Distribution of [^{14}C]Choline Derived Radioactivity 24 Hours Following Oral Administration of 160 mg/kg [^{14}C]Choline to Male Wistar Han Rats Pretreated with 100 mg/kg DMAE (Choline Study B)[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	0.0012 ± 0.0018	0.209 ± 0.129	0.210 ± 0.129
2	d	e	0.0019 ± 0.0021	1.26 ± 0.41	1.27 ± 0.41
3	d	e	0.0027 ± 0.0026	2.76 ± 0.67	2.76 ± 0.67
4	2.16 ± 1.41	e	0.0037 ± 0.0027	4.03 ± 1.21	6.20 ± 2.41
6	d	e	0.0050 ± 0.0042	6.44 ± 0.73	8.61 ± 1.75
8	15.1 ± 5.0	13.5 ± 10.9	0.0081 ± 0.0058	8.34 ± 0.94	36.9 ± 11.0
24[f]	31.9 ± 4.6	21.3 ± 13.8	0.0177 ± 0.0031	12.4 ± 1.7	65.7 ± 10.0

Distribution in Tissues (24 hours)

Tissue	nmol-eq Choline/g Mean	nmol-eq Choline/g SD	TBR[k] Mean	TBR SD	Dose in Total Tissue (%) Mean	Dose in Total Tissue (%) SD
Adipose[g]	51.2	19.2	0.289	0.099	0.301	0.107
Urinary Bladder[d]	306	123	1.65	0.17	0.0076	0.0039
Blood[g]	183	65	Unity	–	1.14	0.34
Brain	91.3	23.4	0.506	0.041	0.0401	0.0089
Heart	277	64	1.53	0.12	0.0758	0.0193
Kidney	797	182	4.43	0.40	0.500	0.114
Liver	1512	506	8.24	0.32	5.33	1.49
Lung	569	204	3.07	0.41	0.235	0.057
Muscle[g]	122	35	0.685	0.141	4.16	1.18
Skin[g]	213	48	1.19	0.13	3.42	0.75
Spleen	539	172	2.94	0.06	0.127	0.046
Thyroid	530	236	2.81	0.35	0.0022	0.0007
Testes	179	50	0.985	0.070	0.154	0.044
Stomach[h]	NA[i]	–	NA	–	0.233	0.057
Small Intestine[h]	NA	–	NA	–	1.79	0.44
Cecum[h]	NA	–	NA	–	0.271	0.070
Large Intestine[h]	NA	–	NA	–	0.347	0.092
Carcass[j]	NA	–	NA	–	2.28	1.33

Disposition Summary [Dose Recovered (%)]

Tissues and GI Tract	Excreted	Total
20.4 ± 5.6	65.7 ± 10.0	86.1 ± 6.2

[a]All values expressed as mean ± standard deviation (SD) (N = 5). The target dose was 160 mg choline/kg. The actual dose delivered was 162 ± 3 mg/kg (106 ± 2 µCi/kg). Animals received a single oral dose of DMAE (target 100 mg DMAE/kg) approximately 1 hour (h) prior to [^{14}C]choline administration. The actual DMAE dose delivered was 101 ± 2 mg/kg.

[b]CPDE = Cumulative percent dose excreted.

[c]Volatile organics (trapped by isopropanol) and CO_2 (trapped by 1 N NaOH in H_2O) in exhaled breath.

[d]Urine was collected at 4, 8, and 24 h after [^{14}C]choline administration.

[e]Feces were collected at 8 and 24 h after [^{14}C]choline administration.

[f]24 h urine collection includes urine present in the urinary bladder at study termination.

[g]Percent 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%.

[h]Includes contents.

[i]NA = Not applicable.

[j]Carcass 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).

[k]TBR = Tissue to blood ratio.