

Distribution of [¹⁴C]Choline Derived Radioactivity 24 Hours Following Oral Administration of 160 mg/kg [¹⁴C]Choline to Female Han Wistar Rats Pretreated with 500 mg/kg unlabeled DMAE (Choline Study G)^a

Dose Recovered in Excreta (%)

End of Collection Period (h)	Urine CPDE ^b	Feces CPDE	Volatile Organics ^c CPDE	CO ₂ ^c CPDE	Total CPDE
1	d	e	0.0150 ± 0.0041	0.249 ± 0.061	0.263 ± 0.064
2	d	e	0.0361 ± 0.0094	0.914 ± 0.323	0.950 ± 0.323
3	d	e	0.0583 ± 0.0151	1.83 ± 0.64	1.89 ± 0.63
4	2.76 ± 1.12	e	0.0842 ± 0.0237	2.89 ± 0.98	5.73 ± 1.78
6	d	e	0.109 ± 0.028	5.43 ± 1.84	8.30 ± 2.59
8	9.24 ± 2.35	0.0537 ± 0.0603 ^f	0.150 ± 0.036	8.69 ± 2.88	18.1 ± 4.6
12	24.1 ± 5.2	e	0.184 ± 0.036	14.7 ± 4.7	39.1 ± 6.1
24 ^g	43.3 ± 5.6	2.52 ± 2.85	0.227 ± 0.057	22.4 ± 3.6	68.1 ± 4.9

Distribution in Tissues (24 hours)

Tissue	nmol-eq Choline/g Mean	nmol-eq Choline/g SD	TBR ⁱ Mean	TBR SD	Dose in Total Tissue (%) Mean	Dose in Total Tissue (%) SD
Adipose ^h	108	51	0.347	0.070	0.616	0.260
Urinary Bladder	365	108	1.26	0.35	0.0071	0.0009
Blood ^h	302	89	Unity	—	1.84	0.48
Brain	135	40	0.449	0.046	0.0825	0.0215
Heart	369	82	1.27	0.26	0.103	0.023
Kidney	1251	308	4.19	0.23	0.777	0.185
Liver	2527	697	8.42	0.65	7.29	1.61
Lung	848	197	2.87	0.38	0.394	0.076
Muscle ^h	159	32	0.554	0.144	5.31	0.91
Skin ^h	318	55	1.09	0.19	5.00	0.69
Spleen	681	174	2.29	0.24	0.153	0.023
Thyroid	745	144	2.62	0.77	0.0037	0.0026
Uterus	593	265	1.90	0.53	0.114	0.048
Stomach ⁱ	NA ^j	—	NA	—	0.745	0.636
Small Intestine ⁱ	NA	—	NA	—	2.69	0.51
Cecum ⁱ	NA	—	NA	—	0.333	0.085
Large Intestine ⁱ	NA	—	NA	—	0.464	0.195
Carcass ^k	NA	—	NA	—	0	0

Disposition Summary [Dose Recovered (%)]

Tissues and GI Tract	Excreted	Total
25.9 ± 4.7	68.1 ± 4.9	94.1 ± 4.8

^aAll values expressed as mean ± standard deviation (SD) (N = 5). The target dose was 160 mg choline/kg. The actual dose delivered was 159 ± 1 mg/kg (56.4 ± 0.4 µCi/kg). Animals received a single oral dose of DMAE (target 500 mg DMAE/kg) approximately 1 hour (h) prior to [¹⁴C]choline administration. The actual DMAE dose delivered was 498 ± 2 mg/kg.

^bCPDE = Cumulative percent dose excreted.

^cVolatile organics (trapped by isopropanol) and CO₂ (trapped by 1 N NaOH in H₂O) in exhaled breath.

^dUrine was collected at 4, 8, 12, and 24 h after [¹⁴C]choline administration.

^eFeces were collected at 8 and 24 h after [¹⁴C]choline administration.

^fN = 4. Feces were present at 8 h for animal G001.

^g24 h urine collection includes urine present in the urinary bladder at study termination.

^hPercent of dose in these tissues calculated using the following percentages of body weight: adipose 7.0%, blood 7.4%, muscle 40.4%, and skin 19.0%.

ⁱIncludes contents.

^jNA = Not applicable.

^kCarcass values are based on the residual digested carcass after the removal of the listed tissues (i.e., percent dose measured in skin, adipose, blood, and muscle was subtracted from the total percent dose measured in the carcass).

^lTBR = Tissue to blood ratio.