Experiment Number: C20617
Route: Gavage, IV
Species/Strain: Rat/Harlan Sprague-Dawley

Toxicokinetics Data Summary
Test Compound: Perfluorooctane Sulfonate
CAS Number: 1763-23-1

Date Report Requested: 12/02/2016
Time Report Requested: 11:50:02
Lab: Battelle Columbus

	Male			
	Treatment Groups (mg/kg)			
	2 [a]	2 [b]	20 [b]	2 [b]
	Brain			Kidney
$C_{max(pred)}$ (ng/mL)				
$T_{max(pred)}$ (hour)				
$C_{max(obs)}$	ND	4000 ng/g	10,300 ng/g	30,600 ng/g
$T_{max(obs)}$ (hour)	ND	24.0	24.0	6.00
$t_{1/2}$ (hour)	ND	669	537	1040
$t_{1/2(Alpha)}$ (hour)				
$t_{1/2(Beta)}$ (hour)				
k_{01} (hour^-1)				
$t_{1/2(k01)}$ (hour)				
k_{10} (hour^-1)				
$t_{1/2(k10)}$ (hour)				
k_{12} (hour^-1)				
k_{21} (hour^-1)				
Cl (mL/hr/kg)				
$Cl_{1(F)}$ (mL/hr/kg)				
V_1 (mL/kg)				
V_2 (mL/kg)				
$V_{1(F)}$ (mL/kg)				
$V_{2(F)}$ (mL/kg)				
MRT (hour)				
AUC_{0-t} (ng/mL*hr)				
AUC_{inf} (ng/mL*hr)				
F (percent)				

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Male

	Treatment Groups (mg/kg)			
	2 [b]	20 [b]	2 [b]	2 [b]
	Kidney		Liver	
$C_{max(pred)}$ (ng/mL)				
$T_{max(pred)}$ (hour)				
$C_{max(obs)}$	5510 ng/g	73,900 ng/g	106,000 ng/g	28,000 ng/g
$T_{max(obs)}$ (hour)	24.0	6.00	6.00	24.0
$t_{1/2}$ (hour)	651	824	1270	1760
$t_{1/2(Alpha)}$ (hour)				
$t_{1/2(Beta)}$ (hour)				
k_{01} (hour^-1)				
$t_{1/2(k01)}$ (hour)				
k_{10} (hour^-1)				
$t_{1/2(k10)}$ (hour)				
k_{12} (hour^-1)				
k_{21} (hour^-1)				
Cl (mL/hr/kg)				
$Cl_{1(F)}$ (mL/hr/kg)				
V_1 (mL/kg)				
V_2 (mL/kg)				
$V_{1(F)}$ (mL/kg)				
$V_{2(F)}$ (mL/kg)				
MRT (hour)				
AUC_{0-t} (ng/mL*hr)				
AUC_{inf} (ng/mL*hr)				
F (percent)				

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Male

	20 [b]	2 [c]	2 [c]	20 [c]
	Liver	Plasma		
$C_{max(pred)}$ (ng/mL)		6620.0 ± 900.0	55100.0 ± 6600.0	106000.0 ± 13000.0
$T_{max(pred)}$ (hour)		14.3 ± 2.7	0.942 ± 0.149	16.4 ± 2.7
$C_{max(obs)}$	168,000 ng/g			
$T_{max(obs)}$ (hour)	6.00			
$t_{1/2}$ (hour)	1110			
$t_{1/2(Alpha)}$ (hour)		73.8 ± 58.1	7.87 ± 3.25	95.7 ± 68.8
$t_{1/2(Beta)}$ (hour)		972.0 ± 133.0	801.0 ± 47.0	860.0 ± 101.0
k_{01} (hour^-1)		0.284 ± 0.074	4.94 ± 1.20	0.256 ± 0.060
$t_{1/2(k01)}$ (hour)		2.44 ± 0.63	0.140 ± 0.034	2.70 ± 0.63
k_{10} (hour^-1)		0.00145 ± 2.7E-4	0.00199 ± 2.9E-4	0.00152 ± 2.6E-4
$t_{1/2(k10)}$ (hour)		478.0 ± 90.0	349.0 ± 50.0	457.0 ± 77.0
k_{12} (hour^-1)		0.00404 ± 0.00394	0.0486 ± 0.0233	0.00269 ± 0.00256
k_{21} (hour^-1)		0.00463 ± 0.00355	0.0383 ± 0.0146	0.00385 ± 0.00269
Cl (mL/hr/kg)				
$Cl_{1(F)}$ (mL/hr/kg)		0.406 ± 0.031	0.0688 ± 0.0035	0.267 ± 0.019
V_1 (mL/kg)				
V_2 (mL/kg)				
$V_{1(F)}$ (mL/kg)		280.0 ± 48.0	34.6 ± 4.8	176.0 ± 27.0
$V_{2(F)}$ (mL/kg)		244.0 ± 81.0	43.9 ± 7.7	123.0 ± 42.0
MRT (hour)				
AUC_{0-t} (ng/mL*hr)		4130000.0	2.65E7	6.86E7
AUC_{inf} (ng/mL*hr)		4930000.0 ± 370000.0	2.91E7 ± 1500000.0	7.49E7 ± 5300000.0
F (percent)		135.0		205.0

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Male

	2 IV [d]
	Plasma
$C_{max(pred)}$ (ng/mL)	4800.0 ± 360.0
$T_{max(pred)}$ (hour)	
$C_{max(obs)}$	
$T_{max(obs)}$ (hour)	
$t_{1/2}$ (hour)	
$t_{1/2(Alpha)}$ (hour)	111.0 ± 65.0
$t_{1/2(Beta)}$ (hour)	952.0 ± 106.0
k_{01} (hour^-1)	
$t_{1/2(k01)}$ (hour)	
k_{10} (hour^-1)	0.00131 ± 1.2E-4
$t_{1/2(k10)}$ (hour)	528.0 ± 50.0
k_{12} (hour^-1)	0.00220 ± 0.00161
k_{21} (hour^-1)	0.00347 ± 0.00211
Cl (mL/hr/kg)	0.546 ± 0.031
$Cl_{1(F)}$ (mL/hr/kg)	
V_1 (mL/kg)	417.0 ± 31.0
V_2 (mL/kg)	264.0 ± 71.0
$V_{1(F)}$ (mL/kg)	
$V_{2(F)}$ (mL/kg)	
MRT (hour)	1250.0 ± 100.0
AUC_{0-t} (ng/mL*hr)	3450000.0
AUC_{inf} (ng/mL*hr)	3660000.0 ± 210000.0
F (percent)	

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Test Compound: Perfluorooctane Sulfonate
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Date Report Requested: 12/02/2016
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Lab: Battelle Columbus

	Female			
	Treatment Groups (mg/kg)			
	2 [a]	2 [b]	20 [b]	2 [b]
	Brain			Kidney
$C_{max(pred)}$ (ng/mL)				
$T_{max(pred)}$ (hour)				
$C_{max(obs)}$	ND	4270 ng/g	11,400 ng/g	10,900 ng/g
$T_{max(obs)}$ (hour)	ND	6.00	24.0	24.0
$t_{1/2}$ (hour)	ND	800	1670	1280
$t_{1/2(Alpha)}$ (hour)				
$t_{1/2(Beta)}$ (hour)				
k_{01} (hour^-1)				
$t_{1/2(k01)}$ (hour)				
k_{10} (hour^-1)				
$t_{1/2(k10)}$ (hour)				
k_{12} (hour^-1)				
k_{21} (hour^-1)				
Cl (mL/hr/kg)				
$Cl_{1(F)}$ (mL/hr/kg)				
V_1 (mL/kg)				
V_2 (mL/kg)				
$V_{1(F)}$ (mL/kg)				
$V_{2(F)}$ (mL/kg)				
MRT (hour)				
AUC_{0-t} (ng/mL*hr)				
AUC_{inf} (ng/mL*hr)				
F (percent)				

Experiment Number: C20617
Route: Gavage, IV
Species/Strain: Rat/Harlan Sprague-Dawley

Toxicokinetics Data Summary
Test Compound: Perfluorooctane Sulfonate
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Female

	Treatment Groups (mg/kg)			
	2 [b]	20 [b]	2 [b]	2 [b]
	Kidney		Liver	
$C_{max(pred)}$ (ng/mL)				
$T_{max(pred)}$ (hour)				
$C_{max(obs)}$	66,300 ng/g	132,000 ng/g	101,000 ng/g	23,800 ng/g
$T_{max(obs)}$ (hour)	6.00	6.00	6.00	6.00
$t_{1/2}$ (hour)	1490	1120	1310	1050
$t_{1/2(Alpha)}$ (hour)				
$t_{1/2(Beta)}$ (hour)				
k_{01} (hour^-1)				
$t_{1/2(k01)}$ (hour)				
k_{10} (hour^-1)				
$t_{1/2(k10)}$ (hour)				
k_{12} (hour^-1)				
k_{21} (hour^-1)				
Cl (mL/hr/kg)				
$Cl_{1(F)}$ (mL/hr/kg)				
V_1 (mL/kg)				
V_2 (mL/kg)				
$V_{1(F)}$ (mL/kg)				
$V_{2(F)}$ (mL/kg)				
MRT (hour)				
AUC_{0-t} (ng/mL*hr)				
AUC_{inf} (ng/mL*hr)				
F (percent)				

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Female

	20 [b]	2 [c]	2 [c]	20 [c]
	Liver	Plasma		
$C_{max(pred)}$ (ng/mL)		68200.0 ± 9500.0	7960.0 ± 900.0	136000.0 ± 17000.0
$T_{max(pred)}$ (hour)		0.924 ± 0.165	12.2 ± 5.2	13.7 ± 3.3
$C_{max(obs)}$	151,000 ng/g			
$T_{max(obs)}$ (hour)	24.0			
$t_{1/2}$ (hour)	1270			
$t_{1/2(Alpha)}$ (hour)		6.32 ± 3.65	19.1 ± 49.3	53.0 ± 72.5
$t_{1/2(Beta)}$ (hour)		863.0 ± 60.0	977.0 ± 83.0	865.0 ± 95.0
k_{01} (hour^-1)		4.96 ± 1.40	0.292 ± 0.128	0.291 ± 0.078
$t_{1/2(k01)}$ (hour)		0.140 ± 0.039	2.38 ± 1.04	2.38 ± 0.63
k_{10} (hour^-1)		0.00161 ± 2.8E-4	0.00102 ± 0.00040	0.00137 ± 2.8E-4
$t_{1/2(k10)}$ (hour)		432.0 ± 74.0	682.0 ± 265.0	506.0 ± 104.0
k_{12} (hour^-1)		0.0540 ± 0.0364	0.0107 ± 0.0369	0.00485 ± 0.00802
k_{21} (hour^-1)		0.0548 ± 0.0294	0.0254 ± 0.0573	0.00765 ± 0.00995
Cl (mL/hr/kg)				
$Cl_{1(F)}$ (mL/hr/kg)		0.0448 ± 0.0025	0.226 ± 0.013	0.186 ± 0.013
V_1 (mL/kg)				
V_2 (mL/kg)				
$V_{1(F)}$ (mL/kg)		27.9 ± 4.7	222.0 ± 84.0	136.0 ± 25.0
$V_{2(F)}$ (mL/kg)		27.5 ± 6.5	93.4 ± 93.0	86.3 ± 37.3
MRT (hour)				
AUC_{0-t} (ng/mL*hr)		3.97E7	8330000.0	9.59E7
AUC_{inf} (ng/mL*hr)		4.46E7 ± 2500000.0	8870000.0 ± 510000.0	1.07E8 ± 8000000.0
F (percent)			165.0	200.0

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Female

	2 IV [d]		
	Plasma		
$C_{max(pred)}$ (ng/mL)	6720.0	±	980.0
$T_{max(pred)}$ (hour)			
$C_{max(obs)}$			
$T_{max(obs)}$ (hour)			
$t_{1/2}$ (hour)			
$t_{1/2(Alpha)}$ (hour)	6.33	±	8.22
$t_{1/2(Beta)}$ (hour)	786.0	±	70.0
k_{01} (hour^-1)			
$t_{1/2(k01)}$ (hour)			
k_{10} (hour^-1)	0.00126	±	0.00020
$t_{1/2(k10)}$ (hour)	552.0	±	88.0
k_{12} (hour^-1)	0.0322	±	0.0453
k_{21} (hour^-1)	0.0770	±	0.100
Cl (mL/hr/kg)	0.373	±	0.027
$Cl_{1(F)}$ (mL/hr/kg)			
V_1 (mL/kg)	297.0	±	43.0
V_2 (mL/kg)	124.0	±	62.0
$V_{1(F)}$ (mL/kg)			
$V_{2(F)}$ (mL/kg)			
MRT (hour)	1130.0	±	100.0
AUC_{0-t} (ng/mL*hr)	4790000.0		
AUC_{inf} (ng/mL*hr)	5360000.0	±	390000.0
F (percent)			

LEGEND

Data are displayed as mean ± SEM

ND = not determined

MODELING METHOD & BEST FIT MODEL

[a] WinNonlin, Version 5.0.1, Pharsight Corporation, Mountain View, CA; Unable to determine lambda z due to only one measurable time point.

[b] WinNonlin, Version 5.0.1, Pharsight Corporation, Mountain View, CA; non-compartment model with first order input, first order output, and uniform weighting.

[c] WinNonlin, Version 5.0.1, Pharsight Corporation, Mountain View, CA; two-compartment model with first order input, first order output, and 1/Yhat2 weighting.

[d] WinNonlin, Version 5.0.1, Pharsight Corporation, Mountain View, CA; two-compartment model with bolus input, first order output, and l/Yhat2 weighting.

ANALYTE

Perfluorooctane Sulfonate

TK PARAMETERS

$C_{max(pred)}$ = Observed or Predicted Maximum plasma (or tissue) concentration

$T_{max(pred)}$ = Time at which C_{max} predicted or observed occurs

$C_{max(obs)}$ = Observed or Predicted Maximum plasma (or tissue) concentration

$T_{max(obs)}$ = Time at which C_{max} predicted or observed occurs

$t_{½}$ = $Lambda_z$ half-life, $t_{1/2}$, the terminal elimination half-life based on non-compartmental analysis

$t_{½(alpha)}$ = Half-life for the alpha phase

$t_{½(beta)}$ = Half-life for the beta phase

k_{01} = Absorption rate constant, k_a

$t_{1/2(k01)}$ = Half-life of the absorption process to the central compartment

k_{10} = Elimination rate constant from the central compartment also k_e or k_{elim}

$t_{1/2(k10)}$ = Half-life for the elimination process from the central compartment

k_{12} = Distribution rate constant from first to second compartment etc.

k_{21} = Distribution rate constant from second to first compartment etc.

Cl = Clearance, includes total clearance

$Cl_{1(F)}$ = Apparent clearance of the central compartment, also $Cl_{(F)}$ for gavage groups in non-compartmental model

V_1 = Volume of distribution of the central compartment, includes V_d and V_{volume} of distribution, V_z apparent volume of distribution NCA, V_{app} apparent volume of distribution for intravenous studies

V_2 = Volume of distribution for the peripheral compartment

$V_{1(F)}$ = Apparent volume of distribution for the central compartment includes $V_{d(F)}$, $V_{(F)}$ for oral groups, and $V_{c(F)}$

$V_{2(F)}$ = Apparent volume of distribution for the peripheral compartment

MRT = Mean residence time

AUC_{0-t} = Area under the plasma concentration versus time curve, AUC, from time t_i (initial) to t_f (final), AUC_{last}

AUC_{inf} = Area under the plasma concentration versus time curve, AUC, extrapolated to time equals infinity

F = Bioavailability, absolute bioavailability

** END OF REPORT **