

ADME NTP Study S0157 p-Nitrotoluene

The contractor used the abbreviation of PNT for the test article.

Sex/Species: male F344 rats.

Vehicle: intravenous, ethanol:TWEEN 80:water (2:1:7); oral, ethanol:DMSO:water (2:3:5) for the low and median dose and ethanol:DMSO:water (5.3:3.0:1.7) for the high dose.

CASRN 99-99-0

Radiolabeled with carbon-14 uniformly in the ring; p-Nitrotoluene, [Ring-UL-¹⁴C]

Studies Performed:

- Single 8 mg/kg intravenous dose to rats with sacrifice at 0.0833, 0.25, 0.5, 1, 2, 4, 10, 24, 72, 120, or 168 hours postdose. (n = 3 per time point)
- Single 8 mg/kg intravenous dose to rats with sacrifice after 4.5 hours postdose. (bile collection; n = 3 for mean total)
- Single 1.07, 10.7, or 107 mg/kg oral gavage dose to rats with sacrifice 8 days postdose. (n = 3 per group)

TWEEN 80 is polyoxyethylene sorbitanoleate and DMSO is dimethylsulfoxide. The percentages of body weight used to calculate the total weight of a tissue were 9% for blood, 50% for muscle, 16% for skin, and 7% for adipose tissue.

Toxicokinetics:

For undifferentiated ¹⁴C, pharmacokinetic parameters for all tissues were calculated using the biphasic model ($C = Ae^{-\alpha t} + Be^{-\beta t}$). For some tissues there was a rise in ¹⁴C at 5 and/or 7 days. As a result, analyses were performed including and excluding these points. (Table 51 used time points 15 minutes to 3 days and Table 52, 15 minutes to 7 days). Due to low recoveries, the five minute (0.0833 hour) time point was excluded from all pharmacokinetic analyses.

Tissues greater than 0.4% of the dose were assayed for parent p-nitrotoluene. Kidney, liver, and whole blood demonstrated monophasic kinetics ($C = Ae^{-\alpha t}$) for the parent compound. Fat, muscle, and skin were not modeled due to difficulty in fitting some of the time points.

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Table 1. Percent of dose as undifferentiated ^{14}C recovered in tissues
8 days after oral administration of ^{14}C -paranitrotoluene.

Low Dose = 1.07 mg/kg				
Rat #	8	9	12	
Tissue	Mean $\pm$ S.D.			
Brain	0.002	0.002	0.002	0.002 $\pm$ 0.000
Lung	0.001	0.003	0.001	0.002 $\pm$ 0.001
Liver	0.041	0.050	0.051	0.047 $\pm$ 0.005
Kidney	0.012	0.012	0.017	0.013 $\pm$ 0.003
Spleen	0.001	0.001	0.001	0.001 $\pm$ 0.000
Small Intestine	0.008	0.005	0.007	0.007 $\pm$ 0.001
Fat	0.030	0.038	0.038	0.035 $\pm$ 0.006
Testes	0.003	0.002	0.003	0.003 $\pm$ 0.001
Muscle	0.121	0.101	0.099	0.106 $\pm$ 0.012
Skin	0.062	0.084	0.054	0.067 $\pm$ 0.015
Whole Blood	<u>0.021</u>	<u>0.022</u>	<u>0.015</u>	<u>0.020$\pm$0.004</u>
Total	0.302	0.320	0.288	0.303 $\pm$ 0.016

Median Dose = 10.7 mg/kg				
Rat #	5	6	7	
Tissue	Mean $\pm$ S.D.			
Brain	0.004	0.003	0.004	0.004 $\pm$ 0.001
Lung	0.002	0.002	0.002	0.002 $\pm$ 0.000
Liver	0.027	0.030	0.038	0.032 $\pm$ 0.006
Kidney	0.006	0.008	0.007	0.007 $\pm$ 0.001
Spleen	0.001	0.001	0.001	0.001 $\pm$ 0.000
Small Intestine	0.009	0.010	0.007	0.009 $\pm$ 0.002
Fat	0.063	0.068	0.038	0.056 $\pm$ 0.016
Testes	0.005	0.003	0.002	0.003 $\pm$ 0.002
Muscle	0.109	0.148	0.107	0.121 $\pm$ 0.023
Skin	0.074	0.060	0.063	0.066 $\pm$ 0.007
Whole Blood	<u>0.028</u>	<u>0.028</u>	<u>0.011</u>	<u>0.022$\pm$0.010</u>
Total	0.328	0.361	0.280	0.323 $\pm$ 0.041

High Dose = 107 mg/kg				
Rat #	2	4	11	
Tissue	Mean $\pm$ S.D.			
Brain	0.005	0.004	0.004	0.005 $\pm$ 0.000
Lung	0.003	0.002	0.004	0.003 $\pm$ 0.001
Liver	0.033	0.022	0.024	0.026 $\pm$ 0.006
Kidney	0.007	0.006	0.007	0.006 $\pm$ 0.001
Spleen	0.002	0.001	0.001	0.001 $\pm$ 0.000
Small Intestine	0.011	0.009	0.006	0.009 $\pm$ 0.002
Fat	0.060	0.068	0.044	0.056 $\pm$ 0.012
Testes	0.006	0.003	0.007	0.005 $\pm$ 0.002
Muscle	0.162	0.105	0.148	0.138 $\pm$ 0.030
Skin	0.106	0.084	0.066	0.085 $\pm$ 0.020
Whole Blood	<u>0.027</u>	<u>0.037</u>	<u>0.049</u>	<u>0.038$\pm$0.011</u>
Total	0.422	0.341	0.360	0.374 $\pm$ 0.042

Table 2 . nMoles p-nitrotoluene as undifferentiated ^{14}C recovered in tissues
8 days after oral administration.

Tissue	Mean $\pm$ Standard Deviation		
	Low Dose 1.07 mg/kg	Median Dose 10.7 mg/kg	High Dose 107 mg/kg
Brain	0.033 $\pm$ 0.004	0.557 $\pm$ 0.125	7.39 $\pm$ 0.95
Lung	0.028 $\pm$ 0.012	0.312 $\pm$ 0.045	5.15 $\pm$ 1.04
Liver	0.774 $\pm$ 0.034	4.814 $\pm$ 1.081	42.92 $\pm$ 11.13
Kidney	0.218 $\pm$ 0.032	1.062 $\pm$ 0.142	10.32 $\pm$ 1.32
Spleen	0.015 $\pm$ 0.003	0.127 $\pm$ 0.035	1.90 $\pm$ 0.55
Small Intestine	0.109 $\pm$ 0.029	1.283 $\pm$ 0.244	13.99 $\pm$ 4.69
Fat	0.571 $\pm$ 0.066	8.437 $\pm$ 2.157	92.75 $\pm$ 26.46
Testes	0.043 $\pm$ 0.016	0.508 $\pm$ 0.207	8.18 $\pm$ 2.81
Muscle	1.763 $\pm$ 0.343	18.399 $\pm$ 3.295	223.47 $\pm$ 47.07
Skin	1.099 $\pm$ 0.266	9.954 $\pm$ 0.941	139.99 $\pm$ 41.22
Whole Blood	0.325 $\pm$ 0.079	3.355 $\pm$ 1.357	60.18 $\pm$ 13.83

Table 3. Percent of dose as undifferentiated ^{14}C appearing in daily excreta after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	Urine				Feces				Total			
	81	82	83	Mean $\pm$ SD	81	82	83	Mean $\pm$ SD	81	82	83	Mean $\pm$ SD
Time (Days)	Urine				Feces				Total			
1	84.15	84.98	74.51	81.21 $\pm$ 5.82	3.33	3.64	4.84	3.94 $\pm$ 0.80	87.48	88.62	79.35	85.15 $\pm$ 5.06
2	1.81	2.81	1.94	2.19 $\pm$ 0.54	0.54	1.33	0.93	0.93 $\pm$ 0.40	2.35	2.35	2.87	2.52 $\pm$ 0.30
3	1.03	1.04	0.62	0.90 $\pm$ 0.24	0.21	0.31	0.29	0.27 $\pm$ 0.05	1.24	1.24	0.91	1.16 $\pm$ 0.23
4	0.28	0.40	0.61	0.43 $\pm$ 0.17	0.09	0.16	0.12	0.12 $\pm$ 0.04	0.36	0.36	0.74	0.55 $\pm$ 0.19
5	0.04	0.34	0.48	0.29 $\pm$ 0.22	0.07	0.07	0.10	0.08 $\pm$ 0.02	0.11	0.11	0.58	0.37 $\pm$ 0.24
6	0.03	0.23	0.29	0.18 $\pm$ 0.14	0.09	0.19	0.18	0.15 $\pm$ 0.06	0.12	0.12	0.47	0.33 $\pm$ 0.19
7	0.04	0.10	0.14	0.09 $\pm$ 0.05	0.07	0.06	0.17	0.10 $\pm$ 0.06	0.11	0.11	0.31	0.18 $\pm$ 0.12
Total	87.38	89.90	78.59	85.29 $\pm$ 5.94	4.40	5.76	6.63	5.60 $\pm$ 1.12	91.77	95.58	85.23	90.86 $\pm$ 5.23

* Urine includes cage wash.

Table 4. Summary of the percent of dose of ^{14}C in tissues and excreta following intravenous administration of ^{14}C -methylglucuronide (90 mg/kg). Values are mean $\pm$ SD.

	5 min	15 min	30 min	1 hr	2 hr	4 hr	10 hr	1 day	3 day	5 day	7 day
Brain	0.085 ± 0.021	0.092 ± 0.040	0.052 ± 0.003	0.029 ± 0.003	0.011 ± 0.07	0.011 ± 0.002	0.014 ± 0.014	0.001 ± 0.001	0.002 ± 0.001	0.011 ± 0.009	0.005 ± 0.004
Lung	0.216 ± 0.048	0.239 ± 0.004	0.202 ± 0.064	0.136 ± 0.004	0.075 ± 0.041	0.021 ± 0.004	0.007 ± 0.002	0.002 ± 0.001	0.002 ± 0.001	0.008 ± 0.004	0.007 ± 0.004
Liver	7.1912 ± 1.2322	9.972 ± 2.247	6.327 ± 0.314	4.566 ± 0.547	2.096 ± 0.629	0.770 ± 0.285	0.416 ± 0.092	0.204 ± 0.025	0.128 ± 0.006	0.0023 ± 0.005	0.067 ± 0.007
Kidney	1.425 ± 0.430	3.540 ± 0.453	3.458 ± 0.306	2.257 ± 0.342	1.315 ± 0.649	0.433 ± 0.201	0.080 ± 0.022	0.033 ± 0.002	0.018 ± 0.003	0.003 ± 0.001	0.008 ± 0.002
Spleen	0.101 ± 0.105	0.051 ± 0.007	0.046 ± 0.009	0.028 ± 0.003	0.013 ± 0.007	0.010 ± 0.003	0.004 ± 0.002	0.001 ± 0.001	0.001 ± 0.001	0.015 ± 0.006	0.003 ± 0.001
Small Intestine	0.618 ± 0.109	6.619 ± 2.4182	5.894 ± 1.710	3.871 ± 0.959	2.159 ± 1.375	0.504 ± 0.293	0.079 ± 0.015	0.030 ± 0.015	0.009 ± 0.001	0.0015 ± 0.006	0.016 ± 0.005
Large Intestine	0.180 ± 0.083	0.226 ± 0.075	0.233 ± 0.061	0.199 ± 0.047	0.147 ± 0.052	0.114 ± 0.115	0.090 ± 0.072	0.038 ± 0.019	0.001 ± 0.001	0.007 ± 0.001	0.004 ± 0.001
Fat	1.837 ± 1.342	5.058 ± 3.404	5.033 ± 2.921	6.498 ± 1.604	1.770 ± 1.515	1.742 ± 0.786	0.170 ± 0.020	0.081 ± 0.069	0.039 ± 0.027	0.128 ± 0.012	0.146 ± 0.074
Testes	0.407 ± 0.051	0.319 ± 0.006	0.207 ± 0.027	0.188 ± 0.036	0.091 ± 0.034	0.043 ± 0.003	0.013 ± 0.002	0.003 ± 0.003	0.002 ± 0.001	0.008 ± 0.001	0.005 ± 0.001
Muscle	6.878 ± 0.872	5.744 ± 0.951	4.687 ± 1.035	5.073 ± 1.504	1.841 ± 1.179	1.090 ± 0.329	0.340 ± 0.175	0.061 ± 0.032	0.082 ± 0.045	0.305 ± 0.119	0.301 ± 0.1362
Skin	4.867 ± 0.483	9.341 ± 2.630	8.118 ± 1.883	5.501 ± 1.727	1.657 ± 1.115	0.575 ± 0.128	0.207 ± 0.062	0.122 ± 0.064	0.081 ± 0.024	0.230 ± 0.079	0.173 ± 0.111
Whole blood	5.672 ± 1.854	6.1982 ± 0.1682	7.482 ± 1.691	5.867 ± 0.957	2.581 ± 1.596	0.700 ± 0.212	0.176 ± 0.062	0.040 ± 0.012	0.032 ± 0.007	0.060 ± 0.013	0.061 ± 0.015
Plasma	1.945 ± 0.170	3.360 ± 0.288	4.500 ± 1.212	4.294 ± 0.921	1.850 ± 1.074	0.403 ± 0.136	0.077 ± 0.013	0.007 ± 0.003	0.003 ± 0.002	0.030 ± 0.010	0.040 ± 0.011
Urine ^a and Bladder Contents	0	7.980 ± 11.215	14.302 ± 7.220	57.055 ± 2.411	69.356 ± 22.681	69.866 ± 7.555	69.0 ± 6.2	78.16 ^b ± 5.88	84.33 ^c ± 6.36	85.05 ^c ± 6.08	85.29 ^c ± 5.94
Feces and Intestinal Contents ^d	0.629 ± 0.406	6.104 ± 0.5132	11.697 ± 2.376	13.869 ± 2.663	10.516 ± 2.766	6.390 ± 0.745	5.21 ± 1.96	6.119 ± 4.044	5.14 ^c ± 1.00	5.34 ^c ± 1.03	5.60 ^c ± 1.12
Injection site	3.184 ± 1.085	4.679 ± 1.569	3.284 ± 1.812	4.505 ± 0.992	0.868 ± 0.150	0.211 ± 0.151	0.043 ± 0.045	0.156 ± 0.021	0.066 ± 0.057	0.045 ± 0.037	0.057 ± 0.026
Total	33.791 ± 3.138	66.160 ± 9.221	71.121 ± 9.960	111.036 ± 5.899	94.984 ± 16.173	82.638 ± 8.871	75.8 ± 8.0	81.960 ± 4.064	89.87 ± 7.45	91.35 ± 7.26	91.75 ± 7.25

^a Urine contains cage wash.

^b n = 6

^c Value taken from Table 32.

^d Includes stomach contents.

Table 5. Percent of dose as parent p-nitrotoluene in select tissues following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg). Values are mean $\pm$ SD for three rats. Only tissues containing $>1\%$ of the dose were assayed for parent compound.

Time Tissue	5 min	15 min	30 min	1 hr	2 hr	4 hr	10 hr	1 day
Liver	1.6 ± 0.4 [7.19]	0.4 ± 0.1 [9.97]	0.2 ± 0.04 [6.33]	0 [4.57]	0 [2.10]	N.D. [0.770]	N.D. [0.416]	N.D. [0.204]
Kidney	1.0 ± 0.4 [1.43]	0.6 ± 0.2 [3.54]	0.2 ± 0.1 [3.46]	0.1 ± 0.1 [2.26]	0 [1.32]	N.D. [0.433]	N.D. [0.080]	N.D. [0.033]
Fat	1.5 ± 1.1 [1.84]	4.5 ± 3.0 [5.06]	4.2 ± 2.6 [5.03]	5.5 ± 1.0 [6.50]	1.4 ± 1.1 [1.77]	1.2 ± 0.5 [1.74]	N.D. [0.17]	N.D. [0.081]
Muscle	5.5 ± 0.7 [6.88]	3.9 ± 1.2 [5.74]	2.0 ± 0.7 [4.69]	2.5 ± 1.0 [5.07]	0.91 ^a [1.89]	0 [1.09]	N.D. [0.340]	N.D. [0.061]
Skin	N.D. [4.87]	6.5 ± 3.4 [9.34]	3.42 ± 0.7 [8.12]	3.11 ± 2.2 [5.50]	0.1 ± 0.1 [1.66]	N.D. [0.575]	N.D. [0.207]	N.D. [0.122]
Whole blood	4.78 ± 0.62 [5.67]	3.29 ± 0.28 [6.20]	0.90 ± 0.15 [7.48]	0.36 ± 0.07 [5.87]	0.11 ± 0.05 [2.59]	0.017 ± 0.002 [0.700]	0 [0.176]	0 [0.040]

^a n = 2 rats. ^b [] = % of dose as undifferentiated ^{14}C .

N.D. = not determined because less than 0.4% of dose in total tissue or previous analysis shows 0% parent compound present.

Table 6 . Percent of dose as undifferentiated ^{14}C in tissues and excreta five minutes after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	56	57	58	
Tissue				Mean $\pm$ SD
Brain	0.084	0.064	0.106	0.085 $\pm$ 0.021
Lung	0.227	0.163	0.257	0.216 $\pm$ 0.048
Liver	8.58	6.23	6.77	7.19 $\pm$ 1.23
Kidney	1.92	1.17	1.18	1.43 $\pm$ 0.430
Spleen	0.052	0.033	0.224	0.103 $\pm$ 0.105
Small Intestine	0.498	0.643	0.712	0.618 $\pm$ 0.109
Large Intestine	0.085	0.215	0.240	0.180 $\pm$ 0.083
Fat	1.99	0.42	3.10	1.84 $\pm$ 1.34
Testes	0.354	0.412	0.456	0.407 $\pm$ 0.051
Muscle	6.38	6.37	7.89	6.88 $\pm$ 0.87
Skin	4.66	5.42	4.52	4.87 $\pm$ 0.48
Whole Blood	7.28	3.64	6.09	5.67 $\pm$ 1.85
Plasma	2.14	1.84	1.85	1.95 $\pm$ 0.17
Urine and Bladder Contents	0	0	0	0
Feces and Intestinal Contents	0.35	0.45	1.10	0.58 $\pm$ 0.39
Injection Site ^a	3.09	4.94	3.04	3.68 $\pm$ 1.09

Total ^b	35.5	30.2	35.7	33.8 $\pm$ 3.1

^a Entire tail

^b Total does not include plasma value.

Table 7 . Percent of dose as undifferentiated ^{14}C in tissues and excreta
15 minutes after intravenous administration of ^{14}C -p-nitrotoluene
(8 mg/kg).

Rat #	64	94	95	
Tissue	Mean $\pm$ SD			
Brain	0.129	0.051	0.097	0.092 $\pm$ 0.040
Lung	0.242	0.239	0.235	0.239 $\pm$ 0.004
Liver	7.6	12.0	10.3	10.0 $\pm$ 2.2
Kidney	3.38	4.05	3.19	3.54 $\pm$ 0.45
Spleen	0.058	0.051	0.044	0.051 $\pm$ 0.007
Small Intestine	3.91	7.40	8.55	6.62 $\pm$ 2.42
Large Intestine	0.180	0.312	0.186	0.226 $\pm$ 0.075
Fat	1.15	7.36	6.67	5.06 $\pm$ 3.40
Testes	0.321	0.312	0.323	0.319 $\pm$ 0.006
Muscle	6.84	5.19	5.20	5.74 $\pm$ 0.95
Skin	12.4	7.8	7.9	9.3 $\pm$ 2.6
Whole Blood	6.11	6.39	6.10	6.20 $\pm$ 0.17
Plasma	3.69	3.22	3.17	3.36 $\pm$ 0.29
Urine ^a and Bladder Contents	20.8	3.0	0.2	8.0 $\pm$ 11.2
Feces and Intestinal Contents ^b	5.72	6.69	5.71	6.10 $\pm$ 0.51
Injection Site	7.59	2.73	3.71	4.68 $\pm$ 2.57

Total ^c	76.4	63.5	58.5	66.2 $\pm$ 9.2

^a Urine includes cage wash.

^b Includes stomach contents.

^c Total does not include plasma value.

Table 8. Percent of dose as undifferentiated ^{14}C in tissues and excreta 30 minutes after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	78	96	97	
Tissue				Mean $\pm$ SD
Brain	0.056	0.051	0.050	0.052 $\pm$ 0.003
Lung	0.251	0.225	0.129	0.202 $\pm$ 0.064
Liver	6.14	6.69	6.15	6.33 $\pm$ 0.31
Kidney	3.19	3.79	3.39	3.46 $\pm$ 0.31
Spleen	0.057	0.043	0.039	0.046 $\pm$ 0.009
Small Intestine	4.68	5.37	7.93	5.99 $\pm$ 1.71
Large Intestine	0.162	0.270	0.270	0.233 $\pm$ 0.061
Fat	1.82	7.52	5.76	5.03 $\pm$ 2.92
Testes	0.182	0.204	0.235	0.207 $\pm$ 0.027
Muscle	5.82	4.46	3.79	4.69 $\pm$ 1.04
Skin	6.10	8.44	9.82	8.12 $\pm$ 1.88
Whole Blood	8.39	8.53	5.53	7.48 $\pm$ 1.69
Plasma	5.90	3.81	3.80	4.50 $\pm$ 1.21
Urine ^a and Bladder Contents	7.5	13.5	21.9	14.3 $\pm$ 7.2
Feces and Intestinal Contents ^b	10.2	14.4	10.5	11.7 $\pm$ 2.4
Injection Site	5.25	1.67	2.93	3.28 $\pm$ 1.81

Total ^c	59.8	75.2	78.4	71.1 $\pm$ 10.0

^a Urine includes cage wash.

^b Includes stomach contents.

^c Total does not include plasma value.

Table 9. Percent of dose as undifferentiated ^{14}C in tissues and excreta one hour after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	100	101	102	
Tissue				Mean + SD
Brain	0.032	0.027	0.029	0.029 $\pm$ 0.003
Lung	0.119	0.142	0.147	0.136 $\pm$ 0.004
Liver	3.96	5.03	4.71	4.57 $\pm$ 0.55
Kidney	2.65	2.09	2.03	2.26 $\pm$ 0.34
Spleen	0.028	0.032	0.025	0.028 $\pm$ 0.003
Small Intestine	4.92	3.03	7.85	3.87 $\pm$ 0.96
Large Intestine	0.154	0.247	0.195	0.199 $\pm$ 0.047
Fat	5.00	8.19	6.31	6.50 $\pm$ 1.60
Testes	0.150	0.194	0.221	0.188 $\pm$ 0.036
Muscle	3.92	4.53	6.77	5.07 $\pm$ 1.50
Skin	7.21	3.76	5.53	5.50 $\pm$ 1.73
Whole Blood	5.44	6.96	5.19	5.87 $\pm$ 0.96
Plasma	3.80	5.36	3.73	4.29 $\pm$ 0.92
Urine ^a and Bladder Contents	57.8	54.4	59.0	57.1 $\pm$ 2.4
Feces and Intestinal Contents ^b	11.0	16.2	14.4	13.9 $\pm$ 2.7
Injection Site	4.72	3.42	5.37	4.51 $\pm$ 0.99
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Total ^c	107	108	111	111 $\pm$ 6

^a Urine includes cage wash.

^b Includes stomach contents.

^c Total does not include plasma value.

Table 10. Percent of dose as undifferentiated ^{14}C in tissues and excreta two hours after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	75	103	104	
Tissue				Mean $\pm$ SD
Brain	0.019	0.007	0.006	0.011 $\pm$ 0.008
Lung	0.120	0.042	0.061	0.075 $\pm$ 0.041
Liver	2.79	1.56	1.94	2.10 $\pm$ 0.63
Kidney	2.06	0.930	0.951	1.32 $\pm$ 0.65
Spleen	0.021	0.009	0.008	0.013 $\pm$ 0.009
Small Intestine	3.60	2.01	1.63	2.42 $\pm$ 1.05
Large Intestine	0.201	0.097	0.142	0.147 $\pm$ 0.052
Fat	3.52	0.910	0.880	1.77 $\pm$ 1.51
Testes	0.130	0.083	0.066	0.093 $\pm$ 0.033
Muscle	3.18	1.55	1.39	2.04 $\pm$ 0.99
Skin	2.92	1.24	0.81	1.66 $\pm$ 1.11
Whole Blood	4.41	1.82	1.46	2.58 $\pm$ 1.60
Plasma	3.08	1.42	1.07	1.86 $\pm$ 1.07
Urine ^a and Bladder Contents	43.4	84.8	79.9	69.4 $\pm$ 22.6
Feces and Intestinal Contents ^b	9.2	8.7	13.7	10.5 $\pm$ 2.8
Injection Site	0.75	1.04	0.82	0.87 $\pm$ 0.15

Total ^c	76.3	104.9	103.8	95.0 $\pm$ 16.2

^a Urine includes cage wash.

^b Includes stomach contents.

^c Total does not include plasma value.

Table 11. Percent of dose as undifferentiated ^{14}C in tissues and excreta four hours after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	46	47	55	
Tissue				Mean $\pm$ SD
Brain	0.013	0.008	0.011	0.011 $\pm$ 0.002
Lung	0.018	0.025	0.020	0.021 $\pm$ 0.004
Liver	0.888	0.976	0.445	0.770 $\pm$ 0.285
Kidney	0.440	0.630	0.229	0.433 $\pm$ 0.201
Spleen	0.007	0.011	0.012	0.010 $\pm$ 0.003
Small Intestine	0.348	0.842	0.323	0.504 $\pm$ 0.293
Large Intestine	0.246	0.032	0.214	0.114 $\pm$ 0.115
Fat	0.837	2.135	2.254	1.742 $\pm$ 0.786
Testes	0.041	0.041	0.046	0.043 $\pm$ 0.003
Muscle	0.876	1.468	0.926	1.090 $\pm$ 0.329
Skin	0.510	0.723	0.493	0.575 $\pm$ 0.128
Whole Blood	0.607	0.943	0.550	0.700 $\pm$ 0.212
Plasma	0.307	0.559	0.344	0.403 $\pm$ 0.136
Urine ^a and Bladder Contents	73.2	75.1	61.2	69.9 $\pm$ 7.6
Feces and Intestinal Contents ^b	6.59	7.02	5.57	6.39 $\pm$ 0.75
Injection Site	0.371	0.072	0.191	0.211 $\pm$ 0.151

Total	85.0	90.1	72.8	82.6 $\pm$ 8.9

^a Urine includes cage wash.

^b Includes stomach contents.

^c Total does not include plasma value.

Table 12. Percent of dose as undifferentiated ^{14}C in tissues and excreta ten hours after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	76	80	107	
Tissue				Mean $\pm$ SD
Brain	0.010	0.002	0.029	0.014 $\pm$ 0.014
Lung	0.009	0.005	0.006	0.007 $\pm$ 0.002
Liver	0.522	0.370	0.356	0.416 $\pm$ 0.092
Kidney	0.105	0.068	0.067	0.080 $\pm$ 0.022
Spleen	0.004	0.002	0.005	0.004 $\pm$ 0.002
Small Intestine	0.082	0.093	0.063	0.079 $\pm$ 0.015
Large Intestine	0.122	0.141	0.008	0.090 $\pm$ 0.072
Fat	0.186	0.150	0.157	0.170 $\pm$ 0.020
Testes	0.014	0.013	0.011	0.013 $\pm$ 0.002
Muscle	0.542	0.242	0.237	0.340 $\pm$ 0.175
Skin	0.235	0.249	0.136	0.207 $\pm$ 0.062
Whole Blood	0.246	0.126	0.156	0.176 $\pm$ 0.062
Plasma	0.092	0.068	0.077	0.077 $\pm$ 0.013
Urine ^a and Bladder Contents	63.9	76.0	67.0	69.0 $\pm$ 6.2
Feces ^b and Intestinal Contents	3.47	7.33	4.82	5.21 $\pm$ 1.96
Injection Site	0.094	0.012	0.023	0.043 $\pm$ 0.045
Total	69.5	84.8	73.1	75.8 $\pm$ 8.0

^a Urine includes cage wash.

^b Includes stomach contents.

^c Total does not include plasma value.

Table 13. Percent of dose as undifferentiated ^{14}C in tissues and excreta one day after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat	43	44	45	
Tissue				Mean $\pm$ SD
Brain	0.002	0.001	0.001	0.001 $\pm$ 0.001
Lung	0.002	0.003	0.001	0.002 $\pm$ 0.001
Liver	0.183	0.232	0.197	0.204 $\pm$ 0.025
Kidney	0.031	0.035	0.032	0.033 $\pm$ 0.002
Spleen	0.001	0.001	0.001	0.001 $\pm$ 0.001
Small Intestine	0.048	0.022	0.022	0.030 $\pm$ 0.015
Large Intestine	0.060	0.029	0.025	0.038 $\pm$ 0.019
Fat	0.061	0.158	0.025	0.081 $\pm$ 0.069
Testes	0.006	0.002	0.001	0.003 $\pm$ 0.003
Muscle	0.027	0.090	0.065	0.061 $\pm$ 0.032
Skin	0.110	0.191	0.066	0.122 $\pm$ 0.064
Whole Blood	0.046	0.042	0.047	0.045 $\pm$ 0.003
Plasma	0.007	0.004	0.010	0.007 $\pm$ 0.003
Urine ^a and Bladder Contents	80.7	71.3	73.3	75.1 $\pm$ 4.9
Feces and Intestinal Contents ^b	2.75	5.00	10.60	6.12 $\pm$ 4.0
Injection Site	0.145	0.180	0.143	0.156 $\pm$ 0.021
Total	84.0	77.3	84.6	82.0 $\pm$ 4.1

^a Urine includes cage wash.

^b Includes stomach contents.

^c Total does not include plasma value.

Table 14. Percent of dose as undifferentiated ^{14}C in tissues three days after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat	52	53	54	
Tissue				Mean $\pm$ SD
Brain	0.004	0.001	0.001	0.002 $\pm$ 0.001
Lung	0.004	0.002	0.001	0.002 $\pm$ 0.001
Liver	0.132	0.121	0.131	0.128 $\pm$ 0.006
Kidney	0.019	0.015	0.019	0.018 $\pm$ 0.003
Spleen	0.002	0.001	0.001	0.001 $\pm$ 0.001
Small Intestine	0.009	0.010	0.007	0.009 $\pm$ 0.001
Large Intestine	0.002	0.002	0.001	0.001 $\pm$ 0.001
Fat	0.068	0.034	0.016	0.039 $\pm$ 0.027
Testes	0.003	0.001	0.003	0.002 $\pm$ 0.001
Muscle	0.111	0.104	0.030	0.082 $\pm$ 0.045
Skin	0.106	0.078	0.059	0.081 $\pm$ 0.024
Whole Blood	0.024	0.038	0.035	0.032 $\pm$ 0.007
Plasma	0.002	0.003	0.005	0.003 $\pm$ 0.002
Injection Site	0.130	0.020	0.043	0.066 $\pm$ 0.057

Total*	0.484	0.409	0.304	0.399 $\pm$ 0.090

* Total does not include plasma values.

For excreta values (same time but different animals) see Table 4.

Table 15. Percent of dose as undifferentiated ^{14}C in tissues five days after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat	65	66	67	
Tissue				Mean $\pm$ SD
Brain	0.016	0.006	0.008	0.011 $\pm$ 0.009
Lung	0.012	0.006	0.005	0.008 $\pm$ 0.004
Liver	0.142	0.095	0.119	0.119 $\pm$ 0.023
Kidney	0.028	0.019	0.021	0.023 $\pm$ 0.005
Spleen	0.004	0.002	0.003	0.003 $\pm$ 0.001
Small Intestine	0.022	0.013	0.011	0.015 $\pm$ 0.006
Large Intestine	0.008	0.006	0.005	0.007 $\pm$ 0.001
Fat	0.138	0.113	0.131	0.128 $\pm$ 0.012
Testes		0.007	0.008	(0.008)
Muscle	0.435	0.202	0.279	0.305 $\pm$ 0.119
Skin	0.161	0.220	0.309	0.230 $\pm$ 0.074
Whole Blood	0.069	0.066	0.045	0.060 $\pm$ 0.013
Plasma	0.040	0.031	0.021	0.030 $\pm$ 0.010
Injection Site	0.021	0.027	0.087	0.045 $\pm$ 0.037

Total *	1.056	0.782	1.031	0.956 $\pm$ 0.151

* Total does not include plasma values.

Table 16. Percent of dose as undifferentiated ^{14}C in tissues seven days after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat	49	50	51		
Tissue				Mean	SD
Brain	0.008	0.002	0.007	0.005 ± 0.004	
Lung	0.008	0.003	0.010	0.007 ± 0.004	
Liver	0.070	0.060	0.073	0.067 ± 0.007	
Kidney	0.009	0.010	0.006	0.008 ± 0.002	
Spleen	0.003	0.002	0.003	0.003 ± 0.001	
Small Intestine	0.021	0.011	0.015	0.016 ± 0.005	
Large Intestine	0.004	0.004	0.004	0.004 ± 0.000	
Fat	0.108	0.098	0.231	0.146 ± 0.074	
Testes	0.004	0.004	0.006	0.005 ± 0.001	
Muscle	0.224	0.418	0.282	0.301 ± 0.136	
Skin	0.063	0.170	0.285	0.173 ± 0.111	
Whole Blood	0.076	0.045	0.062	0.061 ± 0.015	
Plasma	0.038	0.052	0.030	0.040 ± 0.011	
Injection Site	0.080	0.030	0.067	0.059 ± 0.026	
Total*	0.678	0.857	1.051	0.862 ± 0.187	

* Total does not include plasma values.

Table 17. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood five minutes following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	56	57	58	
Tissue				Mean $\pm$ SD
Brain	5.99	4.88	6.34	5.74 $\pm$ 0.76
Lung	26.24	15.6	28.0	23.3 $\pm$ 6.7
Liver	118	92	98	103 $\pm$ 13
Kidney	121	90	81	98 $\pm$ 21
Spleen	13.3	8.9	59.8	27.4 $\pm$ 28.2
Small Intestine	12.7	17.2	18.5	16.1 $\pm$ 3.1
Large Intestine	10.4	20.9	23.8	18.3 $\pm$ 7.1
Fat	17.0	3.6	26.4	15.6 $\pm$ 11.5
Testes	17.5	20.7	18.9	19.0 $\pm$ 1.6
Muscle	7.60	7.54	9.41	8.18 $\pm$ 1.06
Skin	17.4	20.0	16.9	18.1 $\pm$ 1.7
Whole Blood	48.2	24.0	40.4	37.5 $\pm$ 12.4
Plasma	27.3	23.3	23.6	24.7 $\pm$ 2.2

Table 18. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood 15 minutes following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	64	94	95	
Tissue				Mean $\pm$ SD
Brain	7.43	3.51	6.08	5.68 $\pm$ 1.99
Lung	25.1	24.1	27.2	25.4 $\pm$ 1.6
Liver	97	135	114	115 $\pm$ 19
Kidney	201	234	185	207 $\pm$ 25
Spleen	13.3	10.9	10.6	11.6 $\pm$ 1.5
Small Intestine	104	215	194	171 $\pm$ 59
Large Intestine	20.3	27.1	16.3	21.2 $\pm$ 5.5
Fat	9.4	60.3	57.0	42.2 $\pm$ 28.4
Testes	12.9	13.1	15.5	13.8 $\pm$ 1.5
Muscle	7.85	5.95	6.23	6.68 $\pm$ 1.03
Skin	44.4	27.9	29.4	33.9 $\pm$ 9.1
Whole Blood	38.9	40.8	40.5	40.1 $\pm$ 1.0
Plasma	45.3	39.5	40.5	41.7 $\pm$ 3.1

Table 19. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood 30 minutes following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	78	96	97	
Tissue				Mean $\pm$ SD
Brain	3.28	2.84	2.99	3.04 $\pm$ 0.22
Lung	24.7	20.6	13.0	19.5 $\pm$ 5.9
Liver	72.7	74.5	75.9	74.4 $\pm$ 1.6
Kidney	193	223	203	206 $\pm$ 15
Spleen	11.7	9.6	7.7	9.7 $\pm$ 2.0
Small Intestine	132	116	165	137 $\pm$ 25
Large Intestine	19.6	21.8	23.2	21.5 $\pm$ 1.8
Fat	15.1	63.7	48.8	42.6 $\pm$ 24.9
Testes	8.5	9.1	10.2	9.2 $\pm$ 0.8
Muscle	6.79	5.29	4.49	5.52 $\pm$ 1.17
Skin	22.2	31.3	36.4	30.0 $\pm$ 7.2
Whole Blood	54.4	56.2	36.4	49.0 $\pm$ 10.9
Plasma	73.5	48.3	48.1	56.6 $\pm$ 14.7

Table 20. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood one hour following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	100	101	102	
Tissue				Mean $\pm$ SD
Brain	2.38	1.83	1.88	2.03 $\pm$ 0.30
Lung	12.8	16.3	15.6	14.9 $\pm$ 1.9
Liver	47.6	60.7	55.3	54.6 $\pm$ 6.6
Kidney	166	126	127	140 $\pm$ 23
Spleen	6.39	8.05	8.05	6.83 $\pm$ 1.07
Small Intestine	140	96	101	112 $\pm$ 24
Large Intestine	16.9	23.6	22.8	21.1 $\pm$ 3.7
Fat	41.2	67.6	52.3	53.7 $\pm$ 13.2
Testes	7.21	9.35	9.45	8.67 $\pm$ 1.27
Muscle	4.52	5.23	7.86	5.87 $\pm$ 1.76
Skin	26.0	13.6	20.1	19.9 $\pm$ 6.2
Whole Blood	34.9	44.7	33.5	37.7 $\pm$ 6.1
Plasma	46.8	66.2	46.3	53.1 $\pm$ 11.3

Table 21. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood two hours following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	75	103	104	Mean $\pm$ SD
Tissue				
Brain	1.50	0.57	0.40	0.82 $\pm$ 0.59
Lung	12.6	5.1	4.1	7.3 $\pm$ 4.6
Liver	35.0	18.8	21.4	25.1 $\pm$ 8.7
Kidney	134	65	51	83 $\pm$ 45
Spleen	4.57	1.95	1.87	2.80 $\pm$ 1.54
Small Intestine	106	59	45	70 $\pm$ 32
Large Intestine	22.1	10.3	13.7	15.4 $\pm$ 6.1
Fat	29.9	7.7	7.0	14.9 $\pm$ 13.0
Testes	5.99	4.20	3.00	4.39 $\pm$ 1.50
Muscle	3.78	1.84	1.54	2.39 $\pm$ 1.22
Skin	10.9	4.6	2.8	6.1 $\pm$ 4.2
Whole Blood	29.2	12.4	9.0	16.8 $\pm$ 10.8
Plasma	39.2	18.0	12.7	23.3 $\pm$ 14.0

Table 22. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood four hours following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	46	47	55	
Tissue				Mean $\pm$ SD
Brain	0.708	0.404	0.708	0.607 $\pm$ 0.175
Lung	1.79	2.15	2.22	2.06 $\pm$ 0.23
Liver	9.60	11.3	5.6	8.8 $\pm$ 2.9
Kidney	24.8	38.8	15.0	26.2 $\pm$ 11.9
Spleen	1.45	2.43	2.81	2.23 $\pm$ 0.71
Small Intestine	8.0	21.0	8.6	12.5 $\pm$ 7.3
Large Intestine	19.9	4.1	21.3	15.1 $\pm$ 9.5
Fat	6.6	17.1	18.0	13.9 $\pm$ 6.4
Testes	1.80	1.77	2.12	1.89 $\pm$ 0.19
Muscle	0.97	1.65	1.04	1.22 $\pm$ 0.38
Skin	1.76	2.54	1.72	2.01 $\pm$ 0.46
Whole Blood	3.71	5.88	3.42	4.34 $\pm$ 1.34
Plasma	3.62	6.70	4.11	4.81 $\pm$ 1.66

Table 23. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood ten hours following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	76	80	107	
Tissue				Mean $\pm$ SD
Brain	0.57	0.16	2.16	0.96 $\pm$ 1.06
Lung	0.971	0.542	0.603	0.705 $\pm$ 0.232
Liver	7.09	4.62	5.69	5.80 $\pm$ 1.23
Kidney	7.15	3.97	4.81	5.31 $\pm$ 1.65
Spleen	1.04	0.43	1.40	0.96 $\pm$ 0.49
Small Intestine	2.53	2.49	2.03	2.35 $\pm$ 0.28
Large Intestine	12.8	14.6	1.0	9.56 $\pm$ 7.4
Fat	1.57	1.24	1.31	1.42 $\pm$ 0.18
Testes	0.638	0.539	0.493	0.557 $\pm$ 0.074
Muscle	0.638	0.280	0.276	0.399 $\pm$ 0.209
Skin	0.868	0.904	0.497	0.756 $\pm$ 0.225
Whole Blood	1.61	0.81	1.02	1.15 $\pm$ 0.42
Plasma	1.16	0.84	0.91	0.97 $\pm$ 0.17

Table 24. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood one day following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	43	44	45	
Tissue				Mean $\pm$ SD
Brain	0.095	0.041	0.053	0.063 $\pm$ 0.029
Lung	0.191	0.245	0.127	0.187 $\pm$ 0.059
Liver	2.35	2.66	2.34	2.45 $\pm$ 0.19
Kidney	1.76	2.16	1.78	1.90 $\pm$ 0.23
Spleen	0.204	0.204	0.203	0.204 $\pm$ 0.001
Small Intestine	1.61	0.65	0.56	0.94 $\pm$ 0.58
Large Intestine	5.37	2.73	2.00	3.36 $\pm$ 1.77
Fat	0.50	1.30	0.19	0.66 $\pm$ 0.57
Testes	0.241	0.093	0.040	0.141 $\pm$ 0.104
Muscle	0.031	0.104	0.070	0.068 $\pm$ 0.037
Skin	0.391	0.689	0.224	0.435 $\pm$ 0.236
Whole Blood	0.290	0.270	0.285	0.281 $\pm$ 0.010
Plasma	0.083	0.045	0.111	0.080 $\pm$ 0.033

Table 25. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood three days following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	52	53	54	
Tissue				Mean $\pm$ SD
Brain	0.232	0.120	0.060	0.138 $\pm$ 0.037
Lung	0.390	0.240	0.114	0.248 $\pm$ 0.139
Liver	1.57	1.48	1.33	1.46 $\pm$ 0.12
Kidney	1.21	1.08	1.15	1.15 $\pm$ 0.07
Spleen	0.377	0.228	0.214	0.273 $\pm$ 0.090
Small Intestine	0.215	0.273	0.206	0.231 $\pm$ 0.036
Large Intestine	0.178	0.217	0.072	0.156 $\pm$ 0.075
Fat	0.545	0.272	0.118	0.312 $\pm$ 0.216
Testes	0.135	0.061	0.119	0.105 $\pm$ 0.039
Muscle	0.124	0.118	0.031	0.091 $\pm$ 0.052
Skin	0.370	0.278	0.192	0.280 $\pm$ 0.089
Whole Blood	0.147	0.240	0.206	0.198 $\pm$ 0.046
Plasma	0.025	0.035	0.057	0.039 $\pm$ 0.017

Table 26. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood five days following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	65	66	67	
Tissue				Mean $\pm$ SD
Brain	0.945	0.342	0.580	0.703 $\pm$ 0.616
Lung	1.16	0.68	0.51	0.78 $\pm$ 0.34
Liver	1.59	1.13	1.29	1.34 $\pm$ 0.24
Kidney	1.77	1.11	1.24	1.37 $\pm$ 0.35
Spleen	1.00	0.56	0.66	0.74 $\pm$ 0.23
Small Intestine	0.603	0.392	0.341	0.445 $\pm$ 0.139
Large Intestine	0.829	0.572	0.621	0.674 $\pm$ 0.137
Fat	1.17	0.95	1.07	1.06 $\pm$ 0.10
Testes	0.284	0.286	0.352	0.307 $\pm$ 0.039
Muscle	0.518	0.239	0.319	0.358 $\pm$ 0.144
Skin	0.60	0.81	1.10	0.84 $\pm$ 0.25
Whole Blood	0.456	0.432	0.285	0.391 $\pm$ 0.093
Plasma	0.505	0.386	0.252	0.381 $\pm$ 0.127

Table 27. Concentration of undifferentiated ^{14}C expressed as nmol/g tissue or nmol/ml blood seven days following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	49	50	51	
Tissue				Mean $\pm$ SD
Brain	0.604	0.118	0.351	0.358 $\pm$ 0.243
Lung	0.860	0.309	0.793	0.654 $\pm$ 0.300
Liver	0.802	0.673	0.868	0.781 $\pm$ 0.099
Kidney	0.556	0.662	0.363	0.527 $\pm$ 0.152
Spleen	0.734	0.435	0.716	0.628 $\pm$ 0.168
Small Intestine	0.491	0.269	0.321	0.360 $\pm$ 0.116
Large Intestine	0.357	0.271	0.384	0.337 $\pm$ 0.059
Fat	0.89	0.80	1.84	1.18 $\pm$ 0.57
Testes	0.194	0.217	0.239	0.217 $\pm$ 0.023
Muscle	0.258	0.479	0.314	0.341 $\pm$ 0.153
Skin	0.227	0.609	0.991	0.609 $\pm$ 0.382
Whole Blood	0.486	0.289	0.387	0.387 $\pm$ 0.098
Plasma	0.472	0.630	0.362	0.488 $\pm$ 0.135

Table 28. Percent of dose as undifferentiated ^{14}C appearing in bile of anesthetized rats at various times following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	86 ^a	87 ^a	93 ^a	106 ^b	
Time (hr)					Mean $\pm$ SD
0.5	16.87	15.52	13.18	15.72	15.32 $\pm$ 1.55
1.0	6.78	7.23	9.69	4.52	7.06 $\pm$ 2.12
1.5	1.81	3.11	2.51	2.04	2.37 $\pm$ 0.53
2.0	1.23	1.94	1.38	1.51	1.52 $\pm$ 0.31
2.5	1.10	1.47	0.94	0.79	1.08 $\pm$ 0.29
3.0	0.53	0.84	0.72	^c	0.70 $\pm$ 0.16
3.5	0.51	0.62	0.62		0.58 $\pm$ 0.06
4.0	0.58	^c	0.55		0.57
4.5	0.38		0.61		0.50

Total	29.79	30.73	30.20	24.58 ^d	30.24 $\pm$ 0.47

^a Anesthesia was intraperitoneal urethane (0.5 g/kg) then methoxyflurane as needed.

^b Anesthesia was intraperitoneal pentobarbital (50 mg/kg) then methoxyflurane as needed.

^c Animal died.

^d Value not included in mean total.

Table 29. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C five minutes after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	56	57	58	
Tissue				Mean $\pm$ SD
Brain	0.124	0.204	0.157	0.162 $\pm$ 0.040
Lung	0.484	0.652	0.694	0.610 $\pm$ 0.111
Liver	2.44	3.84	2.43	2.90 $\pm$ 0.81
Kidney	2.52	3.75	2.01	2.76 $\pm$ 0.90
Spleen	0.28	0.37	1.48	0.71 $\pm$ 0.67
Small Intestine	0.263	0.720	0.458	0.480 $\pm$ 0.229
Large Intestine	0.215	0.872	0.588	0.558 $\pm$ 0.329
Fat	0.352	0.150	0.653	0.385 $\pm$ 0.253
Testes	0.362	0.865	0.469	0.566 $\pm$ 0.265
Muscle	0.158	0.315	0.233	0.235 $\pm$ 0.079
Skin	0.360	0.836	0.417	0.538 $\pm$ 0.260
Plasma	0.566	0.972	0.585	0.708 $\pm$ 0.229

Table 30. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C 15 minutes after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	64	94	95	
Tissue				Mean $\pm$ SD
Brain	0.191	0.092	0.157	0.147 $\pm$ 0.050
Lung	0.644	0.587	0.677	0.636 $\pm$ 0.046
Liver	2.49	3.29	2.83	2.87 $\pm$ 0.40
Kidney	5.18	5.74	4.56	5.16 $\pm$ 0.59
Spleen	0.341	0.272	0.261	0.291 $\pm$ 0.043
Small Intestine	2.67	5.25	4.78	4.23 $\pm$ 1.37
Large Intestine	0.527	0.667	0.409	0.534 $\pm$ 0.129
Fat	0.24	1.48	1.41	1.04 $\pm$ 0.70
Testes	0.331	0.319	0.389	0.347 $\pm$ 0.038
Muscle	0.207	0.145	0.160	0.171 $\pm$ 0.032
Skin	1.14	0.68	0.73	0.85 $\pm$ 0.25
Plasma	1.16	0.96	1.00	1.04 $\pm$ 0.11

Table 31. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C 30 minutes after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	78	96	97	
Tissue				Mean $\pm$ SD
Brain	0.060	0.051	0.082	0.064 $\pm$ 0.016
Lung	0.455	0.367	0.358	0.394 $\pm$ 0.054
Liver	1.34	1.32	2.08	1.58 $\pm$ 0.435
Kidney	3.55	3.96	5.58	4.36 $\pm$ 1.07
Spleen	0.216	0.170	0.211	0.199 $\pm$ 0.025
Small Intestine	2.42	2.06	4.52	3.00 $\pm$ 1.33
Large Intestine	0.361	0.389	0.636	0.462 $\pm$ 0.152
Fat	0.28	1.13	1.34	0.92 $\pm$ 0.56
Testes	0.156	0.161	0.279	0.199 $\pm$ 0.070
Muscle	0.125	0.094	0.123	0.114 $\pm$ 0.017
Skin	0.409	0.557	0.999	0.655 $\pm$ 0.307
Plasma	1.35	0.86	1.32	1.18 $\pm$ 0.276

Table 32. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C one hour after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	100	101	102	
Tissue				Mean $\pm$ SD
Brain	0.068	0.041	0.068	0.059 $\pm$ 0.016
Lung	0.366	0.365	0.466	0.399 $\pm$ 0.058
Liver	1.36	1.36	1.65	1.46 $\pm$ 0.17
Kidney	4.77	2.82	3.78	3.79 $\pm$ 0.97
Spleen	0.183	0.180	0.180	0.181 $\pm$ 0.002
Small Intestine	4.01	2.14	3.00	3.05 $\pm$ 0.93
Large Intestine	0.484	0.528	0.679	0.563 $\pm$ 0.102
Fat	1.18	1.51	1.56	1.42 $\pm$ 0.21
Testes	0.206	0.209	0.282	0.232 $\pm$ 0.043
Muscle	0.130	0.117	0.235	0.160 $\pm$ 0.065
Skin	0.746	0.304	0.598	0.549 $\pm$ 0.225
Plasma	1.34	1.48	1.38	1.40 $\pm$ 0.07

Table 33. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C two hours after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	75	103	104	
Tissue				Mean $\pm$ SD
Brain	0.046	0.044	0.051	0.047 $\pm$ 0.004
Lung	0.433	0.412	0.459	0.435 $\pm$ 0.004
Liver	1.20	1.53	2.37	1.70 $\pm$ 0.60
Kidney	4.61	5.23	5.64	5.16 $\pm$ 0.52
Spleen	0.157	0.207	0.157	0.174 $\pm$ 0.029
Small Intestine	3.62	4.74	4.95	4.44 $\pm$ 0.72
Large Intestine	0.75	0.83	1.52	1.04 $\pm$ 0.42
Fat	1.03	0.63	0.77	0.81 $\pm$ 0.20
Testes	0.340	0.332	0.205	0.292 $\pm$ 0.076
Muscle	0.130	0.149	0.171	0.150 $\pm$ 0.021
Skin	0.373	0.373	0.311	0.352 $\pm$ 0.035
Plasma	1.46	1.41	1.35	1.40 $\pm$ 0.06

Table 34. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C four hours after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	46	47	55	
Tissue				Mean $\pm$ SD
Brain	0.191	0.069	0.207	0.155 $\pm$ 0.076
Lung	0.482	0.366	0.650	0.499 $\pm$ 0.143
Liver	2.59	1.93	1.64	2.05 $\pm$ 0.49
Kidney	6.68	6.59	4.38	5.88 $\pm$ 1.30
Spleen	0.391	0.413	0.822	0.542 $\pm$ 0.243
Small Intestine	2.17	3.57	2.50	2.75 $\pm$ 0.73
Large Intestine	5.35	0.70	6.22	4.09 $\pm$ 2.97
Fat	1.77	2.91	5.27	3.32 $\pm$ 1.78
Testes	0.483	0.301	0.619	0.468 $\pm$ 0.159
Muscle	0.260	0.280	0.303	0.281 $\pm$ 0.021
Skin	0.473	0.431	0.504	0.469 $\pm$ 0.036
Plasma	0.974	1.14	1.20	1.11 $\pm$ 0.12

Table 35. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C ten hours after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	76	80	107	
Tissue				Mean $\pm$ SD
Brain	0.35	0.20	2.13	0.89 $\pm$ 1.1
Lung	0.601	0.667	0.594	0.621 $\pm$ 0.040
Liver	4.39	5.69	5.61	5.23 $\pm$ 0.73
Kidney	4.43	4.89	4.74	4.68 $\pm$ 0.24
Spleen	0.65	0.53	1.38	0.85 $\pm$ 0.46
Small Intestine	1.57	3.06	2.00	2.21 $\pm$ 0.77
Large Intestine	8.0	17.9	1.0	9.0 $\pm$ 9.0
Fat	0.97	1.53	1.29	1.26 $\pm$ 0.28
Testes	0.395	0.663	0.485	0.515 $\pm$ 0.137
Muscle	0.396	0.345	0.272	0.338 $\pm$ 0.062
Skin	0.54	1.11	0.49	0.71 $\pm$ 0.35
Plasma	0.72	1.03	0.89	0.88 $\pm$ 0.16

Table 36. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C one day after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	43	44	45	
Tissue				Mean $\pm$ SD
Brain	0.328	0.150	0.184	0.221 ± 0.095
Lung	0.656	0.907	0.446	0.670 ± 0.231
Liver	8.09	9.87	8.22	8.73 ± 0.99
Kidney	6.06	8.01	6.25	6.77 ± 1.08
Spleen	0.702	0.757	0.715	0.725 ± 0.029
Small Intestine	5.54	2.39	1.95	3.30 ± 1.96
Large Intestine	18.5	10.1	7.0	11.9 ± 5.9
Fat	1.72	4.81	0.68	2.40 ± 2.15
Testes	0.832	0.344	0.140	0.439 ± 0.356
Muscle	0.104	0.385	0.246	0.245 ± 0.140
Skin	1.35	2.56	0.79	1.56 ± 0.90
Plasma	0.288	0.167	0.391	0.282 ± 0.112

Table 37. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C three days after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	52	53	54	
Tissue				Mean $\pm$ SD
Brain	1.55	0.50	0.29	0.78 ± 0.68
Lung	2.62	1.00	0.55	1.39 ± 1.09
Liver	10.53	6.16	6.47	7.72 ± 2.44
Kidney	8.11	4.50	5.60	6.07 ± 1.85
Spleen	2.54	0.95	1.04	1.51 ± 0.89
Small Intestine	1.45	1.14	1.00	1.20 ± 0.23
Large Intestine	1.20	0.91	0.35	0.82 ± 0.43
Fat	3.66	1.14	0.57	1.79 ± 1.64
Testes	0.906	0.255	0.577	0.579 ± 0.325
Muscle	0.832	0.492	0.151	0.492 ± 0.341
Skin	2.48	1.16	0.93	1.52 ± 0.84
Plasma	0.168	0.145	0.280	0.198 ± 0.072

Table 38. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C five days after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	65	66	67	
Tissue				Mean $\pm$ SD
Brain	2.07	0.79	2.03	1.63 $\pm$ 0.73
Lung	2.54	1.58	1.78	1.97 $\pm$ 0.51
Liver	3.51	2.62	4.53	3.55 $\pm$ 0.95
Kidney	3.89	2.57	4.35	3.60 $\pm$ 0.93
Spleen	2.19	1.30	2.33	1.94 $\pm$ 0.56
Small Intestine	1.32	0.91	1.20	1.14 $\pm$ 0.21
Large Intestine	1.82	1.32	2.18	1.77 $\pm$ 0.43
Fat	2.57	2.21	3.74	2.84 $\pm$ 0.80
Testes	0.62	0.66	1.23	0.84 $\pm$ 0.34
Muscle	1.14	0.55	1.12	0.94 $\pm$ 0.33
Skin	1.31	1.88	3.87	2.36 $\pm$ 1.34
Plasma	1.11	0.89	0.89	0.96 $\pm$ 0.13

Table 39. Tissue (g):Blood (ml) ratio of undifferentiated ^{14}C seven days after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg)

Rat #	49	50	51	
Tissue				Mean $\pm$ SD
Brain	1.24	0.81	0.91	0.98 ± 0.23
Lung	1.77	1.07	2.05	1.63 ± 0.54
Liver	1.65	2.33	2.25	2.08 ± 0.37
Kidney	1.14	2.29	0.94	1.46 ± 0.73
Spleen	1.51	1.51	1.85	1.62 ± 0.20
Small Intestine	1.01	0.93	0.83	0.92 ± 0.09
Large Intestine	0.734	0.939	0.992	0.889 ± 0.136
Fat	1.83	2.78	4.75	3.12 ± 1.49
Testes	0.399	0.750	0.618	0.589 ± 0.177
Muscle	0.53	1.66	0.81	1.00 ± 0.59
Skin	0.47	2.11	2.57	1.71 ± 1.10
Plasma	0.97	2.18	0.94	1.36 ± 0.71

Table 40. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues five min. after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	56	57	58	
Tissue				Mean $\pm$ SD
Brain	9.36	8.27	11.2	9.60 $\pm$ 1.46
Lung	25.2	20.9	27.0	24.3 $\pm$ 3.1
Liver	951	799	711	820 $\pm$ 121
Kidney	213	151	124	162 $\pm$ 46
Spleen	5.73	4.19	23.5	11.1 $\pm$ 10.7
Small Intestine	55.2	82.6	74.8	70.9 $\pm$ 14.1
Large Intestine	9.44	27.6	25.2	20.7 $\pm$ 9.9
Fat	221	54.4	325	200 $\pm$ 136
Testes	39.2	52.9	47.8	46.6 $\pm$ 6.9
Muscle	707	818	882	784 $\pm$ 67
Skin	517	696	475	562 $\pm$ 117
Whole Blood	807	468	640	638 $\pm$ 170
Plasma	237	236	195	223 $\pm$ 24

Table 41. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues 15 min. after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	64	94	95	
Tissue				Mean $\pm$ SD
Brain	13.6	5.31	11.3	10.1 $\pm$ 4.3
Lung	25.4	25.0	27.4	26.0 $\pm$ 1.3
Liver	796	1264	1200	1087 $\pm$ 254
Kidney	355	625	372	384 $\pm$ 37
Spleen	6.05	5.34	5.09	5.49 $\pm$ 0.50
Small Intestine	610	776	998	728 $\pm$ 297
Large Intestine	18.9	32.8	21.7	24.5 $\pm$ 7.3
Fat	120	773	778	557 $\pm$ 378
Testes	33.7	32.7	37.7	34.7 $\pm$ 2.6
Muscle	719	745	607	623 $\pm$ 88
Skin	1300	817	918	1011 $\pm$ 255
Whole Blood	641	671	711	674 $\pm$ 35
Plasma	388	338	370	365 $\pm$ 25

Table 42. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues 30 min. after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	78	96	97	
Tissue				Mean $\pm$ SD
Brain	5.86	5.39	5.48	5.58 $\pm$ 0.25
Lung	26.4	23.6	14.3	21.4 $\pm$ 6.3
Liver	645	702	681	676 $\pm$ 29
Kidney	335	398	376	370 $\pm$ 32
Spleen	5.94	4.55	4.33	4.94 $\pm$ 0.87
Small Intestine	492	564	879	645 $\pm$ 206
Large Intestine	17.0	28.4	29.5	24.9 $\pm$ 6.9
Fat	191	790	639	540 $\pm$ 312
Testes	19.1	21.5	26.0	22.2 $\pm$ 3.5
Muscle	611	468	420	500 $\pm$ 99
Skin	641	886	1089	872 $\pm$ 225
Whole Blood	881	895	613	796 $\pm$ 159
Plasma	619	400	421	480 $\pm$ 121

Table 43. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues one hour after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	100	101	102	
Tissue				Mean $\pm$ SD
Brain	3.77	3.44	3.36	3.53 $\pm$ 0.22
Lung	13.9	18.2	17.1	16.4 $\pm$ 2.3
Liver	462	645	549	552 $\pm$ 92
Kidney	309	268	236	271 $\pm$ 36
Spleen	3.29	4.10	2.94	3.44 $\pm$ 0.59
Small Intestine	574	389	427	463 $\pm$ 97
Large Intestine	17.9	31.7	22.7	24.1 $\pm$ 7.0
Fat	583	1050	736	790 $\pm$ 238
Testes	17.5	24.9	25.8	22.7 $\pm$ 4.5
Muscle	457	581	790	609 $\pm$ 168
Skin	841	482	645	656 $\pm$ 180
Whole Blood	635	894	606	712 $\pm$ 158
Plasma	443	687	435	522 $\pm$ 143

Table 44. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues two hours after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	75	103	104	
Tissue				Mean $\pm$ SD
Brain	2.27	0.90	0.68	1.28 $\pm$ 0.86
Lung	14.1	5.4	7.1	8.9 $\pm$ 4.6
Liver	325	200	226	251 $\pm$ 66
Kidney	241	119	111	157 $\pm$ 73
Spleen	2.49	1.10	0.98	1.52 $\pm$ 0.84
Small Intestine	420	258	190	290 $\pm$ 118
Large Intestine	12.4	16.5	23.5	17.5 $\pm$ 5.6
Fat	410	117	103	210 $\pm$ 174
Testes	15.2	10.7	7.7	11.2 $\pm$ 3.8
Muscle	371	199	162	244 $\pm$ 111
Skin	341	159	94	198 $\pm$ 128
Whole Blood	240	171	514	308 $\pm$ 182
Plasma	360	182	125	222 $\pm$ 122

Table 45. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues four hours after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	46	47	55	
Tissue				Mean $\pm$ SD
Brain	1.28	0.76	1.30	1.12 $\pm$ 0.31
Lung	1.78	2.41	2.39	2.19 $\pm$ 0.36
Liver	80.0	93.1	53.0	78.7 $\pm$ 22.3
Kidney	44.6	60.1	27.3	44.0 $\pm$ 16.4
Spleen	0.66	1.07	1.47	1.06 $\pm$ 0.40
Small Intestine	35.3	80.3	38.6	51.4 $\pm$ 25.1
Large Intestine	24.9	3.1	25.5	17.8 $\pm$ 12.8
Fat	85	204	269	186 $\pm$ 93
Testes	4.19	3.95	5.47	4.54 $\pm$ 0.82
Muscle	89	140	110	113 $\pm$ 26
Skin	51.7	69.0	58.8	59.8 $\pm$ 8.7
Whole Blood	61.5	90.0	65.6	72.3 $\pm$ 15.4
Plasma	31.1	53.3	41.0	41.8 $\pm$ 11.1

Table 46. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues ten hours after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	76	80	107	
Tissue				Mean $\pm$ SD
Brain	1.00	0.24	4.20	1.81 $\pm$ 2.1
Lung	0.934	0.500	0.903	0.78 $\pm$ 0.24
Liver	51.8	36.7	51.8	46.8 $\pm$ 8.7
Kidney	9.59	10.4	6.71	8.9 $\pm$ 1.95
Spleen	0.416	0.179	0.751	0.449 $\pm$ 0.288
Small Intestine	8.09	9.25	9.15	8.83 $\pm$ 0.64
Large Intestine	12.14	14.0	1.09	9.1 $\pm$ 7.0
Fat	18.4	14.8	23.0	18.7 $\pm$ 3.3
Testes	1.40	1.26	1.55	1.41 $\pm$ 0.14
Muscle	53.7	24.0	34.5	37.4 $\pm$ 15.1
Skin	23.3	24.7	19.9	22.6 $\pm$ 2.5
Whole Blood	24.4	12.5	22.9	19.9 $\pm$ 6.5
Plasma	9.1	6.7	10.6	8.8 $\pm$ 2.0

Table 47. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues one day after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	43	44	45	
Tissue				Mean $\pm$ SD
Brain	0.168	0.068	0.099	0.112 $\pm$ 0.051
Lung	0.182	0.326	0.110	0.206 $\pm$ 0.110
Liver	16.4	23.5	16.4	18.7 $\pm$ 4.1
Kidney	2.75	3.51	2.71	2.99 $\pm$ 0.45
Spleen	0.078	0.098	0.080	0.085 $\pm$ 0.011
Small Intestine	4.27	2.25	1.72	2.75 $\pm$ 1.35
Large Intestine	5.40	2.96	2.07	3.48 $\pm$ 1.72
Fat	5.49	16.0	2.06	7.9 $\pm$ 7.26
Testes	0.547	0.216	0.098	0.287 $\pm$ 0.233
Muscle	2.38	9.14	5.38	5.64 $\pm$ 3.38
Skin	9.82	19.4	5.48	11.6 $\pm$ 7.1
Whole Blood	4.09	2.67	3.92	3.56 $\pm$ 0.77
Plasma	0.610	0.370	0.797	0.593 $\pm$ 0.214

Table 48. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues three days after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	52	53	54	
Tissue				Mean $\pm$ SD
Brain	0.398	0.224	0.118	0.247 $\pm$ 0.141
Lung	0.424	0.248	0.134	0.269 $\pm$ 0.146
Liver	14.2	14.5	15.6	14.7 $\pm$ 0.8
Kidney	2.06	1.75	2.25	2.02 $\pm$ 0.25
Spleen	0.167	0.112	0.109	0.130 $\pm$ 0.032
Small Intestine	0.972	1.16	0.829	0.98 $\pm$ 0.17
Large Intestine	0.201	0.213	0.062	0.159 $\pm$ 0.084
Fat	7.32	4.00	1.87	4.40 $\pm$ 2.75
Testes	0.325	0.167	0.334	0.275 $\pm$ 0.094
Muscle	11.9	12.4	3.54	9.3 $\pm$ 5.0
Skin	11.4	9.35	6.97	9.2 $\pm$ 2.2
Whole Blood	2.57	4.53	4.20	3.77 $\pm$ 1.05
Plasma	0.226	0.339	0.609	0.391 $\pm$ 0.196

Table 49. nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues, five days after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	65	66	67	
Tissue				Mean $\pm$ SD
Brain	1.81	0.577	0.874	1.27 $\pm$ 1.09
Lung	1.37	0.660	0.572	0.87 $\pm$ 0.43
Liver	16.5	10.0	13.1	13.2 $\pm$ 3.3
Kidney	3.27	2.04	2.36	2.56 $\pm$ 0.64
Spleen	0.506	0.256	0.331	0.365 $\pm$ 0.128
Small Intestine	2.53	1.39	1.26	1.73 $\pm$ 0.70
Large Intestine	0.939	0.664	0.585	0.729 $\pm$ 0.186
Fat	16.1	11.9	14.5	14.2 $\pm$ 1.9
Testes	0.717	0.698	0.928	0.781 $\pm$ 0.128
Muscle	50.7	21.2	30.9	34.3 $\pm$ 15.0
Skin	18.8	23.1	34.2	25.4 $\pm$ 7.9
Whole Blood	8.04	6.92	4.98	6.65 $\pm$ 1.55
Plasma	4.63	3.21	2.29	3.38 $\pm$ 1.18

Table 50 . nMoles of p-nitrotoluene as undifferentiated ^{14}C in tissues seven days after intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg).

Rat #	49	50	51	
Tissue				Mean $\pm$ SD
Brain	0.942	0.225	0.658	0.512 ± 0.397
Lung	0.956	0.366	0.975	0.766 ± 0.346
Liver	8.10	7.84	7.41	7.79 ± 0.35
Kidney	1.08	1.24	0.625	0.98 ± 0.32
Spleen	0.364	0.224	0.306	0.298 ± 0.071
Small Intestine	2.54	1.44	1.47	1.81 ± 0.63
Large Intestine	0.453	0.454	0.409	0.439 ± 0.026
Fat	12.9	12.9	23.4	16.4 ± 6.1
Testes	0.488	0.576	0.612	0.558 ± 0.064
Muscle	26.7	54.8	28.6	34.7 ± 17.3
Skin	7.53	22.3	28.9	19.6 ± 10.9
Whole Blood	9.05	5.95	6.33	7.11 ± 1.69
Plasma	4.57	6.75	3.08	4.80 ± 1.84

Table 51. Pharmacokinetic parameters of undifferentiated ^{14}C following intravenous administration of ^{14}C -p-nitrotoluene (8 mg/kg) for data up through three days.

	A (%)	α	$t_{1/2}$ (hr)	B (%)	β	$t_{1/2}$ (hr)	r
Brain	0.072 ± 0.055	1.02 ± 0.47	0.679	0.006 ± 0.004	0.049 ± 0.036	10.7	0.956
Lung	0.251 ± 0.062	0.627 ± 0.118	1.11	0.037 ± 0.001	0.132 ± 0.073	52.4	0.998
Liver	9.76 ± 1.59	0.817 ± 0.155	0.85	0.361 ± 0.207	0.015 ± 0.016	45.1	0.987
Kidney	3.95 ± 0.41	0.558 ± 0.053	1.24	0.054 ± 0.017	0.016 ± 0.002	44.0	0.996
Spleen	0.063 ± 0.028	0.627 ± 0.297	1.11	0.002 ± 0.004	0.022 ± 0.039	31.0	0.974
Small Intestine	7.92 ± 0.90	0.696 ± 0.054	1.00	0.071 ± 0.015	0.029 ± 0.009	23.6	0.999
Large Intestine	0.139 ± 0.064	0.631 ± 0.132	1.10	0.124 ± 0.031	0.037 ± 0.019	18.6	0.994
Fat	5.43 ± 2.09	0.432 ± 0.251	1.60	0.095 ± 0.041	3.67×10^{-4} ± 0.006	1.89×10^3	0.921
Testes	0.290 ± 0.089	0.534 ± 0.133	1.30	0.012 ± 0.010	0.042 ± 0.041	16.5	0.981
Muscle	4.73 ± 1.09	0.335 ± 0.073	2.07	0.069 ± 0.017	1.57×10^{-5} $\pm 1.12 \times 10^{-5}$	4.4×10^4	0.969
Skin	11.6 ± 1.8	0.924 ± 0.098	0.75	0.198 ± 0.032	0.013 ± 0.002	53.3	0.996
Whole Blood	8.22 ± 2.03	0.597 ± 0.111	1.16	0.068 ± 0.018	0.011 ± 0.015	61.2	0.973
Plasma	4.34 ± 1.49	0.504 ± 0.111	1.38	0.004 ± 0.003	0.0002 ± 0.0002	3.47×10^3	0.941

Table 52. Pharmacokinetic parameters of undifferentiated ^{14}C following intravenous administration of ^{14}C -p-nitrotoluene for data up through seven days.

	A (%)	α	$t_{1/2}$ (hr)	B (%)	β	$t_{1/2}$ (hr)	r
Brain	0.141 ± 0.019	2.22 ± 0.37	0.312	0.010 ± 0.003	0.004 ± 0.002	173	0.988
Lung	0.279 ± 0.006	0.733 ± 0.031	0.946	0.007 ± 0.002	0.004 ± 0.001	173	0.999
Liver	6.54 ± 3.89	0.716 ± 0.293	0.97	0.427 ± 0.269	0.042 ± 0.022	16.4	0.982
Kidney	3.25 ± 0.83	0.482 ± 0.081	1.44	0.052 ± 0.013	0.022 ± 0.004	32.0	0.994
Spleen	0.053 ± 0.033	0.618 ± 0.392	1.12	0.002 ± 0.001	0.023 ± 0.021	30.5	0.953
Small Intestine	7.57 ± 2.31	0.654 ± 0.129	1.06	0.046 ± 0.014	0.026 ± 0.008	26.7	0.999
Large Intestine	0.214 ± 0.077	0.606 ± 0.167	1.14	0.076 ± 0.021	0.022 ± 0.005	31.0	0.984
Fat	5.67 ± 1.70	0.429 ± 0.139	1.62	0.108 ± 0.028	0.0001 ± 0.0002	6930	0.935
Testes	0.338 ± 0.144	0.671 ± 0.268	1.03	0.008 ± 0.003	0.021 ± 0.012	33.5	0.988
Muscle	4.92 ± 1.65	0.338 ± 0.108	2.05	0.084 ± 0.041	9.6×10^{-6} $\pm 2.7 \times 10^{-5}$	7.2×10^4	0.971
Skin	10.7 ± 3.2	0.849 ± 0.172	0.816	0.122 ± 0.027	6.3×10^{-5} $\pm 8.9 \times 10^{-5}$	1.1×10^8	0.997
Whole Blood	7.90 ± 2.00	0.561 ± 0.102	1.24	0.043 ± 0.014	0.0001 ± 0.0001	6930	0.978
Plasma	4.01 ± 1.81	0.413 ± 0.133	1.46	0.004 ± 0.003	6×10^{-5} $\pm 6 \times 10^{-5}$	1.2×10^4	0.953

Table 53. Pharmacokinetic parameters for parent p-nitrotoluene following intravenous administration (8 mg/kg).

	A (%)	α	$t_{1/2}$ (hr)	B (%)	β	$t_{1/2}$ (hr)	r
Kidney	0.715 ± 0.343	2.11 ± 0.65	0.33				0.963
Liver	0.813 ± 0.101	2.82 ± 0.29	0.25				0.996
Whole Blood	1.39 ± 0.27	1.18 ± 0.24	0.59				0.876
Fat	Not Modeled						
Muscle	Not Modeled						
Skin	Not Modeled						