Experiment Number: S0322
Route: IV, Gavage
Species/Strain: Mouse/B6C3F1

Toxicokinetics Data Summary
Compound: Emodin/ **Analyte:** Emodin
CAS Number: 518-85-2

Request Date: 7/11/2023
Request Time: 10:03:16
Lab: NIEHS CEDRA Corporation

Male

Treatment Group (mg/kg)

10 IV Plasma[a]

Half-life (hour)	2.21
Cl (L/h*kg)	4.49
V1 (L/kg)	14.3
AUCinf_pred (mg*h/L)	2.23

Female

	Treatment Group (mg/kg)	
	10 IV Plasma[a]	**80 Gavage Plasma[b]**
Half-life (hour)	4.13	
Cl (L/h*kg)	5.18	
V1 (L/kg)	30.9	
AUCinf_pred (mg*h/L)	1.93	1.23

LEGEND

MODELING SOFTWARE

Quattro Pro, Version 5.0

MODELING METHOD & BEST FIT MODEL

[a] The pharmacokinetic calculations were performed with noncompartmental methods using the Quattro Pro (Version 5 .0 for Windows, Borland International Inc ., Scotts Valley, CA) spreadsheet software, Non-compartmental

ANALYTE

Emodin

TK PARAMETERS

Half-Life = Lambda z Half life, t 1/2, the terminal elimination half-life based on non-compartmental analysis
Cl = Clearance, includes total clearance
V1 = Volume of distribution of the central compartment, includes Vd and V volume of distribution, Vz apparent volume of distribution NCA, Vapp apparent volume of distribution for intravenous studies
AUCinf = Area under the plasma concentration versus time curve, AUC, extrapolated to time equals infinity

TK PARAMETERS PROTOCOL

ANALYSIS METHOD

The pharmacokinetic calculations were performed with noncompartmental methods using the Quattro Pro (Version 5 .0 for Windows, Borland International Inc ., Scotts Valley, CA) spreadsheet software. At each time point, the available concentrations were averaged. Some gavage treatments led to concentration-time profiles which could not be interpreted according to any pharmacokinetic model. Only the results of valid analyses are shown. The elimination half-life (t1/2) was calculated as ln(2) divided by the negative slope of the linear regression of the natural logarithm of the concentrations forming the terminal phase of the kinetic profiles. The terminal phase did not always include the last measurable concentrations, but rather included those which upon visual inspection were close to a straight line. The area-under-the-curve (AUC) was calculated according to the linear trapezoidal rule, and extrapolated by dividing the last concentration by the elimination rate constant. The clearance was calculated as the dose divided by the AUC, and the volume of distribution (Vd) was obtained by dividing the clearance by the elimination rate constant. Note that these values were calculated by the analyzing laboratory. Values in the citation (other authors) may differ.

TK_INTRAVENOUS PLASMA

10 mg/kg Male and Female

Animals were given a single intravenous or gavage administration of emodin. Rats were sampled twice, mice once. Three animals were sampled per time point with 10 time points for intravenous route and 8 time points for gavage route after dosing. Animals were dosed and blood samples taken at one laboratory and the plasma samples shipped to a different company laboratory for analysis. Plasma samples were analyzed for emodin by a validated HPLC method -- reversed phase HPLC using UV detection at 454 nm with quinizarin as the internal standard. The lower limit of quantitation (LOQ) is 0.10 ug/mL and the limit of detection (LOD) is 0.014 ug/mL.

TK PARAMETERS PROTOCOL (cont'd)

TK_GAVAGE PLASMA

80 mg/kg Female

Animals were given a single intravenous or gavage administration of emodin. Rats were sampled twice, mice once. Three animals were sampled per time point with 10 time points for intravenous route and 8 time points for gavage route after dosing. Animals were dosed and blood samples taken at one laboratory and the plasma samples shipped to a different company laboratory for analysis. Plasma samples were analyzed for emodin by a validated HPLC method -- reversed phase HPLC using UV detection at 454 nm with quinizarin as the internal standard. The lower limit of quantitation (LOQ) is 0.10 ug/mL and the limit of detection (LOD) is 0.014 ug/mL.