

# Mouse Liver

## Female

Log			Average	95% CI	
	Vmax	$\mu\text{mol/hr/mg protein}$	-2.22	-2.41	-2.03
	Km	$\mu\text{mol/L}$	-0.77	-1.17	-0.38

## Male

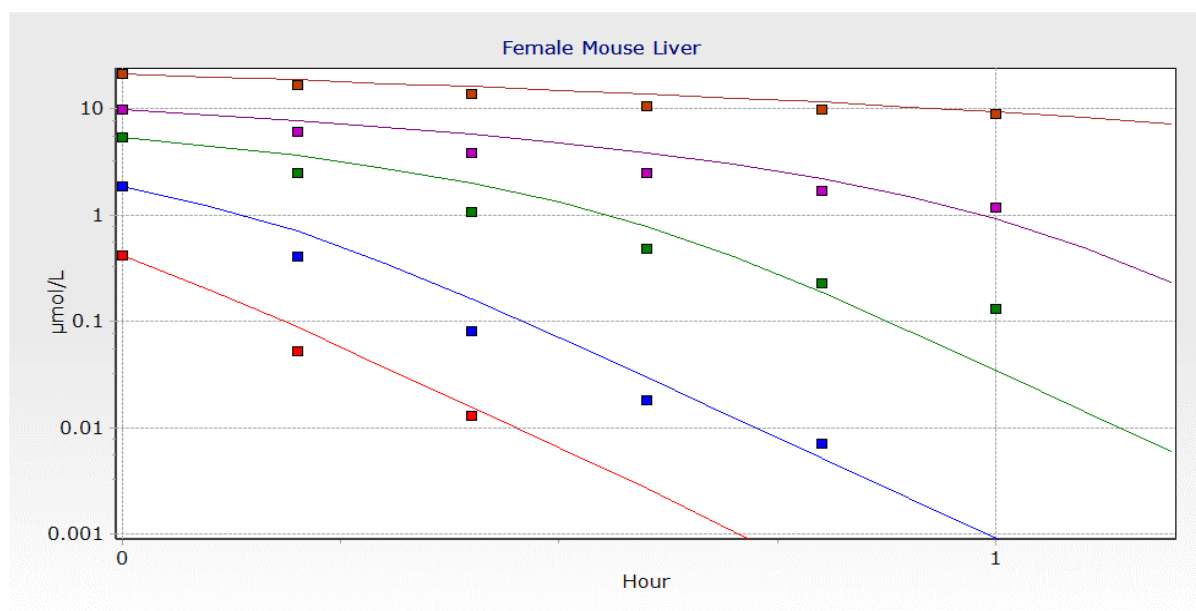
			Average	95% CI	
Vmax	$\mu\text{mol/hr/mg protein}$		-1.47	-1.53	-1.41
Km	$\mu\text{mol/L}$		-0.49	-0.62	-0.37

## Female

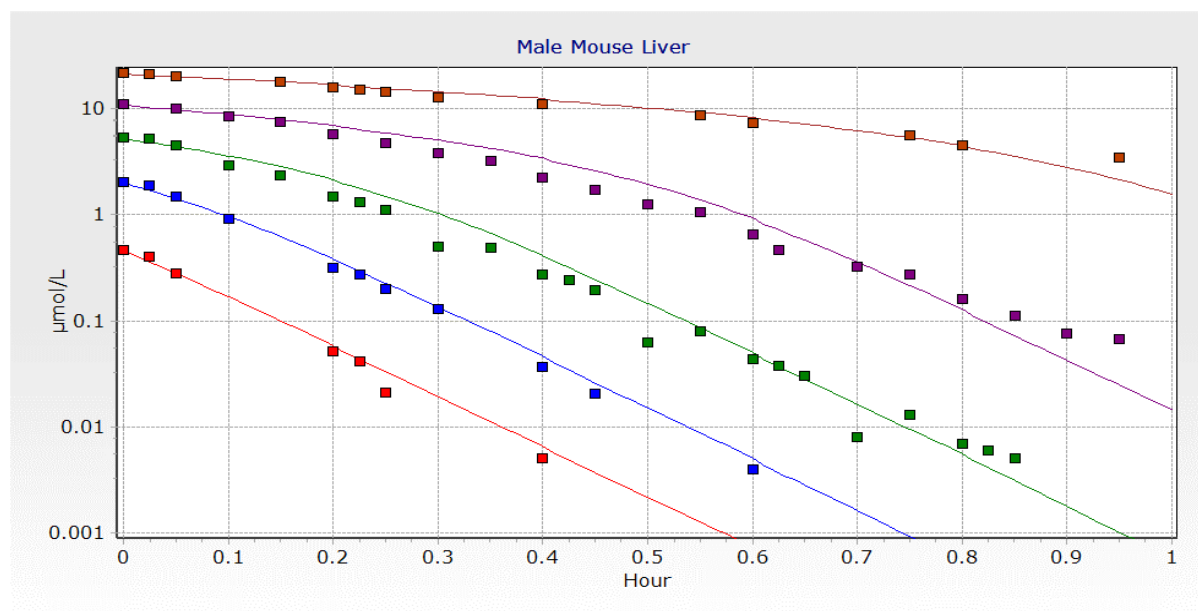
EXP			Average	95% CI	
	Vmax	$\mu\text{mol/hr/mg protein}$	0.108	0.090	0.13
	Km	$\mu\text{mol/L}$	0.46	0.31	0.69

## Male

			Average	95% CI	
Vmax	$\mu\text{mol/hr/mg protein}$		0.23	0.22	0.24
Km	$\mu\text{mol/L}$		0.61	0.54	0.69



# Mouse Liver



**Female** gelman.diag(x, autoburnin=FALSE)  
Potential scale reduction factors:

	Point est.	Upper CI
Likelihood	1	1
Vmax	1	1
Km	1	1

Multivariate psrf

1

>

> summary(x1)

Iterations = 1:10000  
Thinning interval = 1  
Number of chains = 1  
Sample size per chain = 10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series	SE
Likelihood	0.4676	0.07259	0.000726	0.001322		
Vmax	-2.2249	0.09873	0.000987	0.005343		
Km	-0.7689	0.20406	0.002041	0.010945		

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.3498	0.4162	0.4581	0.5098	0.6349
Vmax	-2.4128	-2.2913	-2.2245	-2.1606	-2.0291
Km	-1.1709	-0.9033	-0.7703	-0.6328	-0.3762

> summary(x2)

Iterations = 1:10000  
Thinning interval = 1  
Number of chains = 1  
Sample size per chain = 10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

# Mouse Liver

	Mean	SD	Naive	SE	Time-serie SE
Likelihood	0.4657	0.07228	0.000723	0.001437	
Vmax	-2.227	0.09753	0.000975	0.005162	
Km	-0.7733	0.20047	0.002005	0.010622	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.3515	0.4148	0.4565	0.5075	0.6288
Vmax	-2.4147	-2.2905	-2.2276	-2.1648	-2.0289
Km	-1.166	-0.9031	-0.7744	-0.6474	-0.3813

> summary(x3)

```

Iterations = 1:10000
Thinning interval = 1
Number of chains = 1
Sample size per chain = 10000

```

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-serie SE
Likelihood	0.4668	0.07275	0.000728	0.001521	
Vmax	-2.221	0.09732	0.000973	0.005156	
Km	-0.7599	0.19733	0.001973	0.010606	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.351	0.4156	0.458	0.5072	0.6381
Vmax	-2.412	-2.2834	-2.2215	-2.157	-2.0344
Km	-1.151	-0.8899	-0.7583	-0.628	-0.3843

**Male**

gelman.diag(x, autoburnin=FALSE)  
Potential scale reduction factors:

	Point est.	Upper CI
Likelihood	1	1
Vmax	1	1
Km	1	1

Multivariate psrf

1

>

> summary(x1)

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.3093	0.02639	0.000264	0.000432	
Vmax	-1.4697	0.0292	0.000292	0.00148	
Km	-0.4912	0.06384	0.000638	0.003181	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.2623	0.2911	0.3076	0.3263	0.3645
Vmax	-1.5259	-1.4889	-1.4695	-1.4495	-1.4137
Km	-0.6175	-0.5338	-0.4903	-0.4478	-0.3681

> summary(x2)

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

# Mouse Liver

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.3089	0.02592	0.000259	0.000423	
Vmax	-1.4696	0.0313	0.000313	0.001734	
Km	-0.4911	0.06778	0.000678	0.003782	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.2648	0.2902	0.3073	0.3248	0.3647
Vmax	-1.5289	-1.4901	-1.4712	-1.4491	-1.4054
Km	-0.6202	-0.535	-0.4942	-0.4463	-0.3491

> summary(x3)

```

Iterations = 1:10000
Thinning interval = 1
Number of chains = 1
Sample size per chain = 10000

```

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.3088	0.02604	0.00026	0.000427	
Vmax	-1.4675	0.02963	0.000296	0.001581	
Km	-0.487	0.06418	0.000642	0.003413	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.2637	0.29	0.3076	0.3253	0.3639
Vmax	-1.5278	-1.487	-1.4681	-1.4477	-1.4101
Km	-0.6179	-0.527	-0.4878	-0.4446	-0.3608

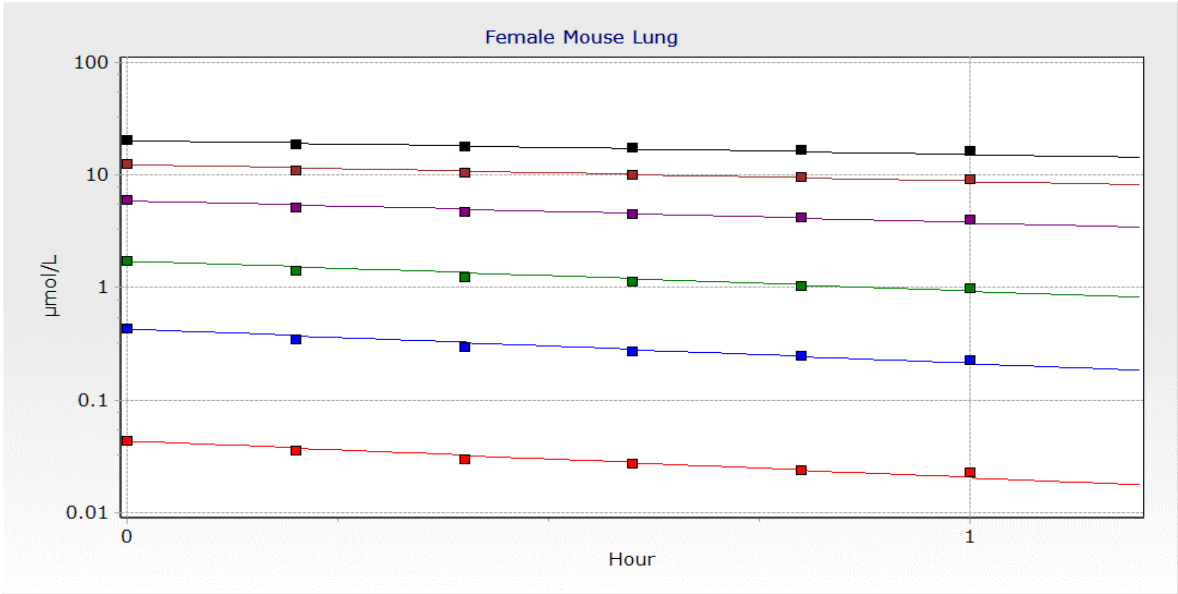
Mouse Lung

Log	Female				
			Average	95% CI	
	Vmax	μmol/hr/mg protei	-3.58	-3.91	-3.25
	Km	μmol/L	1.07	0.69	1.44

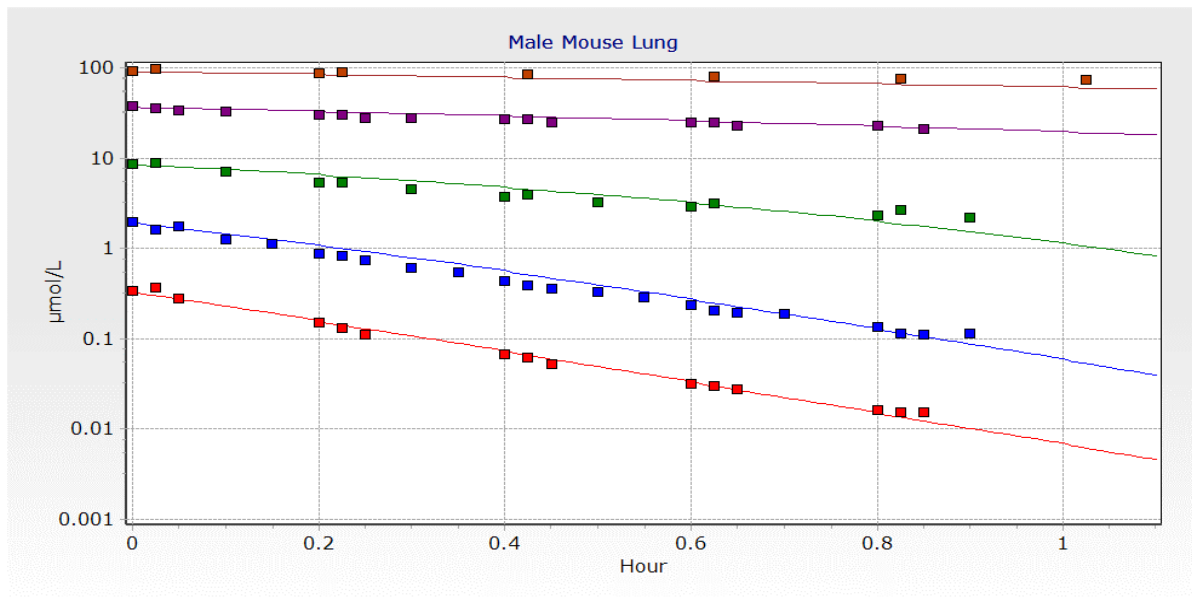
Male				
			Average	95% CI
Vmax	μmol/hr/mg protei	-2.03	-2.14	-1.90
Km	μmol/L	0.54	0.41	0.70

EXP	Female				
			Average	95% CI	
	Vmax	μmol/hr/mg protei	0.028	0.020	0.039
	Km	μmol/L	2.91	1.99	4.24

Male				
			Average	95% CI
Vmax	μmol/hr/mg protei	0.13	0.12	0.15
Km	μmol/L	1.72	1.51	2.02



# Mouse Lung





# Mouse Lung

Female gelman.diag(x, autoburnin=FALSE)  
Potential scale reduction factors:

	Point est.	Upper CI
Likelihood	1	1
Vmax	1.02	1.06
Km	1.02	1.06

Multivariate psrf

1.02

>

> summary(x1)

Iterations = 1:10000  
Thinning interval = 1  
Number of chains = 1  
Sample size per chain = 10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive SE	Time-series SE
Likelihood	0.05712	0.007288	7.29E-05	1.26E-04
Vmax	-3.57856	0.167052	1.67E-03	1.50E-02
Km	1.06718	0.192112	1.92E-03	1.75E-02

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.04514	0.05201	0.0564	6.13E-02	7.34E-02
Vmax	-3.90942	-3.69267	-3.5756	-3.46475	-3.25309
Km	0.68801	0.93497	1.0704	1.20E+00	1.44E+00

> summary(x2)

Iterations = 1:10000  
Thinning interval = 1  
Number of chains = 1  
Sample size per chain = 10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive SE	Time-series SE
Likelihood	0.05717	0.007458	7.46E-05	1.32E-04
Vmax	-3.62744	0.153111	1.53E-03	1.22E-02

# Mouse Lung

Km 1.01099 0.176328 1.76E-03 1.39E-02

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.04506	0.05192	0.05639	0.06148	0.07407
Vmax	-3.91588	-3.72782	-3.6303	-3.53244	-3.30676
Km	0.68354	0.8949	1.0068	1.12108	1.38889

> summary(x3)

Iterations	=	1:10000			
Thinning	interval	=	1		
Number	of	chains	=	1	
Sample	size	per	chain	=	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.05725	0.007307	7.31E-05	1.42E-04	
Vmax	-3.58837	0.171506	1.72E-03	1.50E-02	
Km	1.05708	0.197345	1.97E-03	1.74E-02	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.04502	0.05204	5.66E-02	0.06164	0.07368
Vmax	-3.94569	-3.70485	-3.58E+00	-346.42%	-328%
Km	0.64471	0.92227	1.06243	1.19907	1.42067

# Mouse Lung

Male      gelman.diag(x, autoburnin=FALSE)  
 Potential      scale      reduction factors:

	Point est.	Upper CI
Likelihood	1	1
Vmax	1.01	1.03
Km	1.01	1.03

Multivariate      psrf

1.01

>

>      summary(x1)

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
 plus standard error of the mean:

	Mean	SD	Naive	SE	Time-serie SE
Likelihood	0.15	1.26E-02	1.26E-04	0.000211	
Vmax	-2.0324	5.98E-02	5.98E-04	0.005499	
Km	0.5426	0.07296	0.00073	0.006626	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.1283	1.41E-01	1.49E-01	0.1579	0.1777
Vmax	-2.1416	-2.0738	-2.0341	-1.9979	-1.8976
Km	0.4094	4.93E-01	5.41E-01	0.5853	0.7042

>      summary(x2)

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
 plus standard error of the mean:

	Mean	SD	Naive	SE	Time-serie SE
Likelihood	0.1501	0.01273	0.000127	0.000219	
Vmax	-2.0425	0.05586	0.000559	0.004609	

# Mouse Lung

Km 0.5302 0.06889 0.000689 0.005681

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.1273	0.141	0.1491	0.1582	0.1773
Vmax	-2.1532	-2.0774	-2.0426	-2.0102	-1.9203
Km	0.3939	0.4869	0.5294	0.5702	0.6768

> summary(x3)

Iterations	=	1:10000			
Thinning	interval	=	1		
Number	of	chains	=	1	
Sample	size	per	chain	=	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.1504	0.01272	0.000127	0.000213	
Vmax	-2.0315	0.05622	0.000562	0.004598	
Km	0.5444	0.06879	0.000688	0.005782	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.1278	0.1414	0.1497	0.1585	0.1775
Vmax	-2.1342	-2.0695	-2.0338	-1.9979	-1.9093
Km	0.4199	0.4984	0.5421	0.5851	0.6904

# Mouse Kidney

Female

Log			Average	95% CI	
	KF	L/hr/mg protein	-7.056	-7.896	-6.553

Male

			Average	95% CI	
Vmax	$\mu\text{mol/hr/mg protein}$		-4.59	-4.86	-4.32
Km	$\mu\text{mol/L}$		-0.55	-0.87	-0.23

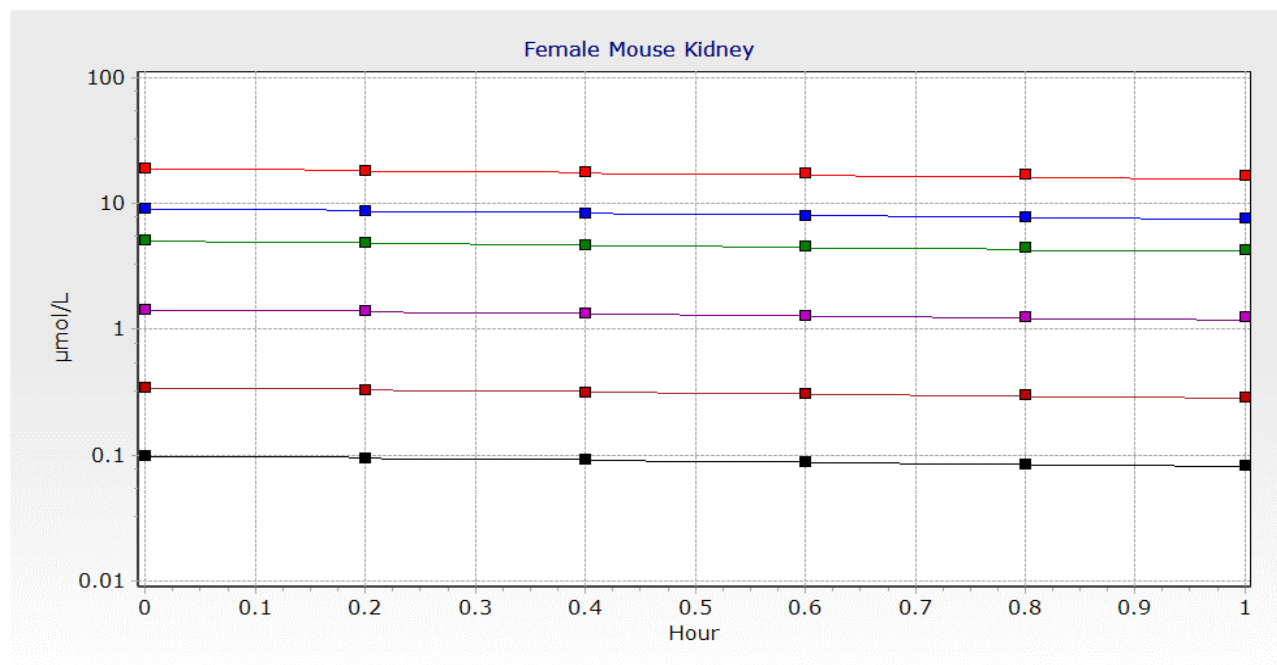
Female

EXP			Average	95% CI	
	KF	L/hr/mg protein	0.00043	0.00019	0.00071

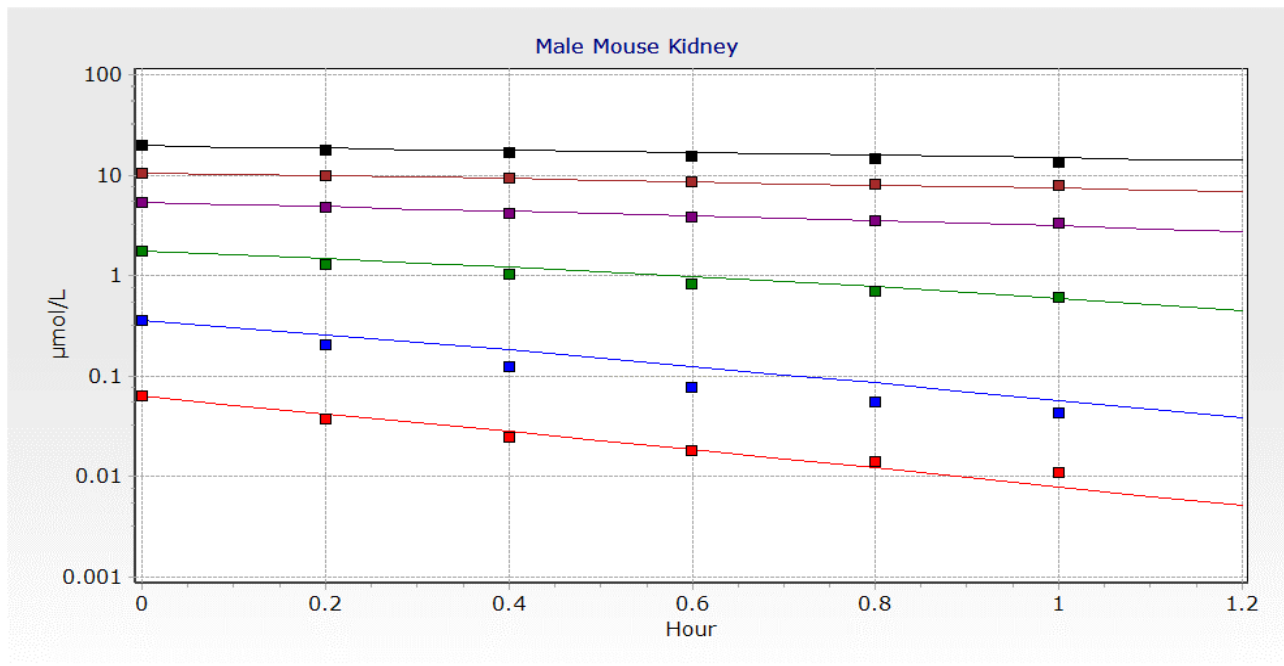
Note: 2 mg of protein used in assay (VK was not scaled in the in vitro model - lung was 1 mg so not needed)

Male

			Average	95% CI	
Vmax	$\mu\text{mol/hr/mg protein}$		0.010	0.008	0.013
Km	$\mu\text{mol/L}$		0.58	0.42	0.79



# Mouse Kidney



# Mouse Kidney

```

Female  gelman.diag(x, autoburnin=FALSE)
Potential scale      reduction factors:

      Point est. Upper CI
Likelihood      1      1
KF              1      1

Multivariate  psrf

1
>
> summary(x1)

Iterations = 1:10000
Thinning interval = 1
Number of chains = 1
Sample size per chain = 10000

1 Empirical mean and standard deviation for each variable
plus standard error of the mean:

      Mean      SD      Naive SE      Time-series SE
Likelihood  0.05436 0.006977 6.98E-05 0.000125
KF          -7.0563 0.347454 3.48E-03 0.006682

2 Quantiles for each variable:

      2.50%      25%      50%      75%      97.50%
Likelihood  0.04267 0.04948 0.05357 0.05872 0.06954
KF          -7.90  -7.22  -7.00  -6.82  -6.55

> summary(x2)

Iterations = 1:10000
Thinning interval = 1
Number of chains = 1
Sample size per chain = 10000

1 Empirical mean and standard deviation for each variable
plus standard error of the mean:

      Mean      SD      Naive SE      Time-series SE
Likelihood  0.05426 0.006831 6.83E-05 0.000122
KF          -7.06236 0.352842 3.53E-03 0.007388

2 Quantiles for each variable:

```

# Mouse Kidney

	2.50%	25%	50%	75%	97.50%
Likelihood	0.04286	0.04942	0.05366	0.05831	0.0696
KF	-7.91035	-7.22355	-7.00181	-6.83392	-6.5666

> summary(x3)

```

Iterations = 1:10000
Thinning interval = 1
Number of chains = 1
Sample size per chain = 10000

```

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive SE	Time-series SE
Likelihood	0.05438	0.006972	6.97E-05	0.000135
KF	-7.07084	0.354618	3.55E-03	0.007015

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.04282	0.04945	0.05362	0.05847	0.06985
KF	-7.91999	-7.22633	-7.01231	-6.84524	-6.55977



# Mouse Kidney

```

Male      gelman.diag(x, autoburnin=FALSE)
Potential scale      reduction factors:

          Point est. Upper CI
Likelihood          1      1
Vmax                1      1
Km                  1      1

Multivariate      psrf

1
>
>      summary(x1)

Iterations      =      1:10000
Thinning        interval =      1
Number          of      chains =      1
Sample          size      per      chain =      10000

1 Empirical mean and standard deviation for each variable
plus      standard error      of      the      mean:

      Mean      SD      Naive      SE      Time-series SE
Likelihood      0.1668  2.14E-02  2.14E-04  0.000389
Vmax             -4.5935  1.38E-01  1.38E-03  0.010119
Km               -0.552   0.163   0.00163  0.011951

2 Quantiles for      each      variable:

      2.50%      25%      50%      75%      97.50%
Likelihood      0.1312  1.52E-01  1.65E-01  0.1798  0.214
Vmax             -4.8606  -4.6882  -4.5891  -4.5057  -4.315
Km               -0.8682  -6.63E-01  -5.52E-01  -0.4457  -0.231

>      summary(x2)

Iterations      =      1:10000
Thinning        interval =      1
Number          of      chains =      1
Sample          size      per      chain =      10000

1 Empirical mean and standard deviation for each variable
plus      standard error      of      the      mean:

      Mean      SD      Naive      SE      Time-series SE
Likelihood      0.1668  0.02106  0.000211  0.000376
Vmax             -4.6043  0.14446  0.001445  0.010337

```

# Mouse Kidney

Km                    -0.563    0.1714 0.001714   0.01248

2 Quantiles for            each            variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.1317	0.1519	0.1649	0.1791	0.2151
Vmax	-4.8867	-4.7005	-4.6021	-4.5126	-4.3084
Km	-0.9081	-0.6784	-0.5623	-0.4552	-0.2094

>                    summary(x3)

Iterations	=	1:10000			
Thinning	interval	=	1		
Number	of	chains	=	1	
Sample	size	per	chain	=	10000

1 Empirical mean and standard deviation for each variable  
plus            standard   error            of            the            mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.1671	0.02115	0.000212	0.00036	
Vmax	-4.5944	0.14189	0.001419	0.009994	
Km	-0.5529	0.16812	0.001681	0.011675	

2 Quantiles for            each            variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.1322	0.1523	0.1652	0.1801	0.214
Vmax	-4.8713	-4.6878	-4.593	-4.5042	-4.3089
Km	-0.8801	-0.6603	-0.5517	-0.4467	-0.2155

# Rat Liver

## Female

Log			Average	95% CI	
	Vmax	$\mu\text{mol/hr/mg protein}$	-2.64	-2.85	-2.44
	Km	$\mu\text{mol/L}$	-0.30	-0.57	-0.04

## Male

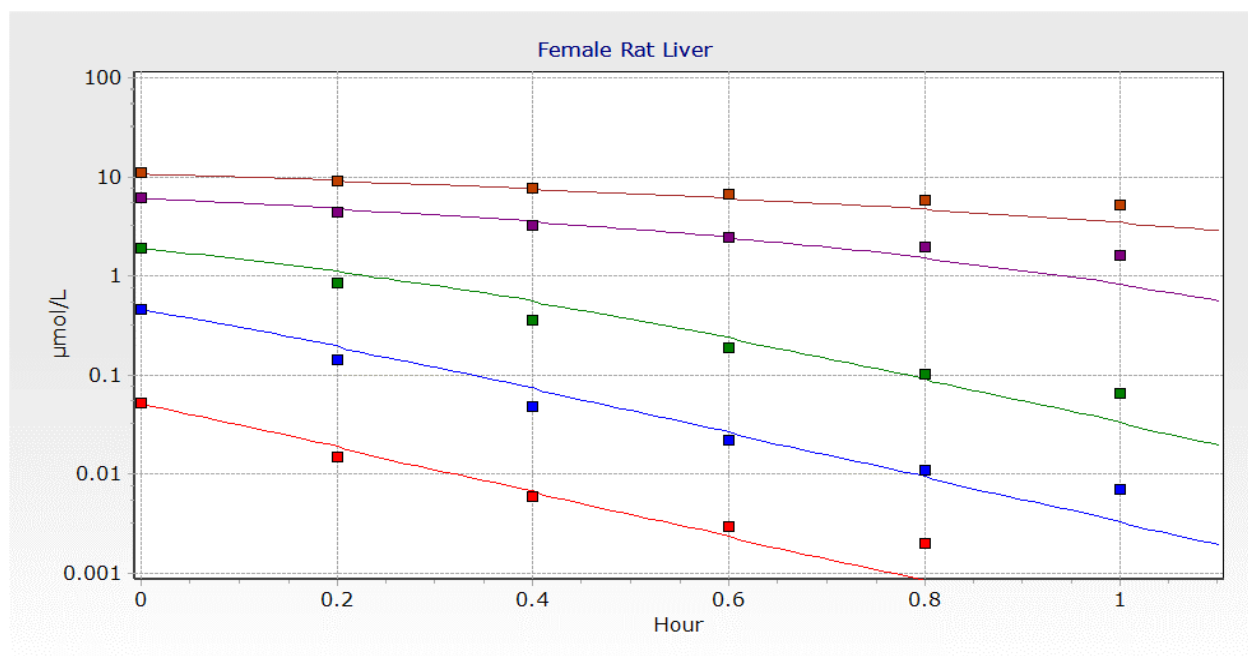
		Average	95% CI	
Vmax	$\mu\text{mol/hr/mg protein}$	-2.65	-2.69	-2.61
Km	$\mu\text{mol/L}$	-1.06	-1.15	-0.97

## Female

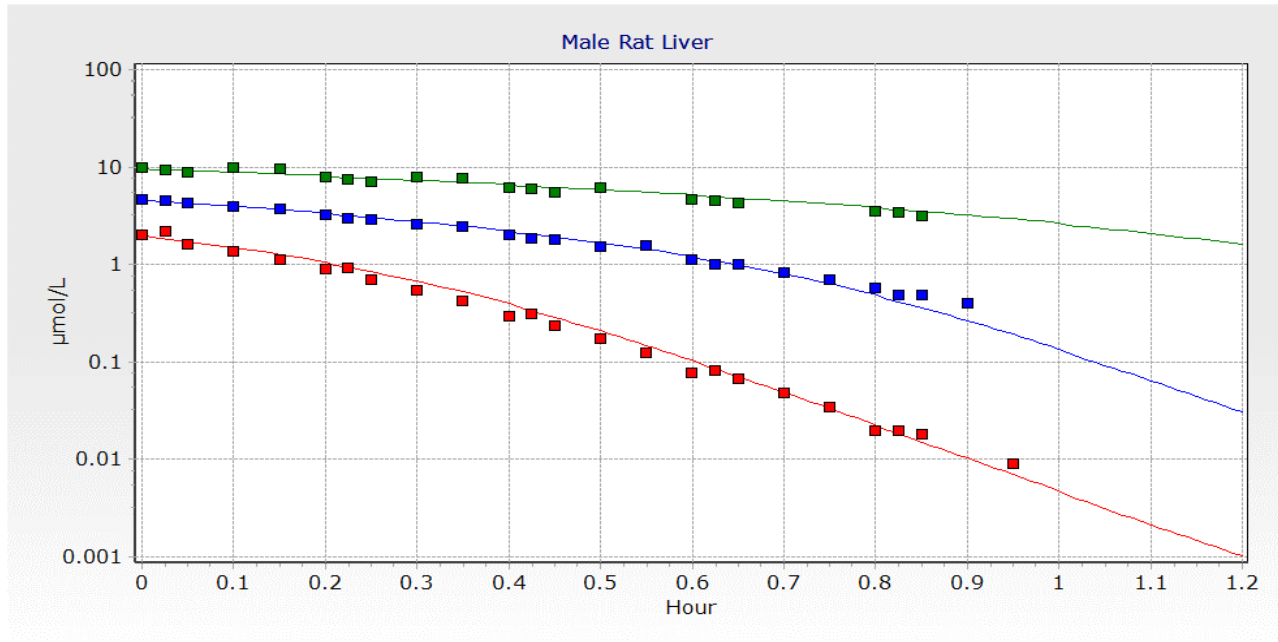
EXP			Average	95% CI	
	Vmax	$\mu\text{mol/hr/mg protein}$	0.072	0.058	0.087
	Km	$\mu\text{mol/L}$	0.74	0.57	0.96

## Male

		Average	95% CI	
Vmax	$\mu\text{mol/hr/mg protein}$	0.071	0.068	0.074
Km	$\mu\text{mol/L}$	0.35	0.32	0.38



# Rat Liver



Female gelman.diag(x, autoburnin=FALSE)  
Potential scale reduction factors:

	Point est.	Upper CI
Likelihood	1	1
Vmax	1	1
Km	1	1

Multivariate psrf

```
1
>
> summary(x1)
```

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.3036	0.04508	0.000451	0.000803	
Vmax	-2.6364	0.10084	0.001008	0.0069	
Km	-0.2997	0.12941	0.001294	0.008673	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.2305	0.2716	0.2979	0.3311	0.4064
Vmax	-284.82%	-270%	-264%	-257%	-244.19%
Km	-0.5655	-0.3801	-0.2997	-0.2163	-0.04314

```
> summary(x2)
```

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.3036	0.04408	0.000441	0.000737	
Vmax	-2.6348	0.10162	0.001016	0.006766	

# Rat Liver

Km -0.2994 0.13007 0.001301 0.008482

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.2321	0.2713	0.2983	0.3293	0.40211
Vmax	-2.8249	-2.7046	-2.637	-2.5725	-2.42029
Km	-0.5443	-0.3869	-0.3033	-0.2192	-0.01368

> summary(x3)

Iterations	=	1:10000			
Thinning	interval	=	1		
Number	of	chains	=	1	
Sample	size	per	chain	=	10000

1 Empirical mean and standard deviation for each variable plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.3042	0.04407	0.000441	0.000818	
Vmax	-2.6326	0.09537	0.000954	0.00579	
Km	-0.2953	0.12156	0.001216	0.007502	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.2329	0.272	0.2989	0.3305	0.40475
Vmax	-2.8233	-2.697	-2.6305	-2.567	-2.4509
Km	-0.5337	-0.38	-0.2928	-0.2123	-0.06394

```

Male      gelman.diag(x, autoburnin=FALSE)
Potential scale      reduction factors:

          Point est. Upper CI
Likelihood          1      1
Vmax                1      1
Km                  1      1

Multivariate      psrf

1
>
>      summary(x1)

Iterations      =      1:10000
Thinning        interval =      1
Number          of      chains =      1
Sample         size      per      chain =      10000

1 Empirical mean and standard deviation for each variable
plus      standard error      of      the      mean:

      Mean      SD      Naive      SE      Time-series SE
Likelihood      0.1343      0.01211      0.000121      0.000202
Vmax            -2.6517      0.02121      0.000212      0.001302
Km              -1.0562      0.04554      0.000455      0.002823

2 Quantiles for      each      variable:

      2.50%      25%      50%      75%      97.50%
Likelihood      0.1132      0.1255      0.1335      0.1421      0.1604
Vmax            -269.32%      -267%      -265%      -264%      -260.93%
Km              -1.1479      -1.086      -1.0565      -1.0264      -0.966

>      summary(x2)

Iterations      =      1:10000
Thinning        interval =      1
Number          of      chains =      1
Sample         size      per      chain =      10000

1 Empirical mean and standard deviation for each variable
plus      standard error      of      the      mean:

      Mean      SD      Naive      SE      Time-series SE
Likelihood      0.134      0.01204      0.00012      0.000205
Vmax            -2.652      0.02063      0.000206      0.00121

```

# Rat Liver

Km -1.056 0.04378 0.000438 0.002598

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.1131	0.1257	0.1327	0.1415	0.1601
Vmax	-2.692	-2.6655	-2.6524	-2.6379	-2.6093
Km	-1.1437	-1.0856	-1.0573	-1.0274	-0.9659

> summary(x3)

Iterations	=	1:10000			
Thinning	interval	=	1		
Number	of	chains	=	1	
Sample	size	per	chain	=	10000

1 Empirical mean and standard deviation for each variable plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.1344	0.01224	0.000122	0.000207	
Vmax	-2.6509	0.02058	0.000206	0.001202	
Km	-1.0544	0.044	0.00044	0.002518	

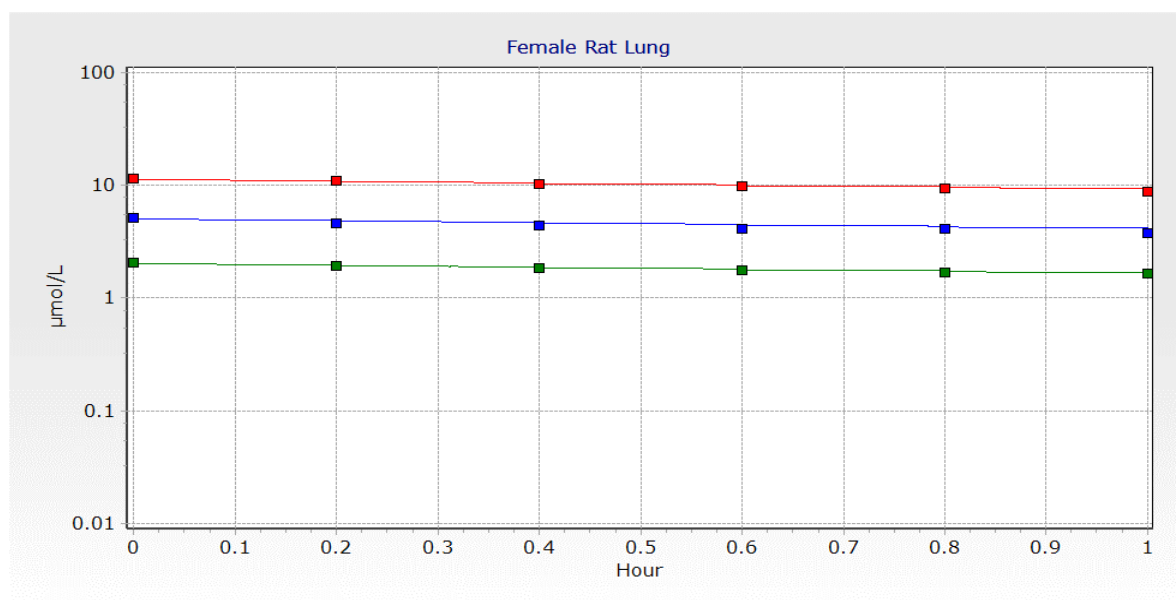
2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.1126	0.1258	0.1335	0.1419	0.1614
Vmax	-2.6904	-2.6651	-2.6505	-2.6376	-2.6089
Km	-1.1393	-1.0839	-1.0539	-1.0256	-0.9653

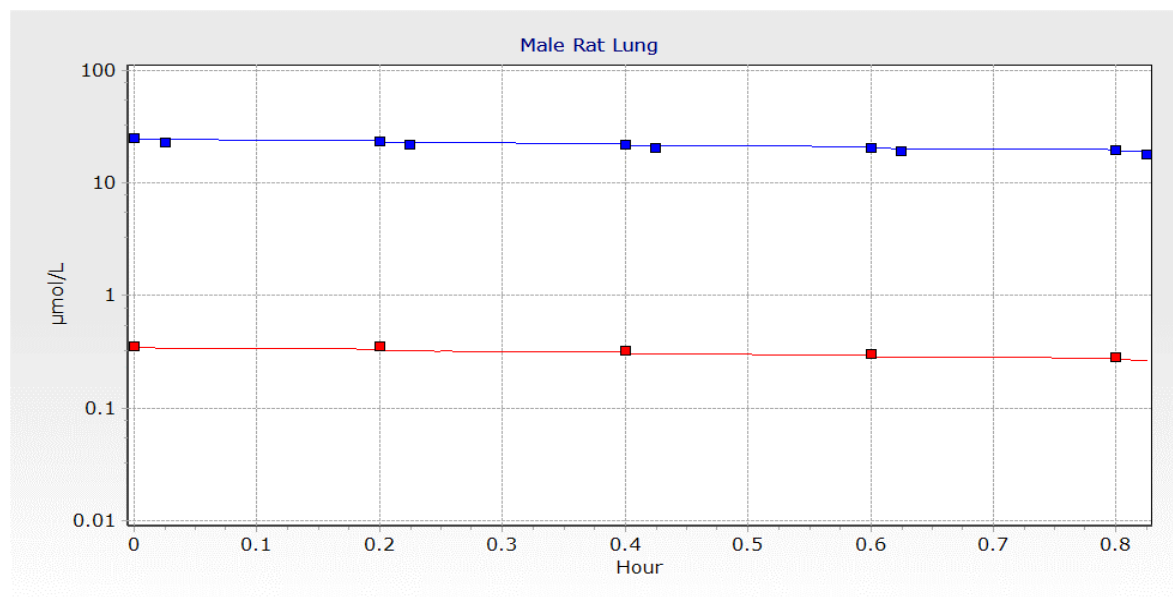


# Rat Lung

Log	Female		Median	95% CI	
	KF	L/hr/mg protein	-7.7880	-9.8580	-5.3120
	Male		Median	95% CI	
	KF	L/hr/mg protein	-7.0480	-9.7970	-4.0630
EXP	Female		Median	95% CI	
	KF	L/hr/mg protein	0.00041	0.000052	0.00493
	Male		Median	95% CI	
	KF	L/hr/mg protein	0.00087	0.00006	0.0172



## Rat Lung



Female gelman.diag(x, autoburnin=FALSE)  
Potential scale reduction factors:

	Point est.	Upper CI
Likelihood	1.05	1.16
KF	1	1

Multivariate psrf

1.05

>

> summary(x1)

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	2.05	0.309	3.09E-03	0.005108	
KF	-7.788	1.284	1.28E-02	0.018051	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	1.533	1.828	2.02E+00	2.244	2.721
KF	-9.858	-8.849	-7.82E+00	-6.808	-5.312

> summary(x2)

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	2.203	0.3273	3.27E-03	0.005313	
KF	-7.777	1.2763	1.28E-02	0.017886	

2 Quantiles for each variable:

# Rat Lung

	2.50%	25%	50%	75%	97.50%
Likelihood	1.662	1.968	2.166	2.401	2.945
KF	-9.841	-8.824	-7.828	-6.818	-5.276

> summary(x3)

```

Iterations = 1:10000
Thinning interval = 1.00E+00
Number of chains = 1
Sample size per chain = 10000

```

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive SE	Time-series SE
Likelihood	2.068	0.3201	3.20E-03	0.005258
KF	-7.789	1.2784	1.28E-02	0.018117

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	1.534	1.841	2.036	2.263	2.774
KF	-9.865	-8.815	-7.842	-6.823	-5.3

# Rat Lung

```
male      gelman.diag(x, autoburnin=FALSE)
Potential scale      reduction factors:

Point est. Upper CI
Likelihood      1.05      1.16
KF              1        1

Multivariate      psrf

1.05
>
>      summary(x1)

Iterations      =      1:10000
Thinning        interval      =      1
Number          of      chains      =      1
Sample          size      per      chain      =      10000

1 Empirical mean and standard deviation for each variable
plus      standard error      of      the      mean:

Mean      SD      Naive      SE      Time-series      SE
Likelihood      2.04      0.3347      0.003347      0.005455
KF              -7.048      1.6157      0.016157      0.021677

2 Quantiles for      each      variable:

2.50%      25%      50%      75%      97.50%
Likelihood      1.487      1.803      2.001      2.24      2.815
KF              -9.797      -8.355      -7.058      -5.784      -4.063

>      summary(x2)

Iterations      =      1:10000
Thinning        interval      =      1
Number          of      chains      =      1
Sample          size      per      chain      =      10000

1 Empirical mean and standard deviation for each variable
plus      standard error      of      the      mean:

Mean      SD      Naive      SE      Time-series      SE
Likelihood      2.179      0.3438      0.003438      0.005596
KF              -7.015      1.5991      0.015991      0.021262

2 Quantiles for      each      variable:
```

# Rat Lung

	2.50%	25%	50%	75%	97.50%
Likelihood	1.6	1.942	2.152	2.383	2.938
KF	-9.804	-8.299	-7.006	-5.784	-4.053

> summary(x3)

```

Iterations = 1:10000
Thinning interval = 1
Number of chains = 1
Sample size per chain = 10000

```

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive SE	Time-series SE
Likelihood	2.019	0.3376	0.003376	0.005777
KF	-7.087	1.599	0.01599	0.021289

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	1.468	1.777	1.973	2.218	2.813
KF	-9.811	-8.396	-7.077	-5.84	-4.137

# Rat Kidney

## Female

Log			Average	95% CI	
	Vmax	$\mu\text{mol/hr/r}$	-5.650	-5.904	-5.39
	Km	$\mu\text{mol/L}$	-0.599	-0.912	-0.28

## Male

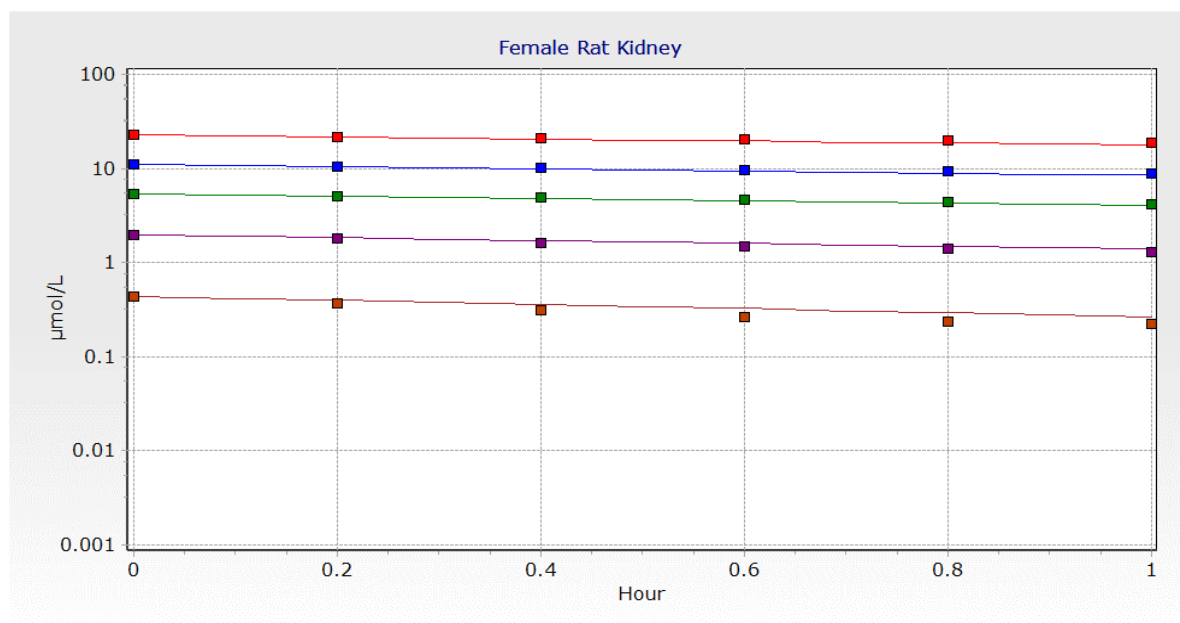
		Average	95% CI	
Vmax	$\mu\text{mol/hr/r}$	-5.51	-5.77	-5.22
Km	$\mu\text{mol/L}$	-0.17	-0.49	0.16

## Female

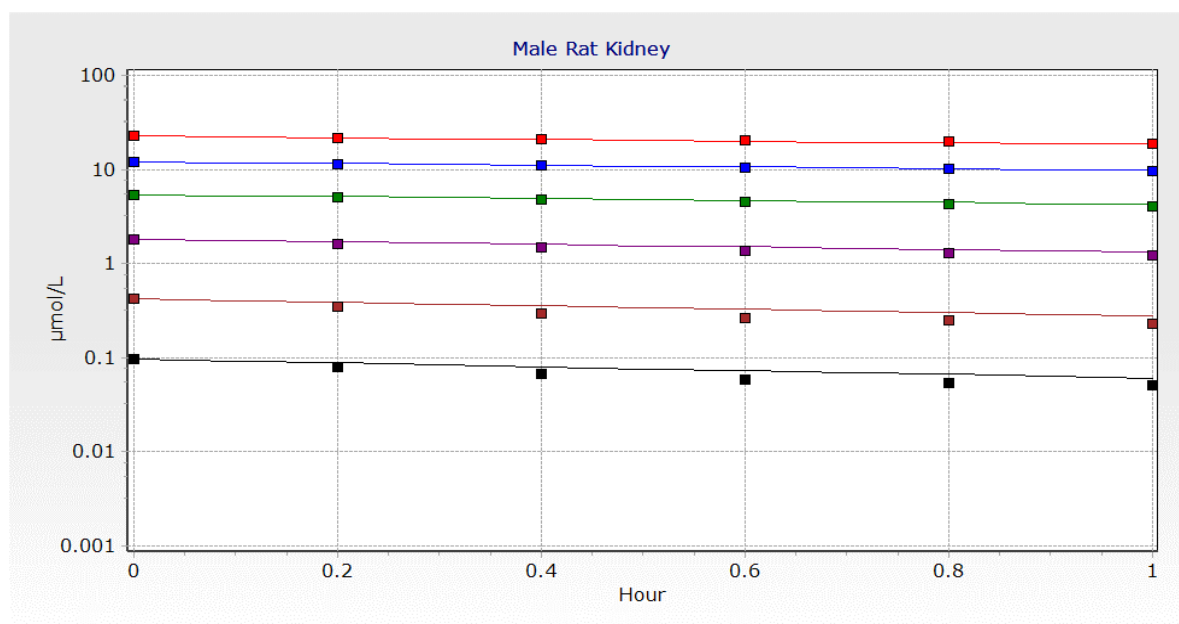
EXP			Average	95% CI	
	Vmax	$\mu\text{mol/hr/r}$	0.0035	0.0027	0.0046
	Km	$\mu\text{mol/L}$	0.55	0.40	0.76

## Male

		Average	95% CI	
Vmax	$\mu\text{mol/hr/r}$	0.0041	0.0031	0.0054
Km	$\mu\text{mol/L}$	0.84	0.61	1.18



# Rat Kidney





Female gelman.diag(x, autoburnin=FALSE)  
Potential scale reduction factors:

	Point est.	Upper CI
Likelihood	1	1
Vmax	1.01	1.01
Km	1.01	1.01

Multivariate psrf

```
1
>
> summary(x1)
```

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.05173	0.006683	6.68E-05	1.10E-04	
Vmax	-5.65033	0.130268	1.30E-03	9.59E-03	
Km	-0.59938	0.160524	1.61E-03	1.16E-02	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.04053	0.04693	0.05125	0.05584	0.06675
Vmax	-5.90355	-5.74056	-5.65076	-5.56237	-5.38774
Km	-0.91238	-0.70759	-0.60173	-0.49152	-0.27719

```
> summary(x2)
```

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

# Rat Kidney

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.05161	0.006409	6.41E-05	1.03E-04	
Vmax	-5.65309	0.140733	1.41E-03	1.15E-02	
Km	-0.60259	0.17301	1.73E-03	1.40E-02	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.04078	0.04703	0.05111	0.05564	0.0655
Vmax	-5.93537	-5.74771	-5.64618	-5.553	-5.3921
Km	-0.95007	-0.72112	-0.59589	-0.47809	-0.2866

> summary(x3)

Iterations	=	1:10000			
Thinning	interval	=	1		
Number	of	chains	=	1	
Sample	size	per	chain	=	10000

1 Empirical mean and standard deviation for each variable plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.05208	0.00656	6.56E-05	1.12E-04	
Vmax	-5.63819	0.15445	1.54E-03	1.35E-02	
Km	-0.58345	0.18904	1.89E-03	1.66E-02	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.04121	0.04732	0.0513	0.05622	0.06658
Vmax	-5.94001	-5.73934	-5.6421	-5.53731	-5.31548
Km	-0.96118	-0.70629	-0.5889	-0.46451	-0.19042

Male gelman.diag(x, autoburnin=TRUE)  
Potential scale reduction factors:

	Point est.	Upper CI
Likelihood	1	1.01
Vmax	1.02	1.07
Km	1.02	1.07

Multivariate psrf

1.02

>

> summary(x1)

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.03728	0.004749	4.75E-05	8.11E-05	
Vmax	-5.50646	0.137464	1.38E-03	1.18E-02	
Km	-0.17303	0.165471	1.66E-03	1.45E-02	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.02942	0.03383	0.0369	0.04031	0.04757
Vmax	-5.77049	-5.6005	-5.5066	-5.41614	-5.22128
Km	-0.49155	-0.28561	-0.1706	-0.06493	0.16198

>

summary(x2)

Iterations	=	1:10000
Thinning	interval =	1
Number	of chains =	1
Sample	size per chain =	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

# Rat Kidney

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.03707	0.004638	4.64E-05	7.71E-05	
Vmax	-5.51818	0.132386	1.32E-03	1.11E-02	
Km	-0.18764	0.159757	1.60E-03	1.32E-02	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.02913	0.03379	0.03667	0.03985	0.04744
Vmax	-5.76623	-5.60823	-5.51901	-5.43725	-5.25247
Km	-0.48377	-0.29546	-0.19014	-0.08872	0.13471

> summary(x3)

Iterations	=	1:10000			
Thinning	interval	=	1		
Number	of	chains	=	1	
Sample	size	per	chain	=	10000

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.0371	0.004785	4.79E-05	8.59E-05	
Vmax	-5.5344	0.135402	1.35E-03	1.20E-02	
Km	-0.2076	0.163251	1.63E-03	1.49E-02	

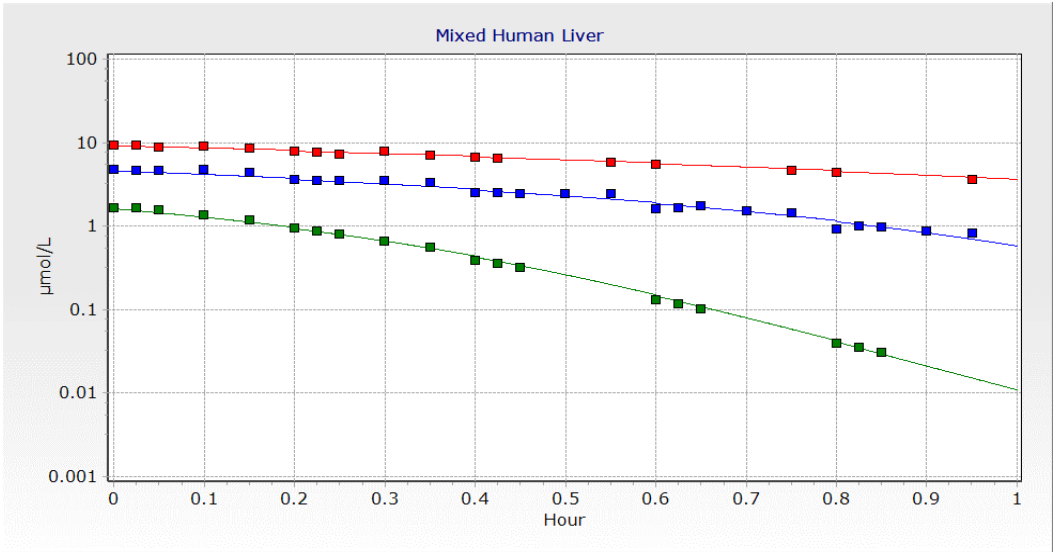
2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.02927	0.03374	0.03665	0.04004	0.04774
Vmax	-5.81117	-5.62335	-5.53361	-5.44755	-5.26298
Km	-0.5343	-0.31428	-0.20534	-0.1016	0.12265

Human Liver

Mixed Human		Average		95% CI	
Log	Vmax	μmol/hr/r	-2.959	-2.992	-2.93
	Km	μmol/L	-1.151	-1.223	-1.08

Mixed Human		Average		95% CI	
EXP	Vmax	μmol/hr/r	0.052	0.050	0.054
	Km	μmol/L	0.32	0.29	0.34





# Human Liver

```
gelman.diag(x, autoburnin=FALSE)
Potential scale reduction factors:
```

	Point est.	Upper CI
Likelihood	1	1
Vmax	1	1
Km	1	1

```
Multivariate psrf
```

```
1
>
>
> summary(x1)
```

```
Iterations = 1:10000
Thinning interval = 1
Number of chains = 1.00E+00
Sample size per chain = 1.00E+04
```

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive SE	Time-series SE
Likelihood	0.0752	0.007174	7.17E-05	1.19E-04
Vmax	-2.959	0.016627	1.66E-04	8.95E-04
Km	-1.1505	0.036055	3.61E-04	0.001957

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.06268	0.07012	0.07455	0.07973	0.09091
Vmax	-2.99176	-2.96974	-2.95915	-2.95E+00	-2.93E+00
Km	-1.22304	-1.1739	-1.14973	-1.13E+00	-1.08E+00

```
> summary(x2)
```

```
Iterations = 1:10000
Thinning interval = 1
Number of chains = 1
Sample size per chain = 10000
```

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive SE	Time-series SE
Likelihood	0.07538	0.007224	7.22E-05	1.19E-04

# Human Liver

```
Vmax      -2.95972  0.017136  1.71E-04  9.60E-04
Km        -1.15194  0.037421  3.74E-04  0.002065
```

2 Quantiles for each variable:

```
      2.50%    25%    50%    75%    97.50%
Likelihood    0.06297  0.07038  0.07471  0.07973  0.09108
Vmax          -2.99237 -2.97153 -2.95972 -2.94869 -2.92415
Km            -122.25%  -118%   -115%   -113%  -107.53%
```

```
> summary(x3)
```

```
Iterations      =      1:10000
Thinning        interval =      1
Number          of chains =      1
Sample          size per chain =      10000
```

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

```
      Mean    SD      Naive   SE      Time-series SE
Likelihood    0.07531  0.007241  7.24E-05  1.22E-04
Vmax          -2.95863  0.016767  1.68E-04  9.04E-04
Km            -1.1494  0.036705  3.67E-04  0.002025
```

2 Quantiles for each variable:

```
      2.50%    25%    50%    75%    97.50%
Likelihood    0.0629  0.07017  7.46E-02  0.07974  0.09132
Vmax          -2.9931 -2.96951 -2.95856 -2.94749 -2.9265
Km            -1.2237 -1.17323 -1.14921 -1.12577 -1.07885
```



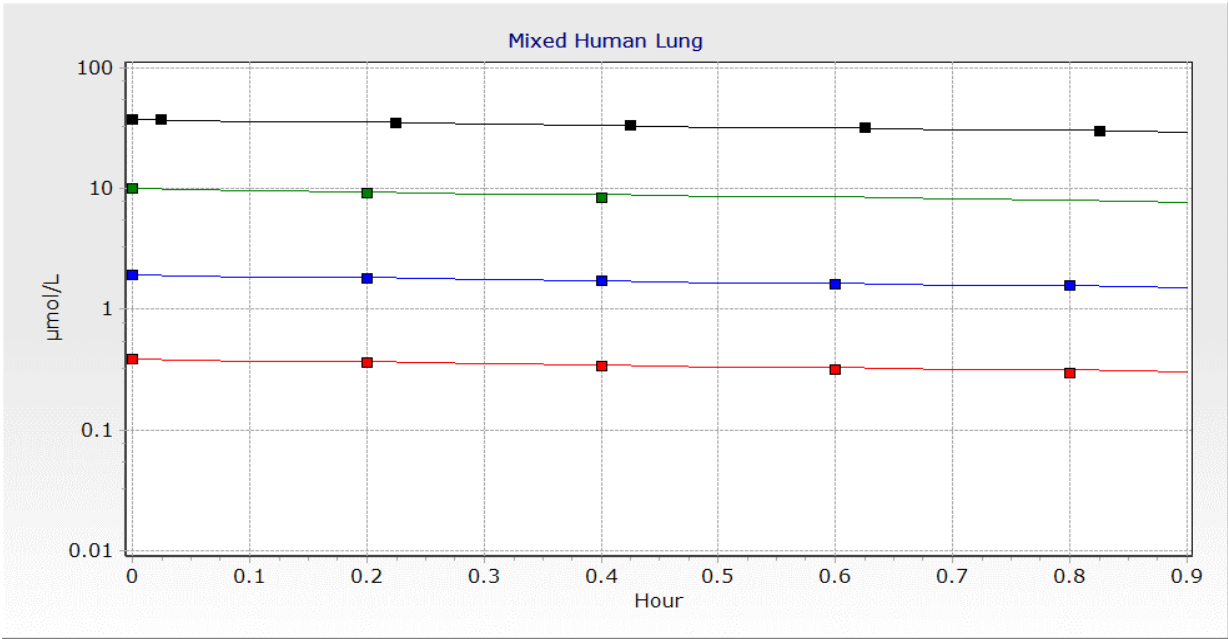
Human Lung

Mixed Human Lung Microsomes

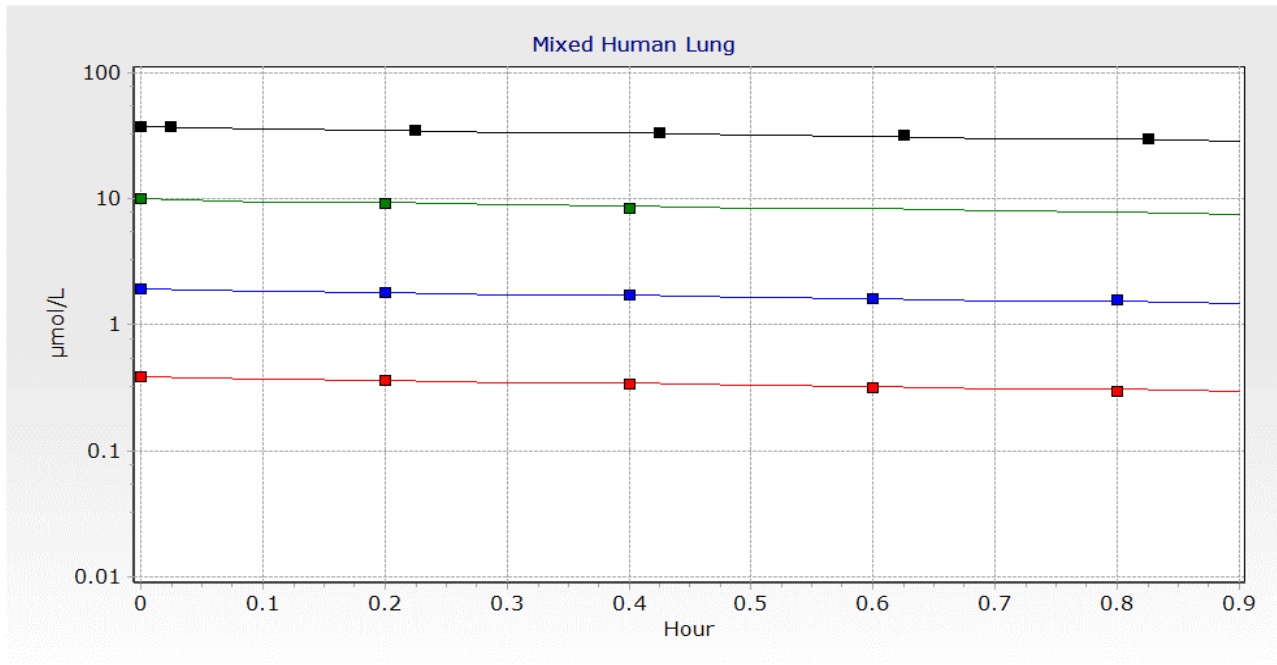
Log			Mean	95% CI	
	KF	L/hr/mg protein	-31.23	-57.38	-7.84

Mixed

EXP			Mean	95% CI	
	KF	L/hr/mg protein	2.73E-14	1.20E-25	3.92E-04



## Human Lung



# Human Lung

```
gelman.diag(x, autoburnin=TRUE)
Potential scale reduction factors:
```

	Point est.	Upper CI
Likelihood	1	1
KF	1	1

```
Multivariate psrf
```

```
1
```

```
>
```

```
> summary(x1)
```

Iterations	=	1:10000		
Thinning	interval	=	1.00E+00	
Number	of chains	=	1.00E+00	
Sample	size per chain	=	10000	

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.034	1%	6.13E-05	1.08E-04	
KF	-31.2314	14.69496	1.47E-01	3.65E-01	

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.02433	0.02964	0.03306	0.03716	0.0483
KF	-57.3782	-43.1335	-31.0057	-18.5737	-7.8447

```
> summary(x2)
```

Iterations	=	1:10000		
Thinning	interval	=	1.00E+00	
Number	of chains	=	1	
Sample	size per chain	=	10000	

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive	SE	Time-series SE
Likelihood	0.0336	0.00595	5.95E-05	1.01E-04	
KF	-31.5983	14.85774	1.49E-01	3.44E-01	

2 Quantiles for each variable:

# Human Lung

	2.50%	25%	50%	75%	97.50%
Likelihood	0.0244	0.02933	0.03282	0.03691	0.04755
KF	-57.854	-44.0332	-31.2451	-18.9358	-7.93

> summary(x3)

```

Iterations = 1:10000
Thinning interval = 1
Number of chains = 1
Sample size per chain = 10000

```

1 Empirical mean and standard deviation for each variable  
plus standard error of the mean:

	Mean	SD	Naive SE	Time-series SE
Likelihood	0.03377	0.0059	5.90E-05	1.01E-04
KF	-31.1458	14.9204	1.49E-01	3.53E-01

2 Quantiles for each variable:

	2.50%	25%	50%	75%	97.50%
Likelihood	0.02438	0.02958	0.03305	0.0371	0.0476
KF	-57.5813	-43.3802	-31.0608	-18.1723	-7.8754

MCMC Mean Parameters

			Liver			Lung			Kidney		
			Mean	95% CI		Mean	95% CI		Mean	95% CI	
Kg estimated	Male Mouse	Vmax (μmol/hr/mg protein)	0.23	0.22	0.24	0.13	0.12	0.15	0.010	0.008	0.013
		Km (μmol/L)	0.61	0.54	0.69	1.72	1.51	2.02	0.58	0.42	0.79
	Female Mouse	Vmax (μmol/hr/mg protein)	0.108	0.090	0.13	0.028	0.020	0.039			
		Km (μmol/L)	0.46	0.31	0.69	2.91	1.99	4.24			
		KF (L/hr/mg protein)							0.00043	0.00019	0.00071
	Male Rat	Vmax (μmol/hr/mg protein)	0.071	0.068	0.074				0.0041	0.0031	0.0054
		Km (μmol/L)	0.35	0.32	0.38				0.84	0.61	1.18
		KF (L/hr/mg protein)				0.00087	0.000056	0.0172			
	Female Rat	Vmax (μmol/hr/mg protein)	0.072	0.058	0.087				0.0035	0.0027	0.0046
		Km (μmol/L)	0.74	0.57	0.96				0.55	0.40	0.76
		KF (L/hr/mg protein)				0.00041	0.000052	0.00493			
	Human	Vmax (μmol/hr/mg protein)	0.052	0.050	0.054	7.4E-05			Not Measured		
		Km (μmol/L)	0.32	0.29	0.34	3.2E-01					
		KF (L/hr/mg protein)				2.7E-14	1.2E-25	3.9E-04			

Summary In Vivo Parameters				Liver	Lung	Kidney	
		Male Mouse	Vmax (mg/hr/BW^0.75)	17.50	0.76	0.120	
			Km (mg/L)	0.054	0.15	0.051	
		Female Mouse	Vmax (mg/hr/BW^0.75)	8.22	0.16		
			Km (mg/L)	0.041	0.26		
			KFKIC (L/hr/kg BW^0.75)			0.058	
		Male Rat	Vmax (mg/hr/BW^0.75)	7.30		0.038	
			Km (mg/L)	0.031		0.074	
			KFLUC (L/hr/kg BW^0.75)		0.069		
		Female Rat	Vmax (mg/hr/BW^0.75)	6.66		0.029	
			Km (mg/L)	0.066		0.049	
			KFLUC (L/hr/kg BW^0.75)		0.030		
		Human	Vmax (mg/hr/BW^0.75)	13.66	0.0029		
			Km (mg/L)	0.028	0.028		

Revised Scaling

Scaling factors for average adults in each species	Parameter	BW (kg)	Liver fractional weight (VLC)	Lung fractional weight (VLUC)	Kidney fractional weight (VKC)	Liver mg microsomal protein per g liver (MPPGL)	Lung mg microsomal protein per g lung (MPPGLU)	Kidney mg microsomal protein per g kidney (MPPGK)	MW
	B6C3F1 Mouse (Female)	0.04	0.0549	0.0073	0.0167	35	20	18	88.53650
	B6C3F1 Mouse (Male)	0.04	0.0549	0.0073	0.0167	35	20	18	g/mol = ug/umol
	F344 Rat (Female)	0.265	0.0366	0.005	0.0073	40	20	18	
	F344 Rat (Male)	0.407	0.0366	0.005	0.0073	40	20	18	
	Average Human	70	0.0257	0.0076	0.0044	40	20	11	
	Reference	Brown et al, 1997 (page 415 in text)	Brown et al, 1997 (Tables 4, 5, & 7)	Brown et al, 1997 (Tables 4, 5, & 7)	Brown et al, 1997 (Tables 4, 5, & 7)	Medinsky et al., 1994 for mouse; Medinsky et al., 1994 and Houston and Galetin, 2008 for rat; Barter et al., 2008 2007 for human	Medinsky et al., 1994 for all species	Yoon et al., 2007 for mouse and rat; Scotcher et al., 2017 for human	

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Biological Scaling	Vmaxc (mg/h/kg)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in
Female Mouse	Values	0.11	35	8.31	92.87	8.22
LIVER	Scaling & calculation		x MPPGL (mg MP/g liver)	x BW (kg) x VLC x 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g liver	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Biological Scaling	Vmaxc (mg/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in PBPK model)
Male Mouse	Values	0.23	35	17.68	197.64	17.50
LIVER	Scaling & calculation		x MPPGL (mg MP/g liver)	x BW (kg) x VLC x 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g liver	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Biological Scaling	Vmaxc (mg/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in PBPK model)
Female Rat	Values	0.072	40	27.79	75.23	6.66
LIVER	Scaling & calculation		x MPPGL (mg MP/g liver)	x BW (kg) x VLC x 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g liver	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Biological Scaling	Vmaxc (mg/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in PBPK model)
Male Rat	Values	0.071	40	42.03	82.47	7.30
LIVER	Scaling & calculation		x MPPGL (mg MP/g liver)	x BW (kg) x VLC x 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g liver	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Biological Scaling	Vmaxc (mg/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in PBPK model)
Mixed gender Human	Values	0.052	40	3732.62	154.24	13.66
LIVER	Scaling & calculation		x MPPGL (mg MP/g liver)	x BW (kg) x VLC x 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g liver	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Alternat Scaling



Biological Scaling	VmaxLUC (mg/h/kg)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo
Female Mouse	Values	0.028	20	0.163	1.82	0.16
LUNG	Scaling & calculation		x MPPGLU (mg MP/g lung)	x BW (kg) X VLUC X 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g lung	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Biological Scaling	KFKIC (L/h/kg)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	
Female Mouse	Values	0.0004310	18	0.00518	0.058	
KIDNEY	Scaling & calculation		x MPPGK (mg MP/g kidney)	x BW (kg) x VKC x 1000 (g/kg)	/BW^0.75	
	Unit	L/h/mg MP	L/hr/g kidney	L/hr	L/h/kg BW^0.75	

Biological Scaling	VmaxLUC (mg/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in PBPK model)
Male Mouse	Values	0.13	20	0.765	8.55	0.76
LUNG	Scaling & calculation		x MPPGLU (mg MP/g lung)	x BW (kg) X VLUC X 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g lung	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Biological Scaling	VmaxKIDc (mg/h/kg BW^0.75)	In vitro value (Yang et al. 2012, Table 3)	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in PBPK model)
Male Mouse	Values	0.010	18	0.122	1.36	0.12
KIDNEY	Scaling & calculation		x MPPGK (mg MP/g kidney)	x BW (kg) x VKC x 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g kidney	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Biological Scaling	KFLUC (L/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	
Female Rat	Values	0.00041	20	0.011	0.030	
LUNG	Scaling & calculation		x MPPGLU (mg MP/g lung)	x scaling factor x BW*VLUC X 1000 (g/kg)	/BW^0.75	
	Unit	L/h/mg MP		L/h	L/hr/BW^0.75	

Biological Scaling	VmaxKIDc (mg/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in PBPK model)
Female Rat	Values	0.00352	18	0.122	0.33	0.029
KIDNEY	Scaling & calculation		x MPPGK (mg MP/g kidney)	x BW (kg) x VKC x 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g kidney	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Biological Scaling	KFLUC (L/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75
Male Rat	Values	0.00087	20	0.035	0.069
LUNG	Scaling & calculation		x MPPGLU (mg MP/g lung)	X Scaling Factor X BW*VLUC X 1000 (g/kg)	/BW^0.75
	Unit	L/h/mg MP		L/h	L/hr/BW^0.75

Biological Scaling	VmaxKIDc (mg/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in PBPK model)
Male Rat	Values	0.00406	18	0.217	0.43	0.038
KIDNEY	Scaling & calculation		x MPPGK (mg MP/g kidney)	x BW (kg) x VKC x 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/1000 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g kidney	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Biological Scaling	KFLUC (L/h/kg BW)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75
Mixed gender Human	Values	2.73E-14	20	2.91E-10	1.20E-11
LUNG	Scaling & calculation		x MPPGLU (mg MP/g lung)	X Scaling Factor X BW*VLUC X 1000 (g/kg)	/BW^0.75
	Unit	L/h/mg MP		L/h	L/hr/BW^0.75

Biological Scaling	in vitro metabolic constant not reported in Yang et al. 2012
Mixed gender Human	
Kidney	

Biological Scaling	VmaxLUc (mg/h/kg BW^0.75)	In Vitro Value	x Scaling factor	x Tissue weight	/BW^0.75	x MW = In vivo parameter (unit in PBPK model)
Male Mouse	Values	7.42E-05	20	7.89E-01	3.26E-02	2.89E-03
LUNG	Scaling & calculation		x MPPGLU (mg MP/g lung)	x BW (kg) X VLUC X 1000 (g/kg)	/BW^0.75	x MW (ug/umol)/10 00 (ug/mg)
	Unit	umol/h/mg MP	umol/h/g lung	umol/h	umol/h/kg BW^0.75	mg/h/kg BW^0.75

Uses IVIVE scaling approach from the Yoon report. (human lung Vmax calculated using approach from methyl)

## Dose metrics using parameters derived with MCMC estimate of Kgl: 0.22 L/hr

**TSTOP**      **336 hrs**      Amt. Metab. = mg/day/g tissue

**Exposure:**    **6 hr/day 5 days/week**

**Revised parameters from MCMC of In Vitro data with flux limitation included**

<b>Female Mouse Initial Parm</b>				<b>Concentration Specific BW (kg)</b>
	Amt. Metab.	Amt. Metab.	Amt. Metab.	
ppm	Liver	Lung	Kidney	
12.8	1.14	1.00	0.066	0.040
32	2.91	1.58	0.17	0.040
80	7.57	2.15	0.45	0.036

Amt. Metab. = mg/day/g tissue

<b>Human Initial Parm</b>			
	Amt. Metab.	Amt. Metab.	Amt. Metab.
ppm	Liver	Lung	Kidney
12.8	0.30	0.0072	-
32	0.74	0.010	-
80	1.85	0.015	-

Amt. Metab. = mg/day/g tissue

**Human Continuous Exposure (24 hr/day)**

<b>Human Parm Continuous Exposure</b>			
	Amt. Metab.	Amt. Metab.	Amt. Metab.
PPM	Liver	Lung	Kidney
2.80E-04	3.56E-05	3.36E-06	-
1.00E-03	1.27E-04	1.20E-05	-
1.00E-02	1.27E-03	1.19E-04	-
1.00E-01	1.27E-02	1.16E-03	-
1.00E+00	1.28E-01	9.00E-03	-
2.00E+00	2.56E-01	1.44E-02	-
4.00E+00	5.13E-01	2.06E-02	-
6.00E+00	7.71E-01	2.40E-02	-
8.00E+00	1.03E+00	2.61E-02	-
1.00E+01	1.29E+00	2.76E-02	-
1.20E+01	1.54E+00	2.87E-02	-
1.40E+01	1.80E+00	2.96E-02	-
1.60E+01	2.06E+00	3.02E-02	-
1.80E+01	2.32E+00	3.07E-02	-
2.00E+01	2.58E+00	3.12E-02	-

# Dose Metics

2.20E+01	2.83E+00	3.15E-02	-
2.40E+01	3.09E+00	3.19E-02	-
2.60E+01	3.35E+00	3.21E-02	-
2.80E+01	3.61E+00	3.24E-02	-
3.00E+01	3.87E+00	3.26E-02	-
3.20E+01	4.13E+00	3.28E-02	-
3.40E+01	4.38E+00	3.29E-02	-
3.60E+01	4.64E+00	3.31E-02	-
3.80E+01	4.90E+00	3.32E-02	-
4.00E+01	5.16E+00	3.33E-02	-
4.20E+01	5.41E+00	3.34E-02	-
4.40E+01	5.67E+00	3.35E-02	-
4.60E+01	5.93E+00	3.36E-02	-
4.80E+01	6.19E+00	3.37E-02	-
5.00E+01	6.45E+00	3.38E-02	-
5.20E+01	6.70E+00	3.39E-02	-
5.40E+01	6.96E+00	3.39E-02	-
5.60E+01	7.22E+00	3.40E-02	-
5.80E+01	7.48E+00	3.40E-02	-
6.00E+01	7.74E+00	3.41E-02	-
6.20E+01	7.99E+00	3.42E-02	-
6.40E+01	8.25E+00	3.42E-02	-
6.60E+01	8.51E+00	3.42E-02	-
6.80E+01	8.77E+00	3.43E-02	-
7.00E+01	9.02E+00	3.43E-02	-
7.20E+01	9.28E+00	3.44E-02	-
7.40E+01	9.54E+00	3.44E-02	-
7.60E+01	9.80E+00	3.44E-02	-
7.80E+01	1.01E+01	3.45E-02	-
8.00E+01	1.03E+01	3.45E-02	-
8.20E+01	1.06E+01	3.45E-02	-
8.40E+01	1.08E+01	3.46E-02	-
8.60E+01	1.11E+01	3.46E-02	-
8.80E+01	1.13E+01	3.46E-02	-
9.00E+01	1.16E+01	3.46E-02	-
9.20E+01	1.19E+01	3.47E-02	-
9.40E+01	1.21E+01	3.47E-02	-
9.60E+01	1.24E+01	3.47E-02	-
9.80E+01	1.26E+01	3.47E-02	-
1.00E+02	1.29E+01	3.48E-02	-



