Experiment Number: K93025B   **Toxicokinetics Data Summary**   **Request Date:** 7/11/2023
Route: Whole Body Inhalation   **Compound:** Tetralin/ **Analyte:** Tetralin   **Request Time:** 10:03:16
Species/Strain: Rats/F344/N   **CAS Number:** 119-64-2   **Lab:** Battelle Northwest

Male

Treatment Group (ppm)

	15 Inhalation Plasma[a]	60 Inhalation Plasma[a]	120 Inhalation Plasma[a]
C_0min_pred (ug/mL)	0.330 ± 0.019	1.68 ± 0.13	4.58 ± 0.47
Alpha (minute^{-1})	0.0314 ± 0.0063	0.0257 ± 0.0054	0.0238 ± 0.0061
Alpha Half-life (minute)	22.1 ± 4.4	27.0 ± 5.7	29.1 ± 7.5
Beta (minute^{-1})	0.00518 ± 0.00092	0.0317 ± 0.0010	0.00279 ± 0.0014
Beta Half-life (minute)	134 ± 24	219 ± 69	249 ± 130
AUCinf_pred (ug*min*g^{-1})	27.7 ± 0.69	156 ± 7.9	431 ± 26

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Female

Treatment Group (ppm)

	15 Inhalation Plasma[a]	60 Inhalation Plasma[a]	120 Inhalation Plasma[a]
C_0min_pred (ug/mL)	0.278 ± 0.025	1.65 ± 0.19	4.43 ± 0.40
Alpha (minute^{-1})	0.0445 ± 0.015	0.0534 ± 0.016	0.0418 ± 0.011
Alpha Half-life (minute)	15.6 ± 5.1	13.0 ± 3.9	16.6 ± 4.4
Beta (minute^{-1})	0.00592 ± 0.0012	0.00434 ± 0.00099	0.00410 ± 0.00095
Beta Half-life (minute)	117 ± 23	160 ± 37	169 ± 39
AUCinf_pred (ug*min*g^{-1})	20.7 ± 1.0	127 ± 7.3	369 ± 15

LEGEND

MODELING SOFTWARE
   SAS PROC NUN (SAS Institute Inc., Cary, NC)

MODELING METHOD & BEST FIT MODEL
   [a] The nonlinear least-squares fitting program used is SAS PROC NUN (SAS Institute Inc., Cary, NC). bi-exponential elimination model using a nonlinear least-squares fitting program. The toxicokinetic parameter estimates and fitted models reported were derived using a weighting scheme of 1/mean Tetralin concentration.

ANALYTE
   Tetralin

TK PARAMETERS (All parameters use Confidence Interval instead of SD or SEM)

   C_0min_pred = Fitted plasma concentration at time zero (IV only)
   Alpha = Hybrid rate constant of the alpha phase
   Alpha Half-life = Half-life for the alpha phase
   Beta = Hybrid rate constant of the beta phase
   Beta Half-Life = Half-life for the beta phase
   AUCinf_pred = Area under the plasma concentration versus time curve, AUC, extrapolated to time equals infinity

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TK PARAMETERS PROTOCOL

ANALYSIS METHOD

Toxicokinetic parameters were determined by fitting the Equation C(t) equals $Ao e^{(-alpha*t)}$ plus $Bo e^{(-beta*t)}$ to the data using a nonlinear least- squares fitting program where C(t) is the blood concentration of Tetralin at any postexposure time (t), alpha and beta are the hybrid rate constants (min^{-1}) obtained from the fit and Ao and Bo are the intercepts on the ordinate (concentration) axis of the extrapolated initial and terminal phases, respectively. Estimates for the toxicokinetic values, with their approximate 95% confidence intervals, were obtained directly from the model. The elimination half-lives for the initial and terminal phases of the concentration versus time profiles were calculated as In2/alpha or In2/beta, respectively. The maximum blood concentration (Co) was assumed to occur at t equals 0 and was calculated as Ao plus Bo. The area under the curve (AUC) was estimated using the trapezoidal rule from the first to the last time point (AUCt). The AUC extrapolated to infinity (AUCinf) was estimated using the equation AUCinf equals AUCt plus Cf divided by beta where Cf is the concentration ug Tetralin/g blood measure at the final time point and beta is the rate constant for the terminal elimination phase.

TK_WHOLE BODY INHALATION PLASMA

15 ppm Male and Female

Blood was sampled at less than 5, and 30, 45, 60, 120, 240, 360, and 480 minutes postexposure of a single 6-hour whole body inhalation exposure Each animal was bled twice, once from each eye. The GC/MS method incorporating selected ion monitoring validated range was 0.00578 to 12.1 ug Tetralin/g blood. The limit of detection (LOD), limit of quantitation (LOQ), and experimental limit of quantitation (ELOQ) were 0.00059, 0.002, and 0.0058 ug Tetralin/g blood, respectively.

60 ppm, 120 ppm Male and Female

Blood was sampled at less than 5, and 30, 60, 90, 120, 240, 480, and 720 minutes postexposure. Each animal was bled twice, once from each eye. The GC/MS method incorporating selected ion monitoring validated range was 0.00578 to 12.1 ug Tetralin/g blood. The limit of detection (LOD), limit of quantitation (LOQ), and experimental limit of quantitation (ELOQ) were 0.00059, 0.002, and 0.0058 ug Tetralin/g blood, respectively.