Experiment Number: S0571
Route: IV
Species/Strain: Rat/F344

Toxicokinetics Data Summary
Test Compound: Naphthalene
CAS Number: 91-20-3

Date Report Requested: 02/09/2017
Time Report Requested: 12:58:13
Lab: Research Triangle Institute

Male

	Treatment Groups (mg/kg)					
	1 IV [a]	**1 IV [b]**	**3 IV [a]**	**3 IV [b]**	**10 IV [a]**	**10 IV [b]**
	Whole Blood					
Alpha (minute^-1)	0.367 ± 0.16		0.616		0.0911 ± 0.0072	
Beta (minute^-1)	0.0279 ± 0.016	0.0337 ± 0.02	0.00815	0.0082	0.00597 ± 1.9E-4	0.0032 ± 1.2E-4
$t_{1/2(Beta)}$ (minute)	58.3 ± 35	106 ± 88	138	90.9	116 ± 3.7	219 ± 7.9
k_{10} (minute^-1)	0.240 ± 0.13		0.0569		0.0605 ± 0.0036	
k_{12} (minute^-1)	0.113 ± 0.035		0.367		0.0276 ± 0.0037	
k_{21} (minute^-1)	0.0415 ± 0.022		0.198		0.00898 ± 5.8E-4	
Cl (mL/min/kg)		56.1 ± 11		40.3		38.4 ± 2.6
Cl_1 (mL/min/kg)	59.6 ± 11		39.2		42.4 ± 3.2	
V_1 (L/kg)	0.413 ± 0.16		2.61		0.710 ± 0.090	
V_{ss} (L/kg)	2.46 ± 1.4	3.24 ± 2.4	7.42	5.08	2.83 ± 0.21	2.99 ± 0.13
MRT (minute)	43.5 ± 29	65.2 ± 53	174	111	66.8 ± 1.4	78.4 ± 2.3
AUC_{inf} (ug*min/mL)	19.5 ± 3.1	20.8 ± 3.4	78.3	78.0	225 ± 18	249 ± 19

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Female

	Treatment Groups (mg/kg)					
	1 IV [a]	**1 IV [b]**	**3 IV [a]**	**3 IV [b]**	**10 IV [a]**	**10 IV [b]**
	Whole Blood					
Alpha (minute^-1)	0.239		0.121 ± 0.0051		0.101 ± 0.016	
Beta (minute^-1)	0.00539	0.0036	0.00732 ± 0.0018	0.0061 ± 0.0024	0.00453 ± 5.4E-4	0.0023 ± 1.9E-4
$t_{1/2(Beta)}$ (minute)	131	284	106 ± 25	146 ± 42	158 ± 21	310 ± 24
k_{10} (minute^-1)	0.148		0.0768 ± 0.0068		0.0667 ± 0.012	
k_{12} (minute^-1)	0.0869		0.0406 ± 0.0086		0.0320 ± 0.0048	
k_{21} (minute^-1)	0.00861		0.0112 ± 0.0018		0.00701 ± 0.0011	
Cl (mL/min/kg)		56.5		51.7 ± 11		35.0 ± 0.58
Cl_1 (mL/min/kg)	35.3		55.6 ± 13		39.5 ± 4.1	
V_1 (L/kg)	0.497		0.745 ± 0.18		0.650 ± 0.18	
V_{ss} (L/kg)	4.90	8.77	3.67 ± 1.4	4.10 ± 1.8	3.48 ± 0.54	4.09 ± 0.093
MRT (minute)	74.7	170	68.7 ± 24	84.3 ± 33	87.5 ± 7.3	117 ± 4.6
AUC_{inf} (ug*min/mL)	16.9	20.0	62.3 ± 15	67.0 ± 17	249 ± 23	276 ± 5.2

LEGEND

Data are displayed as mean ± SEM

MODELING METHOD & BEST FIT MODEL

[a] Data were analyzed using a 2-compartment model (Model 8, WinNonlin, Version 1.0 (SCI Software, Morrisville, NC). Blood concentration data were weighted as 1/YHAT, where YHAT is the predicted value of blood concentration at a given time; Best fit two compartment model (WinNonlin, Model 8) with 1/YHAT weighting

[b] Data were analyzed using a noncompartmental model for iv dosing (Model 201, WinNonlin, Version 1.0 (SCI Software, Morrisville, NC); Not best fit. Noncompartmental analysis of rats means and standard errors for pharmacokinetic parameters within a dose group.

ANALYTE

Naphthalene

TK PARAMETERS

Alpha = Hybrid rate constant of the alpha phase

Beta = Hybrid rate constant of the beta phase

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

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

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 = Clearance of central compartment, Cl_{app} or apparent clearance for intravenous groups

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_{ss} = Volume of distribution at steady state

MRT = Mean residence time

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

** END OF REPORT **