± 0.05	(10)	3.90	± 0.05	(10) **			
Percent of Control					100.95			102.84			99.76			92.42					
Total Bilirubin (mg/dL)	SD 28	0.135	± 0.007	(10) **	0.141	± 0.007	(10)	0.142	± 0.006	(10)	0.152	± 0.011	(10)	0.197	± 0.009	(10) **			
Percent of Control					104.833			105.576			113.309			146.171					
Direct Bilirubin (mg/dL)	SD 28	0.027	± 0.002	(10) **	0.021	± 0.002	(10)	0.026	± 0.002	(10)	0.025	± 0.002	(10)	0.048	± 0.005	(10) **			
Percent of Control					79.851			95.896			91.791			180.224					
Indirect Bilirubin (mg/dL)	SD 28	0.108	± 0.007	(10) **	0.120	± 0.008	(10)	0.116	± 0.006	(10)	0.128	± 0.012	(10)	0.148	± 0.007	(10) **			
Percent of Control					111.049			107.985			118.663			137.697					
Cholesterol (mg/dL)	SD 28	106.5	± 4.9	(10)	78.2	± 2.6	(10) *	65.8	± 2.4	(10) **	77.8	± 1.9	(10) **	93.9	± 4.0	(10)			
Percent of Control					73.4			61.8			73.1			88.2					

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Test Compound: Perfluorodecanoic Acid

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Lab: Battelle

Male

	Phase Day	Treatment Groups (mg/kg/day)														
		0			0.156			0.312			0.625			1.25		
Triglyceride (mg/dL)	SD 28	111.5	± 9.5	(10) **	127.6	± 11.8	(10)	109.2	± 9.6	(10)	88.1	± 6.8	(10)	72.3	± 5.6	(10) **
Percent of Control					114.4			97.9			79.0			64.8		
Alanine Aminotransferase (IU/L)	SD 28	57.70	± 3.79	(10)	69.80	± 2.94	(10)	83.60	± 9.48	(10) *	84.00	± 5.44	(10) **	73.70	± 5.67	(10)
Percent of Control					120.97			144.89			145.58			127.73		
Alkaline Phosphatase (IU/L)	SD 28	195.8	± 8.3	(10) **	212.5	± 10.4	(10)	239.8	± 8.4	(10) **	275.7	± 11.2	(10) **	372.3	± 31.8	(10) **
Percent of Control					108.5			122.5			140.8			190.1		
Aspartate Aminotransferase (U/L)	SD 28	65.30	± 3.22	(10) **	74.00	± 3.02	(10) *	77.30	± 5.37	(10) *	81.30	± 3.11	(10) **	87.50	± 4.62	(10) **
Percent of Control					113.32			118.38			124.50			134.00		
Creatine Kinase (IU/L)	SD 28	110.4	± 4.4	(10)	123.8	± 5.4	(10)	112.0	± 5.9	(10)	112.8	± 7.2	(10)	117.3	± 7.4	(10)
Percent of Control					112.1			101.4			102.2			106.3		
Sorbitol Dehydrogenase (IU/L)	SD 28	10.5	± 1.6	(10)	12.3	± 1.2	(10)	15.1	± 2.7	(10)	10.0	± 1.2	(10)	12.2	± 1.0	(10)
Percent of Control					117.1			143.8			95.2			116.2		
Bile salt/acids (umol/L)	SD 28	16.9	± 3.7	(10) **	8.0	± 1.7	(10)	10.3	± 2.0	(10)	23.2	± 3.6	(10)	91.2	± 11.6	(10) **
Percent of Control					47.3			60.9			137.3			539.6		

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Test Compound: Perfluorodecanoic Acid

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Date Report Requested: 04/04/2018

Time Report Requested: 14:00:00

Lab: Battelle

Male

		Treatment Groups	
	Phase Day	2.5	
Urea Nitrogen (mg/dL)	SD 28	22.8 ± 1.5	(9) *
Percent of Control		125.2	
Creatinine (mg/dL)	SD 28	0.63 ± 0.02	(9) *
Percent of Control		89.20	
Glucose (mg/dL)	SD 28	119.2 ± 5.5	(9) **
Percent of Control		55.7	
Total Protein (g/dL)	SD 28	4.59 ± 0.12	(9) **
Percent of Control		71.59	
Globulin (g/dL)	SD 28	1.27 ± 0.05	(9) **
Percent of Control		57.84	
A/G Ratio	SD 28	2.64 ± 0.09	(9) **
Percent of Control		136.37	
Albumin (g/dL)	SD 28	3.32 ± 0.09	(9) **
Percent of Control		78.73	
Total Bilirubin (mg/dL)	SD 28	0.608 ± 0.063	(9) **
Percent of Control		451.962	
Direct Bilirubin (mg/dL)	SD 28	0.225 ± 0.039	(9) **
Percent of Control		840.381	
Indirect Bilirubin (mg/dL)	SD 28	0.383 ± 0.054	(9) **
Percent of Control		355.308	
Cholesterol (mg/dL)	SD 28	91.8 ± 7.8	(9)
Percent of Control		86.2	

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Lab: Battelle

Male

		Treatment Groups	
	Phase Day	2.5	
Triglyceride (mg/dL)	SD 28	53.0 ± 7.6	(9) **
Percent of Control		47.5	
Alanine Aminotransferase (IU/L)	SD 28	61.56 ± 3.59	(9)
Percent of Control		106.68	
Alkaline Phosphatase (IU/L)	SD 28	275.4 ± 17.9	(9) **
Percent of Control		140.7	
Aspartate Aminotransferase (U/L)	SD 28	92.67 ± 2.68	(9) **
Percent of Control		141.91	
Creatine Kinase (IU/L)	SD 28	118.3 ± 8.1	(9)
Percent of Control		107.2	
Sorbitol Dehydrogenase (IU/L)	SD 28	13.9 ± 1.0	(9)
Percent of Control		132.3	
Bile salt/acids (umol/L)	SD 28	220.8 ± 30.9	(8) **
Percent of Control		1306.2	

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Date Report Requested: 04/04/2018

Time Report Requested: 14:00:00

Lab: Battelle

Female

	Phase Day	Treatment Groups (mg/kg/day)																			
		0				0.156				0.312				0.625				1.25			
Urea Nitrogen (mg/dL)	SD 28	16.7	± 0.8	(9)	**	16.0	± 0.7	(9)	16.3	± 0.6	(10)	18.5	± 1.3	(10)	23.1	± 0.5	(10)	**			
Percent of Control						96.0			97.8			111.0			138.6						
Creatinine (mg/dL)	SD 28	0.77	± 0.02	(9)	*	0.74	± 0.02	(9)	0.73	± 0.02	(10)	0.75	± 0.02	(10)	0.74	± 0.02	(10)				
Percent of Control						97.10			95.22			97.83			96.52						
Glucose (mg/dL)	SD 28	210.3	± 7.2	(9)	**	191.9	± 9.0	(9)	186.7	± 10.1	(10)	204.0	± 10.2	(10)	144.8	± 7.4	(10)	**			
Percent of Control						91.2			88.8			97.0			68.8						
Total Protein (g/dL)	SD 28	6.29	± 0.09	(9)		6.46	± 0.15	(9)	6.45	± 0.09	(10)	6.45	± 0.12	(10)	6.18	± 0.13	(10)				
Percent of Control						102.65			102.56			102.56			98.27						
Globulin (g/dL)	SD 28	1.87	± 0.07	(9)	**	1.71	± 0.06	(9)	1.54	± 0.07	(10)	**	1.46	± 0.06	(10)	**	1.47	± 0.06	(10)	**	
Percent of Control						91.67			82.50			78.21			78.75						
A/G Ratio	SD 28	2.39	± 0.08	(9)	**	2.79	± 0.08	(9)	**	3.24	± 0.13	(10)	**	3.46	± 0.13	(10)	**	3.24	± 0.12	(10)	**
Percent of Control						116.65			135.56			144.91			135.63						
Albumin (g/dL)	SD 28	4.42	± 0.04	(9)		4.74	± 0.11	(9)	4.91	± 0.06	(10)	**	4.99	± 0.08	(10)	**	4.71	± 0.10	(10)		
Percent of Control						107.29			111.03			112.84			106.51						
Total Bilirubin (mg/dL)	SD 28	0.125	± 0.003	(10)	**	0.118	± 0.007	(9)	0.114	± 0.004	(10)	0.112	± 0.006	(10)	0.160	± 0.005	(10)	*			
Percent of Control						94.538			91.500			89.415			127.987						
Direct Bilirubin (mg/dL)	SD 28	0.024	± 0.002	(10)	**	0.024	± 0.002	(9)	0.025	± 0.002	(10)	0.025	± 0.002	(10)	0.049	± 0.004	(10)	**			
Percent of Control						102.203			103.797			104.641			205.907						
Indirect Bilirubin (mg/dL)	SD 28	0.101	± 0.003	(10)	**	0.094	± 0.008	(9)	0.090	± 0.005	(10)	0.087	± 0.006	(10)	0.111	± 0.004	(10)				
Percent of Control						92.739			88.614			85.842			109.703						
Cholesterol (mg/dL)	SD 28	99.2	± 3.5	(9)	**	99.9	± 7.0	(9)	91.4	± 3.9	(10)	98.9	± 4.2	(10)	90.6	± 4.7	(10)				
Percent of Control						100.7			92.1			99.7			91.3						

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Lab: Battelle

Female

	Phase Day	Treatment Groups (mg/kg/day)														
		0			0.156			0.312			0.625			1.25		
Triglyceride (mg/dL)	SD 28	68.9	± 8.0	(9) **	87.6	± 9.7	(9)	81.1	± 7.0	(10)	64.2	± 5.3	(10)	53.0	± 3.5	(10)
Percent of Control					127.1			117.7			93.2			76.9		
Alanine Aminotransferase (IU/L)	SD 28	47.78	± 3.24	(9) **	46.56	± 1.24	(9)	49.00	± 2.37	(10)	53.80	± 1.95	(10)	69.00	± 3.80	(10) **
Percent of Control					97.44			102.56			112.60			144.42		
Alkaline Phosphatase (IU/L)	SD 28	136.4	± 6.2	(9) **	156.1	± 8.0	(9)	182.8	± 11.6	(10) **	184.2	± 10.5	(10) **	281.1	± 22.9	(10) **
Percent of Control					114.4			134.0			135.0			206.0		
Aspartate Aminotransferase (U/L)	SD 28	62.60	± 3.40	(10) **	60.44	± 2.17	(9)	57.90	± 1.30	(10)	63.30	± 1.58	(10)	81.90	± 2.62	(10) **
Percent of Control					96.56			92.49			101.12			130.83		
Creatine Kinase (IU/L)	SD 28	87.0	± 4.1	(9) **	82.1	± 4.7	(9)	87.2	± 3.1	(10)	90.9	± 3.0	(10)	107.2	± 4.7	(10) **
Percent of Control					94.4			100.2			104.5			123.2		
Sorbitol Dehydrogenase (IU/L)	SD 28	6.4	± 0.6	(9) **	5.6	± 0.8	(9)	5.7	± 0.6	(10)	7.7	± 0.7	(10)	8.6	± 0.7	(10)
Percent of Control					86.2			88.4			119.5			133.4		
Bile salt/acids (umol/L)	SD 28	13.0	± 3.5	(9) **	12.2	± 2.9	(9)	20.2	± 1.9	(10)	17.4	± 3.2	(10)	39.7	± 7.3	(10) **
Percent of Control					94.0			155.4			133.8			305.4		

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Lab: Battelle

Female

		Treatment Groups	
	Phase Day	2.5	
Urea Nitrogen (mg/dL)	SD 28	25.0 ± 1.5	(7) **
Percent of Control		150.0	
Creatinine (mg/dL)	SD 28	0.69 ± 0.03	(7) *
Percent of Control		89.44	
Glucose (mg/dL)	SD 28	102.6 ± 8.0	(7) **
Percent of Control		48.8	
Total Protein (g/dL)	SD 28	5.56 ± 0.25	(7)
Percent of Control		88.36	
Globulin (g/dL)	SD 28	1.60 ± 0.18	(7) **
Percent of Control		85.71	
A/G Ratio	SD 28	2.69 ± 0.35	(7) **
Percent of Control		112.50	
Albumin (g/dL)	SD 28	3.96 ± 0.12	(7)
Percent of Control		89.48	
Total Bilirubin (mg/dL)	SD 28	0.570 ± 0.079	(7) **
Percent of Control		457.441	
Direct Bilirubin (mg/dL)	SD 28	0.192 ± 0.062	(7) **
Percent of Control		808.921	
Indirect Bilirubin (mg/dL)	SD 28	0.379 ± 0.026	(7) **
Percent of Control		374.965	
Cholesterol (mg/dL)	SD 28	64.7 ± 7.5	(7) **
Percent of Control		65.2	

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Lab: Battelle

Female

		Treatment Groups		
	Phase Day	2.5		
Triglyceride (mg/dL)	SD 28	50.4	± 4.3	(7)
Percent of Control			73.2	
Alanine Aminotransferase (IU/L)	SD 28	57.14	± 5.00	(7) *
Percent of Control			119.60	
Alkaline Phosphatase (IU/L)	SD 28	262.4	± 22.7	(7) **
Percent of Control			192.3	
Aspartate Aminotransferase (U/L)	SD 28	112.57	± 8.52	(7) **
Percent of Control			179.83	
Creatine Kinase (IU/L)	SD 28	157.7	± 14.9	(7) **
Percent of Control			181.3	
Sorbitol Dehydrogenase (IU/L)	SD 28	14.7	± 2.2	(7) **
Percent of Control			228.3	
Bile salt/acids (umol/L)	SD 28	98.6	± 31.4	(7) **
Percent of Control			758.2	

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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 ****