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The Goodyear Tire & Rubber Company
Akron, Ohio 44316 - 0001

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ATTN: Section 8(e) Submission

Dear Ladies/Gentlemen:

Subject: **Supplemental Information Regarding a TSCA Section 8(e) Notice**

Reference: EPA Document Control Number: 8EHQ-98-14281

This submittal does not contain Confidential Business Information.

As promised in the above referenced document, The Goodyear Tire & Rubber Company is providing the EPA with a copy of the following final report:

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Four-Week Dietary Study of WINGSTAY SN-1 in Fischer 344 Rats, American Health Foundation, January 25, 2002.

The current identity of the test substance is as follows:

CAS Name: Propanoic acid, 3-(dodecylthio)-, oxybis(2,1-ethanediyloxy-2,1-ethanediyl) ester

CAS Number: 64253-30-1

Please Note: During December 2001, The Goodyear Tire & Rubber Company sold its specialty chemicals business to Eliokem, LLC. As part of the sale, Goodyear sold to Eliokem the rights to exclusively manufacture, market and sell WINGSTAY SN-1.

89020000159

My address and telephone number are as follows:

The Goodyear Tire & Rubber Company
Department 100D
1144 East Market Street
Akron, Ohio 44316-0001
Telephone Number: (330) 796-2362

Sincerely,

Michael W Smith
Section Manager, Chemical Information
Systems & Regulatory Affairs

Enclosures (1)

REVISED FINAL REPORT

Study Title:

Four-Week Dietary Study of Wingstay® SN-1 in Fischer 344 Rats

Date of Issuance: January 25, 2002

Sponsor:

THE GOODYEAR TIRE AND RUBBER COMPANY
Chemical R&D
Toxicology and Product Acceptability
1485 East Archwood Avenue
Akron, Ohio 44306

Authors:

Michael J. Iatropoulos, MD, PhD
Klaus D. Brunnemann, MS
James Hosey, MS
Brian P. Pittman, MS
C.-X. Wang, MD

Testing Facility:

American Health Foundation
One Dana Road
Valhalla, NY 10595
U.S.A.

Laboratory Study Identification:

AHF Study R-1777

MK 60804

AMERICAN HEALTH FOUNDATION
One Dana Road
Valhalla, NY 10595

AHF Study R-1777

COMPLIANCE STATEMENT

Study Title: Four-Week Dietary Study of Wingstay® SN-1 in Fischer 344 Rats

This study was conducted in compliance with the Good Laboratory Practice Standards of the USEPA; 40CFR792; Final Rule; August 17, 1989, *Federal Register*, 54: pp 34034-34052 and with any applicable amendments, as well as the GLP Principles of the OECD (1981) and Japanese Ministry of International Trade and Industry (1993).

All deviations from the protocol are given in Appendix 21. There were no known deviations from the aforementioned regulations that would impact on the interpretation of the results in this report. Even Deviation No. 2 did not interfere with the results because of consistent and significant functional and morphologic changes observed in the two high exposures in animals of both genders.

The purpose of this Revised Final Report is to correct errors in the numbering of pages in the Final Report and its appendices. Also, the numbering in the Table of Contents did not correspond to the page numbers in the appendices. No changes in the content of the Final Report have been made in this Revised Final Report other than the elimination of the Ojeda (1992) reference and correcting the title of Appendix 6 as noted below. Specifically the changes are the following:

1. The reference list has been condensed from 2 pages (pp. 43-4) to 1 page (p. 43) by changing the spacing and eliminating one reference (Ojeda, 1992), which was not used in the text of the Final Report and was incorrectly placed as part of another reference.
2. The page numbers for pp. 45-91 have been renumbered to 44-90.
3. The first page of Appendix 1, is now p. 91.
4. The title of Appendix 6 was corrected to "43-Day Sacrifice" instead of "29-Day Sacrifice."
5. The Table of Contents has been revised to incorporate these changes and to reflect the correct page numbers of the appendices.

Study Director:

John Whysner, MD, PhD

January 29, 2002
Date

AMERICAN HEALTH FOUNDATION
One Dana Road
Valhalla, NY 10595

AHF Study R-1777

QUALITY ASSURANCE UNIT STATEMENT

Study Number: R-1777

Study Title: Four-Week Dietary Study of Wingstay® SN-1 in Fischer 344 Rats

Dates of Inspections and Audits	Dates of Reports
01/14/97, 01/21/97, 01/22/97	01/22/97
02/05/97	03/05/97
02/11/98 - 02/17/98, 03/02/98 - 03/06/98	03/09/98
06/22/98 - 06/26/98, 09/25/98 - 09/10/98	09/15/98
01/21/99 - 01/26/99, 02/12/99 - 02/23/99	02/23/99
06/25/01	06/25/01
01/25/02	01/25/02

This signed statement indicates that the AHF Quality Assurance Unit has monitored this study and reviewed the data and final report as required by the EPA Good Laboratory Practice Standards and other equivalent regulations. The reviews indicate that the final report accurately presents raw data as developed during the study.

Henry E. Prescott 01/25/02

AMERICAN HEALTH FOUNDATION
One Dana Road
Valhalla, NY 10595

AHF Study R-1777

STUDY IDENTIFICATION

Four-Week Dietary Study of Wingstay® SN-1 in Fischer 344 Rats

Abbreviated Study Title:	Four-Week Study of SN-1 in Rats
AHF Study Number:	R-1777
Test Substance:	WINGSTAY® SN-1 1:11-(3, 6, 9-trioxaundecyl)bis-(dodecylthio)propionate
Sponsor/Study Monitor:	The Goodyear Tire and Rubber Company Chemical R&D Toxicology and Product Acceptability 1485 East Archwood Avenue Akron, Ohio 44306 Dr. Richard Serva
Study Time Table:	
a. First day of exposure:	December 24, 1996 (males) December 31, 1996 (females)
b. 29-30-Day Termination (Sacrifice):	January 22-23, 1997 (males) January 29-30, 1997 (females)
c. 43-Day Termination (Sacrifice):	February 5, 1997 (males) February 12, 1997 (females)
d. Final Report:	June 25, 2001
Study Director:	
Inception to March 27, 2000	Michael J. Iatropoulos, MD, PhD
March 28, 2000 to August 6, 2000	Philip Leber, PhD
August 6, 2000 to Present	John Whysner, MD, PhD
Histopathologist:	C.X. Wang, MD
Head of Research Animal Facility (RAF):	Gordon C. Hard, BVSc, PhD, DSc
Study Biologist:	Joanne Braley, MS
Analytical Toxicology Lab (ATL):	Klaus D. Brunnemann, MS
Statistical Support:	Brian P. Pittman, MS
Data Collection:	James Hosey, MS

AMERICAN HEALTH FOUNDATION
One Dana Road
Valhalla, NY 10595

AHF Study R-1777

REPORT APPROVAL

STUDY TITLE: Four-Week Dietary Study of Wingstay® SN-1 in Fischer 344 Rats

John Whysner, MD, PhD
Study Director
Chief of Pathology and Toxicology
American Health Foundation

Signature: _____

Date: June 25, 2001

Daniel W. Nixon, MD
Testing Facility Manager
President
American Health Foundation

Signature: _____

Date: 6/25/01

Philip Leber, PhD
Sponsor Representative
The Goodyear Tire and Rubber Company

Signature: _____

Date: 6/27/01

AMERICAN HEALTH FOUNDATION
One Dana Road
Valhalla, NY 10595

AHF Study R-1777

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AMERICAN HEALTH FOUNDATION
One Dana Road
Valhalla, NY 10595

AHF Study R-1777

SUMMARY

Wingstay® SN-1 (SN-1), 1:11-(3,6,9-trioxaundecyl) bis-(dodecylthio)propionate, a Goodyear product, which is used as a secondary antioxidant, was given daily in the diet to 44 male and 44 female Fischer 344 (F344) rats for 28 consecutive days, followed by a 14-day exposure-free period of recovery. Animals were euthanized at 29, 30 and 43 days. SN-1 was mixed in powdered NIH-07 diet to achieve concentration of 0.012% (120 ppm), set to deliver 7.5 mg/kg bw/day; 0.047% (470 ppm), set to deliver 30 mg/kg bw/day; and 0.19% (1900 ppm), set to deliver 120 mg/kg bw/day.

Clinical observations, body weights and food consumption were monitored. At terminations, after 29 and 43 days, hematology, clinical chemistry and urinalysis were conducted. In addition, the red cell distribution width (RDW), serum iron, unsaturated iron binding capacity (UIBC), total iron binding capacity (TIBC), transferrin (TF) and erythropoietin (EPO) were also measured. Complete necropsies were performed. The absolute and relative weights were recorded for the following tissues: liver, kidneys, pituitary, heart, spleen, thyroids, adrenals, brain, uterus, ovaries and testes. All sampled tissues (33 in males and 34 in females) were processed, and H&E slides made and subjected to microscopic evaluation. In addition, slides from liver and urinary bladder were also subjected to immunohistochemical staining for proliferating cell nuclear antigen (PCNA). The replicating fractions (RF) of these tissues were determined by scoring the percentage of stained nuclei.

No compound-related clinical findings occurred. At 29 days, in the high dose groups of both genders, achieved body weight gain at termination was reduced by 7.2% in males and 4.5% in females. Thus, the body weight no-observable-adverse-effect-level (NOAEL) in both genders was the mid dose. In males, food consumption was reduced in the mid dose. Therefore, the food consumption NOAEL was the low dose in males and the mid dose in females. Both body weight and food consumption changes were recoverable, which in females was complete. The body weight reduction in high dose rats was accompanied by prolonged prothrombin time (PT) (recovery in both), Hypoferremia (all doses in males, mid and high in females; no recovery in both), hypocholesterolemia (high dose in males, mid and high in females; no recovery in both), increased BUN (the azotemia was in mid and high doses of both genders; no recovery in both), increased ketone bodies in urine (both genders high dose; no recovery in males), and lowering of urine pH (mid and high dose in females with no recovery. Thus, the NOAEL for hematology, chemistry and urinalysis was the low dose. In addition, hematological and chemistry changes were present which were not dose, gender or time consistent and were at times within the range of our in-house historical control data. These data were, therefore, used only as supportive or ancillary data to the main findings described above. Such changes included the following parameters (see Glossary): HGB, HCT, MCH, MCV, MCHC, RDW, APTT, total protein, albumin, globulin, triglycerides, LAP, ALP, TIBC, UIBC, transferrin, Cl^-, Ca, P, and glucose.

Organ weight changes occurred in the following organs: liver, heart, kidney, adrenals,

thyroid, brain, testes and ovaries. The organ weight NOAEL for both genders was the mid dose level (except for thyroid in males). The liver weight increase was accompanied by an increased incidence of hepatocellular degeneration (only in high dose males) and apoptosis (high dose of both genders, but of higher incidence in males). Both degeneration and apoptosis had recovery trends in males. In addition, the hepatocellular RF was increased in high dose males and females (complete recovery only in males). Cardiomyopathy and/or myocytic degeneration was present in most of the mid and high doses of both genders (and both had a recovery trend). The RF of urothelial cells was increased in all doses in males and in the two highest doses in females. A recovery trend was present only in males.

In conclusion, under the conditions of this study, SN-1 induced azotemia and hypocholesterolemia, which reflect protein catabolism, ketoacidosis and dehydration. This was further reflected in hepatocellular degeneration, increased apoptosis, increased RF and prolongation of PT. Moreover azotemia is associated with ketonuria which is associated with low urine pH and increased urothelial RF. Finally, interference with iron homeostasis resulted in hypoferremia. Most of these effects were not reversible during the two weeks free of exposure. Thus, the NOAEL for all of these cardinal findings was at 120 ppm.

Summary Table - Males

Parameter	Body Weights (g)		Rel Adrenal Wt (%)		Rel Brain Wt (%)		Rel Heart Wt (%)		Rel Kidney Wt (%)		Rel Liver Wt (%)		Rel Thyroid Wt (%)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	291	307	0.020	0.019	0.67	0.64	0.33	0.35	0.73	0.70	2.98	2.97	0.0064	0.0056
SN-1 120 ppm	294	-	0.017	-	0.66	-	0.35	-	0.72	-	2.96	-	0.0045***	-
SN-1 470 ppm	294	-	0.022	-	0.66	-	0.33	-	0.71	-	3.09	-	0.0047***	-
SN-1 1900 ppm	270*	292	0.026**	0.021	0.75**	0.67	0.37**	0.34	0.79*	0.74*	3.64***	3.22***	0.0054*	0.0053

Parameter	Rel Testes Wt (%)		RBC (mill/μl)		HGB (g/dl)		HCT (%)		MCV (fl)		MCH (pg)		MCHC (%)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	1.35	1.29	7.86	7.94	15.8	15.6	46.9	44.9	59.6	56.6	20.1	19.6	33.7	34.7
SN-1 120 ppm	1.39	-	7.41*	-	15.4	-	44.9	-	60.6	-	20.8	-	34.4	-
SN-1 470 ppm	1.34	-	7.95	-	16.4	-	47.5	-	59.8	-	20.6	-	34.5	-
SN-1 1900 ppm	1.49**	1.34	7.56	8.24	16.1	16.6**	44.9	47.6**	59.4	57.8**	21.3**	20.1*	35.8***	34.8

Parameter	RDW (%)		PLTS (thsn/μl)		Monos (thsn/μl)		Eosn (thsn/μl)		PROTIME (sec)		APTT (sec)		Total Protein (g/dl)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	26.7	21.4	609.7	823.0	0.078	0.037	0.008	0.078	15.0	16.0	36.8	33.0	7.4	7.4
SN-1 120 ppm	26.7	-	673.8	-	0.032	-	0.042	-	15.5	-	31.0	-	7.2	-
SN-1 470 ppm	26.2	-	737.7***	-	0.050	-	0.103	-	15.5	-	37.1	-	7.4	-
SN-1 1900 ppm	26.0	24.4*	821.2***	800.5	0.035	0.090*	0.053	0.070	18.1*	15.5	25.8	31.2	6.9***	7.1

Parameter	Albumin (g/dl)		Globulin (g/dl)		Chol (mg/dl)		Triglyc (mg/dl)		LAP (units/1)		Iron (μg/dl)		UIBC (μg/dl)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	4.7	4.8	2.7	2.6	55.7	67.3	117.7	127.5	51.6	47.6	126	111	385	391
SN-1 120 ppm	4.6	-	2.6	-	52.7	-	79.8*	-	46.6	-	90*	-	397	-
SN-1 470 ppm	4.6	-	2.8	-	51.7	-	76.8*	-	44.1	-	53***	-	458**	-
SN-1 1900 ppm	4.5*	4.7	2.4*	2.4*	32.0***	44.3**	68.8**	83.8*	51.2	48.9	50***	59***	404	398

Parameter	TIBC (μg/dl)		T-FER (mg/dl)		Cl^- (meq/1)		Ca (mg/dl)		P (mg/dl)		ALP (units/1)		Glu (mg/dl)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	511	502	401	407	97.7	95.0	12.1	11.4	11.1	8.6	185	145	223	134
SN-1 120 ppm	487	-	375	-	99.5	-	11.7	-	10.6	-	183	-	134*	-
SN-1 470 ppm	511	-	362*	-	100.2*	-	11.6	-	11.5	-	202	-	156	-
SN-1 1900 ppm	455**	456*	359**	383	101.3***	98.2*	11.1**	11.4	10.7	9.7*	204	162	140	170*

Parameter	BUN (mg/dl)		Urine Sp Gr (SG units)		Urine pH		Urine Ket (mg/dl)		Liver PCNA RF (%)		UB PCNA RF (%)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification												
Control	14.5	14.7	1.0500	1.0253	6.7	6.7	5.0	11.7	4.1	4.3	12.9	13.5
SN-1 120 ppm	14.5	-	1.0427	-	6.5	-	5.0	-	4.4	-	17.8**	-
SN-1 470 ppm	18.2*	-	1.0387*	-	6.3	-	8.3	-	4.5	-	15.8	-
SN-1 1900 ppm	23.0***	20.8***	1.0433	1.0380	6.3	6.8	31.7**	40.0**	5.7***	4.4	18.5**	13.8

fl, femtoliter (a billionth of a microliter, 10^{-15} liter); pg, picogram (a trillionth of a gram, 10^{-12} gram); μl, microliter; μg, microgram; mg, milligram; dl, deciliter; l, liter; g, gram; meq, milliequivalent; mill, millions; thsn, thousands; sec, seconds; *, statistically significant from control at $p<0.05$; **, $p<0.01$; ***, $p<0.001$; Rel, relative; Wt, weight; RBC, red blood count; HGB, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RDW, red cell distribution width; PLTS, platelets; Monos, monocytes; Eosn, eosinophils; PROTIME, prothrombin time; APTT, activated partial thromboplastin time; Chol, cholesterol; Triglyc, triglycerides; LAP, leucine aminopeptidase; UIBC, unsaturated iron binding capacity; TIBC, total iron binding capacity; T-FER, transferrin; Cl^-, chloride; Ca, calcium; P, Phosphorus; ALP, alkaline phosphatase; Glu, glucose; BUN, blood urea nitrogen; Sp Gr, specific gravity; pH, measure of hydrogen ion activity; Ket, ketones; RF, replicating fraction, represents the percentage of PCNA positive nuclei out of the total number of nuclei counted; UB, urinary bladder; -, not applicable.

Summary Table - Females

Parameter	Body Weights (g)		Rel Adrenal Wt (%)		Rel Brain Wt (%)		Rel Heart Wt (%)		Rel Kidney Wt (%)		Rel Liver Wt (%)		Rel Thyroid Wt (%)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	175	177	0.039	0.036	1.07	1.01	0.38	0.35	0.79	0.71	2.78	2.59	0.0071	0.0077
SN-1 120 ppm	174	-	0.034	-	1.09	-	0.40	-	0.78	-	2.74	-	0.0067	-
SN-1 470 ppm	174	-	0.038	-	1.06	-	0.40	-	0.74	-	2.83	-	0.0065	-
SN-1 1900 ppm	167	173	0.036	0.035	1.08	1.02	0.39	0.38	0.80	0.76*	3.46***	3.00***	0.0072	0.0069

Parameter	Rel Ovary Wt (%)		RBC (mill/μl)		HGB (g/dl)		HCT (%)		MCV (fl)		MCH (pg)		MCHC (%)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	0.075	0.052	7.35	7.58	16.1	15.7	45.7	46.4	62.1	61.2	21.8	20.7	35.2	33.8
SN-1 120 ppm	0.057*	-	7.12	-	15.7	-	44.0	-	61.9	-	22.1	-	35.6	-
SN-1 470 ppm	0.058*	-	7.28	-	16.0	-	44.8	-	61.5	-	21.9	-	35.7	-
SN-1 1900 ppm	0.061	0.053	7.26	7.51	15.8	15.9	43.9	45.1	60.5**	60.1**	21.8	21.1	36.0	35.2**

Parameter	RDW (%)		PLTS (thsn/μl)		Monos (thsn/μl)		Eosn (thsn/μl)		PROTIME (sec)		APTT (sec)		Total Protein (g/dl)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	22.1	15.9	704.3	764.5	0.072	0.077	0.062	0.000	12.6	15.8	40.8	36.8	7.0	7.3
SN-1 120 ppm	20.2	-	770.3	-	0.038	-	0.025	-	14.3	-	35.6	-	6.8	-
SN-1 470 ppm	18.0	-	781.3	-	0.070	-	0.048	-	16.4*	-	28.9*	-	6.7	-
SN-1 1900 ppm	18.0	17.7	783.5	756.0	0.040	0.060	0.008	0.038***	19.1***	12.6*	22.7***	28.5*	6.6	6.8

Parameter	Albumin (g/dl)		Globulin (g/dl)		Chol (mg/dl)		Triglyc (mg/dl)		LAP (units/1)		Iron (μg/dl)		UIBC (μg/dl)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	4.8	4.9	2.2	2.4	79.5	82.0	65.8	61.2	50.2	54.9	261	266	181	180
SN-1 120 ppm	4.6	-	2.2	-	74.7	-	50.3	-	49.8	-	267	-	168	-
SN-1 470 ppm	4.5	-	2.2	-	62.5**	-	47.5	-	49.8	-	136**	-	265	-
SN-1 1900 ppm	4.6	4.6	2.0	2.2	48.5***	64.8*	79.2	68.8	54.2**	52.4	136**	113**	288*	319**

Parameter	TIBC (μg/dl)		T-FER (mg/dl)		Cl^- (meq/1)		Ca (mg/dl)		P (mg/dl)		ALP (units/1)		Glu (mg/dl)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification														
Control	442	447	345	343	104.2	100.0	11.2	11.4	10.9	8.3	143	115	156	143
SN-1 120 ppm	434	-	349	-	104.0	-	11.0	-	9.9	-	156	-	123*	-
SN-1 470 ppm	401*	-	335	-	106.2	-	11.1	-	10.7	-	165	-	130	-
SN-1 1900 ppm	423	432	343	354	106.5	101.7	11.2	10.9	11.7	10.2**	197***	158**	134	130

Parameter	BUN (mg/dl)		Urine Sp Gr (SG units)		Urine pH		Urine Ket (mg/dl)		Liver PCNA RF (%)		UB PCNA RF (%)	
Terminations (Days)	29	43	29	43	29	43	29	43	29	43	29	43
Group Identification												
Control	13.0	15.0	1.0190	1.0220	6.7	6.3	0.0	0.0	3.5	4.2	12.6	10.5
SN-1 120 ppm	14.0	-	1.0287	-	6.3	-	0.0	-	3.7	-	12.9	-
SN-1 470 ppm	16.7*	-	1.0250	-	6.0*	-	3.3	-	3.7	-	17.9**	-
SN-1 1900 ppm	20.5***	22.2***	1.0300	1.0327	6.0*	6.0	31.7**	6.7	5.5***	5.4***	17.5**	14.8*

fl, femtoliter (a billionth of a microliter, 10^{-15} liter); pg, picogram (a trillionth of a gram, 10^{-12} gram); μl, microliter; μg, microgram; mg, milligram; dl, deciliter; l, liter; g, gram; meq, milliequivalent; mill, millions; thsn, thousands; sec, seconds; *, statistically significant from control at $p<0.05$; **, $p<0.01$; ***, $p<0.001$; Rel, relative; Wt, weight; RBC, red blood count; HGB, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RDW, red cell distribution width; PLTS, platelets; Monos, monocytes; Eosn, eosinophils; PROTIME, prothrombin time; APTT, activated partial thromboplastin time; Chol, cholesterol; Triglyc, triglycerides; LAP, leucine aminopeptidase; UIBC, unsaturated iron binding capacity; TIBC, total iron binding capacity; T-FER, transferrin; Cl^-, chloride; Ca, calcium; P, Phosphorus; ALP, alkaline phosphatase; Glu, glucose; BUN, blood urea nitrogen; Sp Gr, specific gravity; pH, measure of hydrogen ion activity; Ket, ketones; RF, replicating fraction, represents the percentage of PCNA positive nuclei out of the total number of nuclei counted; UB, urinary bladder; -, not applicable.

INTRODUCTION

Wingstay® SN-1 (SN-1) is a Goodyear product used as a secondary antioxidant. We have tested other Goodyear antioxidants, Wingstay® 100 (W100) and Wingstay® 200 (W200). In the 4-week study, with W100 at 1900 ppm, reduction in body weight and food consumption, a macrocytic anemia, increased liver weights and intraluminal changes in the urinary bladder were evident. With W200 at 1900 ppm, a macrocytic anemia, growth rate reduction, disruption of bilirubin metabolism, reduction of plasma osmotic pressure, and cardiovascular overload were present. While W100 and W200 are not chemically related to SN-1, the results from those studies helped determine where to start when deciding the SN-1 exposures to be used in this study.

The purpose of this study was to assess the subchronic toxicity of SN-1 to male and female F344 rats, when administered daily in the diet for a period of four weeks, and followed by a 2-week exposure-free period of recovery. The information obtained from this study will be utilized to determine the doses of the test substance to be administered chronically in the diet to rats.

TEST ANIMALS AND HUSBANDRY

Forty-four male and 44 female Fischer 344 (F344/N Tacf BR MPF) rats from Taconic Farms, Germantown, NY, were used in this study. They were approximately eight weeks of age on arrival. Upon receipt at the American Health Foundation (AHF), the animals were acclimated to laboratory conditions for approximately two weeks before dosing. During this time, they were screened for standard rodent pathogens and were released on December 24 and 31, 1996, for the males and females, respectively. They were also assigned to groups based on body weight (AHF SOP-090), and were identified by ear notch and toe clip (AHF SOP-150) (Text Table 1).

The animals were housed two per cage in solid floor polycarbonate cages, on irradiated corn cob bedding in a temperature (72 ± 8°F) and humidity (55 ± 20%) controlled room. The bedding was obtained from Andersons Management Corporation, Maumee, OH. Fifteen to twenty fresh air changes per hour were provided to the room and 12 continuous hours of fluorescent lighting (25-30 ft candles) were provided daily.

Powdered NIH-07 diet, as 5018 NIH meal (PMI Feeds, Inc., St. Louis, MO), and tap water were available *ad libitum.* The water was supplied by the Westchester County (New York) Water Agency and was dispensed via an automated stainless steel watering system. The diet was analyzed by the manufacturer for concentrations of specified heavy metals, hydrocarbons, organic phosphates and specified nutrients. Drinking water was analyzed by the Westchester County Public Health Laboratory (Valhalla, NY) for contaminants and specified microbes. The results of these analyses were negative and are on file at the AHF.

TEXT TABLE 1
GROUP ASSIGNMENTS AND ANIMAL NUMBERS
29-DAY TERMINATION

Group 1, Control Males	Group 2, Control Females
1-1	8-1
1-2	10-1
2-2	11-1
3-2	11-2
5-1	12-1
5-2	12-2
7-1	13-1
7-2	14-1
Group 3, 120 ppm Males	**Group 4, 120 ppm Females**
15-1	19-1
15-2	19-2
16-1	20-1
16-2	20-2
17-1	21-1
17-2	21-2
18-1	22-1
18-2	22-2
Group 5, 470 ppm Males	**Group 6, 470 ppm Females**
23-1	27-1
23-2	27-2
24-1	28-1
24-2	28-2
25-1	29-1
25-2	29-2
26-1	30-1
26-2	30-2
Group 7, 1900 ppm Males	**Group 8, 1900 ppm Females**
31-2	39-2
33-1	41-1
33-2	41-2
34-2	42-2
35-2	43-1
36-1	43-2
36-2	44-1
37-2	44-2

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Valhalla, NY 10595

AHF Study R-1777

TEXT TABLE 2
GROUP ASSIGNMENTS AND ANIMAL NUMBERS
43-DAY TERMINATION

Group 1, Control Males	Group 2, Control Females
2-1	8-2
3-1	9-1
4-1	9-2
4-2	10-2
6-1	13-2
6-2	14-2
Group 7, 1900 ppm Males	**Group 8, 1900 ppm Females**
31-1	38-1
32-1	38-2
32-2	39-1
34-1	40-1
35-1	40-2
37-1	42-1

TEST SUBSTANCE

Wingstay® SN-1 (SN-1), a 1:11 (3,6,9-trioxaundecyl) bis-(dodecylthio) propionate product (CAS 64253-30-1, lot number 130893, batch 7, and average molecular weight 684-706), is a white crystalline semisolid substance. It was mixed in powdered NIH-07 diet. One container of the final SN-1 was received from The Goodyear Tire and Rubber Company, Chemical R&D, Akron, Ohio.

METHODS

Compound Preparation and Administration

SN-1, dissolved in olive oil, was mixed in powdered NIH-07 diet. The concentration of olive oil (lot 6734; Dyets, Bethlehem, PA) in the diet was held constant at 2% for all groups. The diet mixtures were stored refrigerated in a closed container, protected from light, until used. The Hobart-mixers were used for the mixing of diets as per AHF SOP-429.

The test substance was fed in diet to rats for 28 days, with one concentration used for both genders of each dose level. In addition, six animals/gender from the control and high dose groups remained exposure-free until day 43. In the low dose groups (3 and 4), the concentration was 0.012% (120 ppm), set to deliver 7.5 mg/kg bw/day. In the mid dose groups (5 and 6), it was 0.047% (470 ppm), while in the high dose groups (7 and 8), it was 0.19% (1900 ppm), set to deliver 30 and 120 mg/kg bw/day, respectively.

For dose verification and stability analysis, the feed was poured into a bucket after mixing. Duplicate samples from the lowest and highest concentration diets were taken from the top and were stored at -20°C prior to analysis. For ascertainment of homogeneity, the feed was also poured into a bucket after mixing, as it was for dose verification. Duplicate samples were taken from the top, middle and bottom for the lowest and highest dose levels of SN-1. For homogeneity, stability and dose verification, samples were taken and stored at -20°C. Approximately five grams or more of diet samples were collected from each batch prepared. All samples collected were not analyzed. Analysis is to be conducted at a later date pending development of a specific method of analysis by the Sponsor.

Clinical Observations, Body Weights and Food Consumption

The animals were observed daily for mortality, morbidity and other cage-side signs as per AHF SOP-162 and SOP-182A.

Individual body weights were recorded on day -7 (for grouping), the first day of dosing, days 3 and 7, weekly thereafter during life, and at termination as per AHF SOP-155A.

Food consumption was calculated as daily intake and recorded from -5 to -1 days and over 5-day periods weekly for the duration of the study as per AHF SOP-160.

Hematology

For hematology, whole blood was collected by cardiac puncture under CO_2 anesthesia prior to necropsy and following overnight fasting. The following parameters were measured: RBC, hemoglobin, hematocrit, reticulocyte count, MCV, MCH, MCHC, RDW, WBC (see Glossary), differential leukocyte count, platelet count, prothrombin time (PT) and activated partial thromboplastin time (APTT). Hematology was performed at "AniLytics, Inc.," of Gaithersburg, MD, under the direct supervision of Walter F. Loeb, V.M.D., Ph.D. Data from all statistically significant parameters were compared not only to concurrent controls, but also to in-house historical control data for the same species, strain, gender and age (see Glossary Table).

Clinical Chemistry

For clinical chemistry, blood was collected by cardiac puncture under CO_2 anesthesia prior to necropsy and following overnight fasting. Serum was obtained, and the following parameters were measured: Total protein, albumin/globulin (A/G) ratio, glucose, triglycerides, total cholesterol, blood urea nitrogen, creatinine, albumin, globulin, sodium, potassium, chloride, calcium, inorganic phosphorus, iron, unsaturated (UIBC) and total iron binding capacity (TIBC), total bilirubin, serum glutamate-oxaloacetate transaminase (SGOT or aspartate aminotransferase, AST), serum glutamate pyruvate transaminase (SGPT or alanine aminotransferase, ALT), alkaline phosphatase (ALP), transferrin, erythropoietin, and leucine aminopeptidase (LAP). Clinical chemistry was performed at AniLytics. As with hematology, data from all significant parameters were compared to both concurrent and in-house historical control data (see Glossary Table).

Achieved Blood Levels of Test Substance

For serum test substance level monitoring, 0.5 ml serum/rat was obtained from three rats/group/gender during scheduled terminations and stored frozen (-20°C). Heparin was used as the anticoagulant. The tubes were centrifuged with the plasma drawn off prior to storage. The tubes were stored at -20°C for possible future SN-1 analysis.

Urinalysis

For urinalysis, three rats/gender/group were placed overnight in individual metabolism cages for urine collection during fasting prior to scheduled termination. The following parameters were analyzed: Urine appearance, volume, protein, glucose, specific gravity, occult blood, bilirubin, urobilinogen, pH and ketone bodies. Urinalysis was also performed at AniLytics. Data from all significant parameters were compared to both concurrent and in-house historical control data (see Glossary Table).

Postmortem Examination

A. Necropsy and routine histopathology

Necropsies of randomly selected animals were performed on the following days: days 29 and 30, and 43. For the purpose of tabulation, days 29 and 30 were considered as day 29. Euthanasia was achieved by CO_2 anesthesia with cardiac exsanguination. All animals were subjected to a complete gross postmortem examination (AHF SOP-050A). The liver, kidneys (pair), pituitary, uterus, heart, brain, spleen, thyroids, adrenals (pair), testes (pair with epididymides) and ovaries (pair) were weighed (AHF SOP-036A). Pituitary and thyroids (with parathyroids) were fixed prior to weighing. Organ weight to body weight percentages were calculated. The urinary bladder was distended with 10% neutral buffered formalin (NBF). The following tissues from each animal were preserved in NBF for histologic examination: gross lesions, brain, pituitary, thyroids/parathyroids, thymus,

kidneys, lung, trachea, heart with aorta, tail bone, salivary glands (mandibular), mammary glands with skin, thigh muscle with sciatic nerve, eyes with optic nerve and Harderian gland, uterus, adrenals, liver, spleen, pancreas, testes with epididymides, ovaries, vagina, esophagus, stomach, duodenum, jejunum, ileum, colon, urinary bladder and mesenteric lymph node. The testes and epididymides were preserved in Bouin's solution. Eyes with optic nerve and Harderian gland were preserved in 6% Sorenson buffered (pH 7.2) glutaraldehyde solution for 24 hours, then trimmed and processed or placed in NBF until processing. The carcasses were discarded.

After fixation in NBF for 24 hours or more, tissue samples from each of three liver lobes (median right, median left and left lobes), kidneys, urinary bladder, heart, spleen and any gross lesions present were trimmed, processed, embedded in paraffin, stained with H&E and evaluated microscopically. In addition, histopathology (H&E) was also performed on all tissues sampled in NBF (see above) from all control and high-dose animals. Treatment-related lesions observed in the high dose rats were examined in the mid and low dose animals.

B. Cell Proliferation Assessment

In order to monitor cell proliferation, separate liver and urinary bladder sections, fixed in 10% NBF, were cut and stained for proliferating cell nuclear antigen (PCNA) according to AHF SOP-075A and SOP-076 (Galand and Degraef, 1989; Dietrich, 1993). Quantitation of PCNA-positive nuclei in the immunostained sections was performed on selected tissues from both 29- and 43-day terminations in the following manner: A square graticule (Olympus Instruments, Inc.) with

25 equal subdivisions was used for quantitating labeled cells at 200X magnification for liver, and at 400X magnification for urinary bladder. Each side of the graticule was confirmed by measurement with a second micrometer (Graticules, Ltd., Tonbridge, UK) as 0.125 mm, providing a square counting area that usually contains between 50 and 100 hepatocytes in the liver. All PCNA-labeled nuclei in this graticule area were counted. Counts were obtained for each animal from 25 graticule squares taken along the length of 1 to 3 liver lobe sections on the single glass slide. From the 25 graticule areas enumerated for each animal, between 1300 and 1800 nuclei per liver slide were counted. From the urinary bladder, counts were obtained for each animal from 20 longitudinal consecutive graticule squares having placed the bottom side of the graticule along the base of the urothelium of 1 to 2 urinary bladder sections on the single glass slide. From the 20 graticule areas enumerated for each animal, between 100 to 400 nuclei per urinary bladder slide were counted. Based on the above, the labeling indices or the replicating fractions (RF) for the liver and urinary bladder of each animal were calculated, indicating the percentage of positive nuclei out of the total counted number of hepatocellular or urothelial cell nuclei. The results were subjected to appropriate statistical analysis.

Statistical Analysis

Statistical analyses were performed on during-life body weights, final body weights, food consumption, absolute and relative organ weights, hematology, clinical chemistry, urinalysis and PCNA data. The analyses utilized analysis of variance (ANOVA) followed by Dunnett's test for

comparison of several treatment groups versus the control (Dunnett, 1955) for all 29-day termination data and for all during-life data collected prior to termination. Since only two groups remained for each gender, Student's t-test was used to test each treatment group against its control for all during-life data and for all 43-day termination data.

Specimen, Raw Data and Final Report Storage

The protocol, its deviations, all original data, tissue specimens, blood smears, blocks, slides, all raw data in study books (or copies thereof) and the final report are retained by the AHF for up to three years after completion of the final report. When requested by the sponsor, all study records are to be transferred to EPL for archiving, including any remaining test substance.

RESULTS

Analytical Chemistry

Analytical data on stability, homogeneity and dose verification is to be conducted at a later date, based on development of a specific method of analysis by the Sponsor.

Study Conduct, General and Clinical Observations

The selected doses, 120 ppm (low dose), 470 ppm (mid dose) and 1900 ppm (high dose) were fed for 28 days followed by a 14 day recovery period. Randomly selected rats were killed on days 29 and 30 after exposure and day 43 after recovery.

No significant deviations occurred in either ambient temperature, relative humidity or any other variable in the animal room that would affect animal health or integrity of the study.

No compound-related clinical finding occurred in this study. All animals survived dosing in good health.

Body Weights and Food Consumption

The mean body weight gain data and pattern are given in Text Graph 1. The summary of during-life mean body weights is given in Table 1. The summary of mean body weights at scheduled terminations is given in Table 6. The individual during-life body weight data are given in Appendix 1. The individual body weights at scheduled terminations are presented in Appendices 9 and 10 for

the 29-day and 43-day terminations, respectively.

After day 7, body weight gain was reduced in animals of the high (1900 ppm) dose group in both genders. After the second week, and for the duration of the study, the high dose males had a significantly ($p<0.01$) lower body weight compared to controls. In females, the weight reduction was significant ($p<0.05$) only at 28 days (Text Graph 1). During the exposure-free period, there was a recovery trend in males and complete recovery in females. At the 29-day termination, in high dose males, the reduction was statistically significant at $p<0.05$ (7.2% reduction). Thus, the no-observable-adverse-effect-level (NOAEL) in both males and females for the body weight gain is the mid dose.

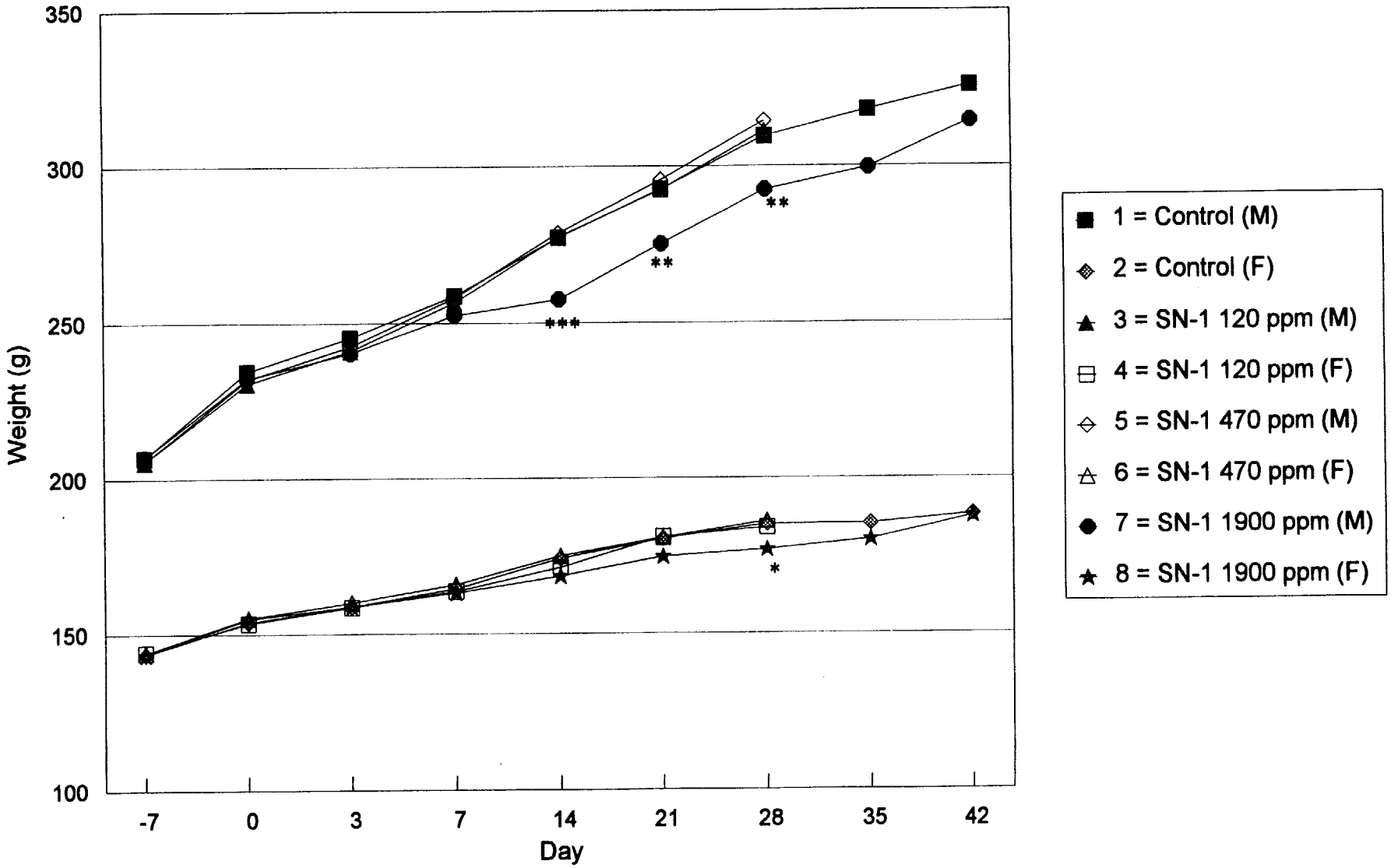
The mean food consumption data pattern is given in Text Graph 2. The mean food consumption data are given in Table 2. The individual food consumption values are given in Appendix 2.

In both genders, food consumption was reduced (more pronounced in males) in an exposure-related pattern after the first day of exposure and throughout exposure, reaching a nadir around day 14. During the 2-week exposure-free interval, food consumption recovered in both genders. For males at 28 days, the mid dose was significantly different from the control. Thus, the NOAEL for males is the low dose and for the females the mid dose.

Food consumption and body weight gain, especially in the high dose group, could be a palatability issue.

TEXT GRAPH 1

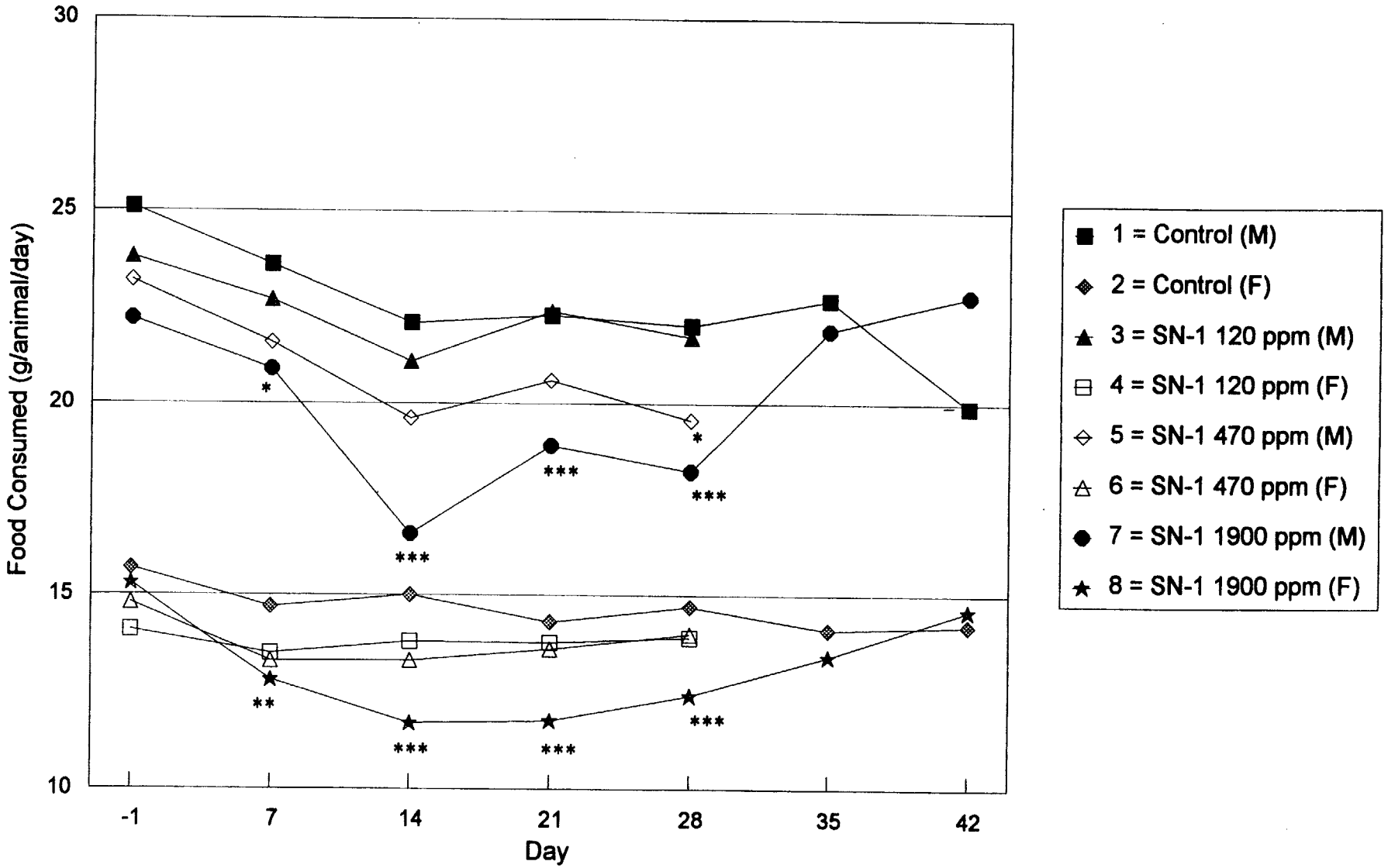
Mean Body Weights - Males (M) and Females (F)



* significantly different from Control at $p<0.05$; ** $p<0.01$; *** $p<0.001$. The experimental means were compared to the Control by ANOVA followed by Dunnett's test at each time point from day -7 to day 28, after which Student's t-test was used.

TEXT GRAPH 2

Mean Food Consumption - Males (M) and Females (F)



* significantly different from Control at $p<0.05$; ** $p<0.01$; *** $p<0.001$. The experimental means were compared to the Control by ANOVA followed by Dunnett's test at each time point from day -1 to day 28, after which Student's t-test was used.

Hematology

A summary of all pertinent and compound-related hematology data is given in Table 3. The individual hematology data are given in Appendices 3 and 4 for the 29-day and 43-day terminations, respectively.

At 29 days, the significant changes were mainly in high dose animals, and consisted of increases in mean corpuscular hemoglobin (MCH, males, $p<0.01$), increases in mean corpuscular hemoglobin concentration (MCHC, males, $p<0.001$) and decreases in mean corpuscular volume (MCV, females, $p<0.01$). The MCH and MCV changes persisted throughout the 2-week exposure-free recovery segment. In both genders, there was prolongation of PT (in males $p<0.05$; in females $p<0.001$) and reduction of APTT (in males not significant; in females $p<0.001$). In females, the APTT changes persisted during recovery; the PT changes recovered completely. Moreover, in females, these two values were affected also in the mid dose animals ($p<0.05$). In addition, during recovery, there were significant increases in hemoglobin (males, $p<0.01$), hematocrit (males, $p<0.01$), MCH (males, $p<0.05$), MCV (males, $p<0.01$; in females, the value was decreased), and RDW (males, $p<0.05$). During recovery, eosinophilia was found ($p<0.001$) in high exposure females only. The value in concurrent female controls was zero. Therefore, this is a coincidental finding and not compound-related. The values at 29 days of HCT, MCH, MCV, MCHC and APTT were outside the range of concurrent controls, but inside the range of in-house control data. The RDW values were inside both concurrent and in-house control ranges. The prothrombin time values were outside

both concurrent and in-house control ranges in males. Consequently, the prolongation of prothrombin time (PT) in high exposure animals at 29 days is of both statistical and biological significance. During recovery, PT assumed normal values in males but was shortened in females. Thus, in males the NOAEL for all hematological changes was the mid dose and, in females, the low dose.

Clinical Chemistry

A summary of all pertinent and compound-related clinical chemistry data is given in Table 4. The individual data are given in Appendices 5 and 6 for the 29-day and 43-day terminations, respectively.

In both genders, at 29 days, cholesterol and iron were significantly ($p<0.01$) decreased, while blood urea nitrogen (BUN) was significantly ($p<0.001$) increased in high dose rats. These changes did not recover by day 43. In males, the mid and low doses show decreases in iron levels, while the mid dose shows increases in BUN. The range of iron decrease in low dose males was outside the range of both the concurrent controls, and of in-house historical controls. In females, the mid dose animals showed cholesterol and iron decreases and BUN increases. In addition, changes were present in the following parameters: Total proteins (high dose males, $p<0.001$), triglycerides (males, all 3 doses, $p<0.05$), LAP (high dose females, $p<0.01$), TIBC (males, high dose, $p<0.01$; females, mid-dose, $p<0.05$; recovery, males, $p<0.05$), UIBC (males, mid dose, $p<0.01$; females, high dose, $p<0.05$; recovery, females, $p<0.01$), transferrin (males, mid dose, $p<0.05$; high dose, $p<0.01$), blood

chlorides (males, mid, $p<0.05$, and high dose $p<0.001$; high dose at recovery, $p<0.05$), blood phosphorus (both genders, high dose, $p<0.05$, at recovery only), calcium (males, high dose, $p<0.01$), alkaline phosphatase (females, high dose, $p<0.001$; and at recovery, $p<0.01$) and blood glucose (both genders, low dose, $p<0.05$). Some of these changes were not consistent, i.e. triglycerides were decreased in males but increased in females, or the level of change was inside both concurrent and in-house historical control range reflecting normal variation, i.e. transferrin in males. Thus, from all the clinical chemistry parameters, the cholesterol decreases (high dose males, $p<0.001$; high, $p<0.001$, and mid dose, $p<0.01$ females; high dose at recovery, $p<0.01$ in males; and $p<0.05$ in females), the blood iron decreases (all doses in males, $p<0.05$; mid and high doses in females, $p<0.05$; high dose at recovery, $p<0.01$), and increases in BUN (high, $p<0.001$; and mid doses, $p<0.05$, in both genders; high dose at recovery, $p<0.001$), constitute the most pertinent and consistent effects for both genders. Consequently, in males and females, based on the 3 main affected parameters, the NOAEL is the low dose.

Urinalysis

A summary of all pertinent and compound-related urinalysis data is given in Table 5. The individual data are given in Appendices 7 and 8, for the 29-day and 43-day terminations, respectively. In the urine of both genders of the high dose group, at 29 days, ketone bodies were present ($p<0.01$), while the pH in females of the high and mid dose groups was lowered ($p<0.05$). During recovery, the presence of ketone bodies persisted ($p<0.01$ in males), but the urinary pH

values improved. In mid exposure males, there was also a coincidental decrease ($p<0.05$) in specific gravity. Thus, the NOAEL for both males and females is the mid dose level.

Postmortem Examination

A. Terminal body weights

The mean terminal body weights are given in Table 6. The individual data are given in Appendix 9 for the 29-day termination, and in Appendix 10 for the 43-day termination.

In both genders, body weights in animals of the high dose group were decreased, albeit significantly ($p<0.05$) only in males. This decrease showed a recovery trend by day 43. Consequently, the terminal body weight NOAEL is at the mid dose level.

B. Organ Weights

The mean organ weights are given in Table 6. The individual absolute organ weight data are given in Appendices 11 and 12, for the 29-day and 43-day terminations, respectively. The individual relative organ weight data are given in Appendix 13 for the 29-day termination, and in Appendix 14 for the 43-day termination.

Absolute liver weights were increased ($p<0.05$ in males and $p<0.001$ in females) at 29 days in animals of the high dose group. In males, the absolute thyroid weights of all SN-1 exposed groups were decreased ($p<0.001$). The decrease was inversely proportional to dose. The decrease in females was not significant. These two weight changes did not improve during recovery in both

genders. On the other hand, a decrease in splenic weight was now evident in high dose males ($p<0.01$). Absolute ovarian weights were reduced ($p<0.01$) in all exposed rats at 29 days. The reduction was not proportional to exposure. During the 2-week exposure-free interval, the ovarian weights improved. No other consistent or significant changes in absolute organ weight data were found either at 29 or 43 days.

Relative liver weights were increased ($p<0.001$ in both genders) at 29 days in animals of the high dose group. In males, relative thyroid weights of all SN-1 exposed groups were significantly decreased. The decrease was inversely proportional to dose. No such decrease was present in females. In both genders, the liver weight changes did not improve during recovery, whereas the thyroid weight decreases in males improved during recovery. At 29 days in high dose males, the relative kidney, heart, adrenal and brain weights were increased. During recovery, only the kidney weights remained increased. In females, none of these weight changes were significant. The only exception was with kidney weights during recovery, which were significantly increased ($p<0.05$) at the high dose. Nevertheless, the value was within both concurrent and in-house control ranges. Therefore, no practical significance can be ascribed to this increase. Relative ovarian weights were reduced ($p<0.05$) in low and mid doses. At 29 days, the high dose decrease was not significant and was normal at the end of recovery. Therefore, the ovarian weight changes are considered to be coincidental. Relative testicular weights were increased in high dose rats, but were not significant at the end (43 days) of recovery. No other significant changes were evident. Therefore, the NOAEL

for pertinent and consistent organ weight changes is the mid dose, while the most prominent site (organ) of weight changes was the liver (for both genders).

C. Gross findings

The summary of gross findings is given in Table 7 for the 29-day and 43-day terminations. The individual gross findings are given in Appendices 15 and 16 for the 29-day and 43-day terminations, respectively.

In both genders, at 29 and 43 days, no pertinent or consistent gross findings were present.

D. PCNA replicating fractions (RF)

The summary of mean hepatocellular RF is given in Table 8. The individual data are given in Appendices 17 and 18 for the 29-day and 43-day terminations, respectively.

The summary of mean urothelial PCNA labeling indices is given in Table 9. The individual data are given in Appendices 17 and 18 for the 29-day and 43-day terminations, respectively.

At 29 days, in both genders, the hepatocellular RF of the high dose was increased ($p<0.001$), less than 2-fold. The increase was still present (especially in females $p<0.001$) at 43 days. At 29 days, in both genders, the urothelial RF in high dose animals was increased (males and females, $p<0.01$), less than 50%. In males, the RF was also increased less than 50% in the low dose ($p<0.01$), but this increase was inside the range of both concurrent and in-house historical controls. Furthermore, the mid dose RF was not significantly increased. In addition, at 43 days (end of recovery), the high dose RF value was similar to the control. In females, there was also an increase of less than 50% in urothelial RF ($p<0.01$) in the mid dose group. At 43 days, the urothelial RF

increase was still significant ($p<0.05$) in high dose females. Consequently, in both genders the NOAEL for liver RF was at the mid dose and for urothelial RF at the low dose.

E. Histopathological evaluation

The summary of histopathology findings is given in Table 10, for the 29-day and 43-day terminations. The individual data are given in Appendices 19 and 20 for the 29 and 43-day terminations, respectively.

Consistent and compound-related microscopic findings at 29 days included increased hepatocellular degeneration and apoptosis, cardiomyopathy and/or myocytic degeneration and extensive congestion in the spleen. In addition, in 12.5 percent (1/8) of high dose male rats, forestomach hyperplasia was present. The hepatocellular and myocytic changes were more severe in males, whereas the splenic congestion was equally severe in both genders. Specifically, the increased hepatocellular apoptosis was observed only in high dose rats (7/8 males and 1/8 females). During recovery, it was reduced in males (3/6), but not in females (3/6). The cardiomyopathy and/or myocytic degeneration was observed in male rats at incidences of 2/4, 4/8, 8/8 and 7/8 for the control low, mid and high dose groups, respectively. In females, the incidences were 1/8, 8/8 and 7/8, respectively. During recovery, the incidence in the high dose group was reduced from 7/8 to 4/6 in males and from 7/8 to 1/6 in females. The splenic congestion was present in 0/8, 3/8, 3/8 and 8/8 males and in 0/8, 3/8, 6/8 and 8/8 females for the four groups, respectively. No microscopic pathological sequelae to congestion were present. By day 43, in both genders, there was no improvement in the splenic congestion. The forestomach hyperplasia, which was observed in

1/8 male rats, was not present at 43 days. All the other observed microscopic changes were not compound-related and are known to occur in rats of this age and strain.

TEXT TABLE 3 - Incidence of Histopathology Findings

29-DAY SACRIFICE

MALES

Diagnosis	Group 1	3	5	7
Hepatocellular degeneration	0/8	0/8	0/8	2/8
Hepatocellular apoptosis	0/8	0/8	0/8	7/8
Cardiomyopathy and/or Myocytic degeneration	2/8	4/8	8/8	7/8
Splenic congestion	0/8	3/8	3/8	8/8

FEMALES

Diagnosis	Group 2	4	6	8
Hepatocellular degeneration	0/8	0/8	0/8	0/8
Hepatocellular apoptosis	0/8	0/8	0/8	1/8
Cardiomyopathy and/or Myocytic degeneration	0/8	1/8	8/8	7/8
Splenic congestion	0/8	3/8	6/8	8/8

43-DAY SACRIFICE

MALES

Diagnosis	Group 1	-	-	7
Hepatocellular degeneration	0/6	-	-	0/6
Hepatocellular apoptosis	0/6	-	-	3/6
Cardiomyopathy and/or Myocytic degeneration	3/6	-	-	4/6
Splenic congestion	0/6	-	-	6/6

FEMALES

Diagnosis	Group 2	-	-	8
Hepatocellular degeneration	0/6	-	-	0/6
Hepatocellular apoptosis	0/6	-	-	3/6
Cardiomyopathy and/or Myocytic degeneration	0/6	-	-	1/6
Splenic congestion	0/6	-	-	6/6

Groups 1 and 2, Control; Groups 3 and 4, SN-1 120 ppm; Groups 5 and 6, SN-1 470 ppm; Groups 7 and 8, SN-1 1900 ppm; -, not applicable.

DISCUSSION

The purpose of this study was to assess the subchronic toxicity of SN-1 in male and female F344 rats. SN-1 was administered in the diet for 28 days, after which rats were euthanized on days 29 and 30. Other rats were maintained for a 14-day exposure-free period of recovery, and euthanized on day 43. All standard during-life or postmortem parameters were monitored, including hematology, clinical chemistry and urinalysis. In addition, the replicating (proliferating) fractions from two tissues, i.e. liver and urinary bladder, were also monitored by staining for proliferating cell nuclear antigen (PCNA). This information was intended to help define subchronic toxicity and establish the doses to be used in chronic studies.

In both genders, body weight gain and food consumption were reduced in high dose animals. The high dose terminal body weight reduction was 7.2% compared to controls in the males, and 4.5% in females. Thus, the body weight NOAEL in both genders was the mid dose. In males, a food consumption decrease was present also in the mid dose groups. Therefore, the food consumption NOAEL was the low dose in males and the mid dose in females. Both body weight and food consumption changes were recoverable. In females, the recovery was complete. Hematology and clinical chemistry changes included prolonged prothrombin time (high dose in males and mid and high doses in females with recovery in both), hypoferremia (all doses in males, mid and high in females; no recovery in both), hypocholesterolemia (high dose in males, mid and high in females; no recovery in both), increased BUN (the azotemia was in mid and high doses of both genders; no

recovery in both), increased ketone bodies in the urine (both genders high dose; no recovery in males) and lowering of urinary pH (mid and high dose in females; with recovery). In addition, other statistically significant hematological changes (see Summary Tables) included HGB increase (high dose males at 43 days only), HCT increase (high dose males at 43 days only), MCH increase (males high dose at 29 and 43 days), MCV decrease (females high dose at 29 and 43 days), MCV increase (males high dose at 43 days), MCHC increase (males high dose at 29 days and females high dose at 43 days), RDW increase (males at 43 days only), and APTT decrease (females mid and high dose at 29 and high dose at 43 days).

Additional significant clinical chemistry changes included total protein reduction (males high dose at 29 days), albumin reduction (males high dose at 29 days), globulin reduction (males high dose at 29 and 43 days), triglycerides reduction (males all doses at 29 days and high dose at 43 days), LAP increase (females high dose at 29 days), TIBC reduction (males high dose at 29 and 43 days; females mid dose at 29 days), UIBC increase (males mid dose at 29 days; females high dose at 29 and 43 days), transferrin reduction (males mid and high dose at 29 days), Cl^- increase (males mid and high dose at 29, and high dose at 43 days), Ca reduction (males high dose at 29 days), P increase (both genders high dose at 43 days), ALP increase (females high dose at 29 and 43 days), glucose reduction (both genders low dose at 29 days), and glucose increase (males high dose at 43 days).

All hematological and chemistry changes were not dose, gender or time consistent, thus indicating that the statistical significance was not accompanied by a dose (and gender) related change

of biological significance. For example, the triglycerides were reduced in males and increased in females, while glucose was significant only in low dose groups of both genders. In addition, some of these fluctuations were significant only when compared to concurrent controls and not when compared to in-house historical data for the same gender and age. For these reasons, these changes can only be used in an ancillary fashion in support of the main changes which include azotemia, hypocholesterolemia, hypoferremia and ketonuria.

Significant organ weight changes in high dose males were increases in relative liver, kidney, heart, brain, testicular and adrenal gland weights, and a decrease in thyroid weight (which occurred in all doses). The relative thyroid weight decrease occurred only in males and was inversely proportional to dose. Therefore, it was considered not to be directly compound related. In high dose females, increases occurred in relative liver weights while decreases occurred in ovarian weights. Thus, the NOAEL in both genders for organ weight changes was at the mid dose level. The liver weight increase was accompanied by an increased incidence of hepatocellular degeneration (only in high dose males) and apoptosis (high dose, both genders), both of higher incidence in males. Nevertheless, during recovery, only the males showed a recovery trend. In addition, the hepatocellular replicating fraction (RF) was increased in high dose males and females, with complete recovery in males only. Thus, across liver weight and morphology, there are consistent compound-related effects in the high dose animals, which were more severe in males, but which recovered in males during cessation of exposure. In the heart, at the mid and high doses in both genders (more

severely in males), cardiomyopathy and/or myocytic degeneration was present at 29 days with recovery trend at 43 days. In high dose males at 29 days, the myocardial changes were also accompanied by increased heart weight. The splenic congestion which was observed microscopically at all doses of both genders, and which was not reflected in increases in splenic weight, persisted throughout recovery, but was not considered pathological, because no microscopic evidence was seen. The RF of urothelial cells was increased in all doses in males and in the 2 highest doses in females. A recovery trend was present only in males.

Based on all significant data described above, it is apparent that SN-1 induces azotemia and hypocholesterolemia, which reflect protein catabolism, ketoacidosis and dehydration (Zilva and Pannall, 1975; Jacobs *et al*, 1990). This is further reflected in hepatocellular degeneration, increased apoptosis and increased RF (Iatropoulos and Williams, 1996). In addition, the liver alterations are reflected in the prolongation of the PT, which is an index of the extrinsic coagulation system, indicating prothrombin deficiency. (Busby, 1970; Jain, 1986; Tilzer and DeMott, 1990; DeMott, 1990). Moreover, azotemia was associated with ketonuria, which was associated with low urine pH (more severe in females), and which, in the absence of renal failure, as in the present study (Zilva and Pannall, 1975; Jacobs *et al*, 1990), contributes to the induction of urothelial proliferation (Iatropoulos *et al*, 1994). The urothelial proliferation was more severe in females and was also present where low pH is evident. Furthermore, there was interference with iron homeostasis resulting in hypoferremia.

In conclusion, under the conditions of this study, SN-1 at 470 and 1900 ppm, in both genders, caused azotemia, hypocholesterolemia, ketonuria, increased replicating fractions in both hepatocellular and urothelial cells, reflecting degenerative changes in both hepatocytes and urothelial cells, as well as degeneration of cardiac myocytes. Moreover, the liver toxicity led to prolongation of prothrombin time. In addition, there was interference with iron homeostasis expressed in hypoferremia. Most of these effects were not reversed during the two exposure-free weeks.

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GLOSSARY
FOR TABLES AND APPENDICES

A/G RATIO	=	Albumin/globulin ratio
ALK PHOS (ALP)	=	Alkaline phosphatase (total)
ALT-SGPT	=	Alanine aminotransferase
APTT	=	Activated partial thromboplastin time
AST-SGOT	=	Aspartate aminotransferase
ATLYMPH	=	Atypical lymphocyte
BANDS	=	Band cells (young neutrophils with nonsegmented nucleus)
BASOS	=	Basophils
BLOOD	=	Occult blood
BUN	=	Blood urea nitrogen
CHOLEST	=	Cholesterol (total)
CREAT	=	Creatinine
EOSN	=	Eosinophil
EPO	=	Erythropoietin
GLUCO	=	Glucose
HCT	=	Hematocrit
HGB	=	Hemoglobin
LAP	=	Leucine aminopeptidase
LYMPHS	=	Lymphocytes
MCH	=	Mean corpuscular hemoglobin
MCHC	=	Mean corpuscular hemoglobin concentration
MCV	=	Mean corpuscular volume
METAS	=	Metamyelocytes
MONOS	=	Monocytes
MYELOS	=	Myelocytes
PHOS	=	Phosphorus
PLTS	=	Platelets
PROTIME	=	Prothrombin time
RBC	=	Red blood cell count (erythrocyte count)
RDW	=	Red cell distribution width
RETIC	=	Reticulocyte count
SEGS	=	Mature (segmented) polymorphonuclear neutrophil
T BILI	=	Bilirubin (total)
T-FERRIN	=	Transferrin
TIBC	=	Total iron binding capacity
TP	=	Total protein
TRIG	=	Triglycerides
UIBC	=	Unsaturated iron binding capacity
UROBIL	=	Urobilinogen
UR. SP.GR	=	Urine specific gravity
WBC	=	White blood cell count

Note on Numerical Data in Tables and Appendices:

In the tables and appendices, the values shown are, in some cases, rounded off to a fixed number of significant digits, with a higher number of digits than tabulated being used for calculation of means and standard deviations. Therefore, recalculation of means and standard deviations from the tabulated data may, in some instances, lead to minor and inconsequential variations, particularly in the last significant digit.

Glossary Table (Control group data only) - Males

Parameter	Body Wt. (g)		Rel. Adrenal Wt. (%)		Rel. Brain Wt. (%)		Rel. Heart Wt. (%)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	291	307	0.020	0.019	0.67	0.64	0.33	0.35
Standard Deviation	8.5	27.1	0.004	0.005	0.04	0.05	0.02	0.04
Range	280-309	254-326	0.014-0.024	0.015-0.027	0.64-0.76	0.60-0.73	0.29-0.37	0.31-0.41
Reference Range (in-house)	260-316	254-343	0.014-0.026	0.015-0.027	0.59-0.76	0.57-0.73	0.28-0.39	0.28-0.41

Parameter	Rel. Kidney Wt. (%)		Rel. Liver Wt. (%)		Rel. Thyroid Wt. (%)		Rel. Testes Wt. (%)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	0.73	0.70	2.98	2.97	0.0064	0.0056	1.35	1.29
Standard Deviation	0.04	0.02	0.14	0.06	0.0006	0.0005	0.05	0.14
Range	0.69-0.79	0.67-0.72	2.83-3.22	2.85-3.04	0.0058-0.0074	0.0052-0.0062	1.26-1.40	1.17-1.56
Reference Range (in-house)	0.66-0.80	0.65-0.73	2.80-3.37	2.59-3.65	0.0054-0.0087	0.0052-0.0082	1.18-1.51	1.15-1.56

Parameter	RBC (mill/μl)		HGB (g/dl)		HCT (%)		MCV (fl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	7.863	7.942	15.82	15.57	46.88	44.92	59.62	56.57
Standard Deviation	0.170	0.193	0.50	0.41	1.73	0.86	1.35	0.39
Range	7.64-8.03	7.59-8.14	15.4-16.5	14.9-16.2	45.0-49.0	43.4-45.9	58.5-61.4	56.2-57.2
Reference Range (in-house)	4.06-8.31	7.59-8.34	8.9-16.5	14.9-16.2	21.8-49.0	38.3-45.9	50.7-61.4	50.2-57.2

Parameter	MCH (pg)		MCHC (%)		RDW (%)		PLTS (thsn/μl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	20.12	19.58	33.73	34.65	26.68	21.42	609.7	823.0
Standard Deviation	0.54	0.23	0.55	0.45	0.25	2.48	45.4	193.5
Range	19.3-20.8	19.2-19.9	32.8-34.4	34.1-35.3	26.4-27.0	19.1-24.6	529-670	721-1214
Reference Range (in-house)	18.6-21.9	19.2-20.2	32.8-40.8	34.1-39.8	26.4-27.0	19.1-24.6	503-820	682-1214

fl, femtoliter (a billionth of a microliter, 10^{-15} liter); pg, picogram (a trillionth of a gram, 10^{-12} gram); μl, microliter; μg, microgram; mu, milliunit; meq, milliequivalent; ml, milliliter; mg, milligram; dl, deciliter; l, liter; g, gram; mill, million; thsn, thousand; Rel., relative; Wt., weight; g, grams; RBC, red blood count; HGB, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RDW, red cell distribution width; PLTS, platelets; Monos, monocytes; Eosn, eosinophils; PROTIME, prothrombin time; APTT, activated partial thromboplastin time; Chol, cholesterol; Triglyc, triglycerides; LAP, leucine aminopeptidase; UIBC, unsaturated iron binding capacity; TIBC, total iron binding capacity; T-FER, transferrin; Cl^-, chloride; Ca, calcium; P, phosphorus; ALP, alkaline phosphatase; Glu, glucose; BUN, blood urea nitrogen; Sp Gr, specific gravity; pH, measure of hydrogen ion activity; PCNA RF, proliferating cell nuclear antigen replicating fraction, represents the percentage of PCNA positive nuclei out of the total number of nuclei counted.

Glossary Table (Control group data only) - Males (cont'd)

Parameter	Monos (thsn/μl)		Eosn (thsn/μl)		PROTIME (seconds)		APTT (seconds)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	0.078	0.037	0.008	0.078	15.03	16.03	36.75	33.03
Standard Deviation	0.048	0.031	0.020	0.081	1.42	0.91	7.70	2.83
Range	0.04-0.16	0.00-0.07	0.00-0.05	0.00-0.21	13.0-16.3	15.3-17.4	25.3-41.9	29.4-36.4
Reference Range (in-house)	0.00-0.40	0.00-0.22	0.00-0.40	0.00-0.21	13.0-17.9	13.9-18.9	25.3-95.0	29.4-86.0

Parameter	Total Protein (g/dl)		Albumin (g/dl)		Globulin (g/dl)		Chol (mg/dl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	7.40	7.37	4.73	4.78	2.67	2.58	55.7	67.3
Standard Deviation	0.22	0.28	0.19	0.21	0.08	0.12	3.4	12.8
Range	7.2-7.8	7.0-7.7	4.5-5.0	4.5-5.0	2.6-2.8	2.5-2.8	49-58	59-93
Reference Range (in-house)	6.7-7.8	6.6-7.7	4.4-5.2	4.5-5.1	2.0-2.8	1.9-2.8	49-71	39-93

Parameter	Triglyc (mg/dl)		LAP (units/l)		Iron (μg/dl)		UIBC (μg/dl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	117.7	127.5	51.63	47.60	126.0	110.8	385.3	391.0
Standard Deviation	22.7	27.8	1.94	5.75	22.3	22.1	35.4	42.3
Range	86-135	97-174	49.4-54.8	37.0-53.3	92-145	94-148	333-423	339-452
Reference Range (in-house)	40-151	47-204	26.9-54.8	37.0-53.3	92-145	94-148	333-423	339-452

Parameter	TIBC (μg/dl)		T-FER (mg/dl)		Cl^- (meq/l)		Ca (mg/dl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	511.3	501.8	400.8	406.7	97.7	95.0	12.12	11.38
Standard Deviation	22.0	37.2	26.9	29.8	1.9	1.1	0.73	0.25
Range	474-535	452-547	360-430	375-450	95-100	94-97	11.4-13.1	11.1-11.8
Reference Range (in-house)	474-535	452-547	359-430	375-450	95-103	94-103	11.1-13.1	10.7-12.2

fl, femtoliter (a billionth of a microliter, 10^{-15} liter); pg, picogram (a trillionth of a gram, 10^{-12} gram); μl, microliter; μg, microgram; mu, milliunit; meq, milliequivalent; ml, milliliter; mg, milligram; dl, deciliter; l, liter; g, gram; mill, million; thsn, thousand; Rel., relative; Wt., weight; g, grams; RBC, red blood count; HGB, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RDW, red cell distribution width; PLTS, platelets; Monos, monocytes; Eosn, eosinophils; PROTIME, prothrombin time; APTT, activated partial thromboplastin time; Chol, cholesterol; Triglyc, triglycerides; LAP, leucine aminopeptidase; UIBC, unsaturated iron binding capacity; TIBC, total iron binding capacity; T-FER, transferrin; Cl^-, chloride; Ca, calcium; P, phosphorus; ALP, alkaline phosphatase; Glu, glucose; BUN, blood urea nitrogen; Sp Gr, specific gravity; pH, measure of hydrogen ion activity; PCNA RF, proliferating cell nuclear antigen replicating fraction, represents the percentage of PCNA positive nuclei out of the total number of nuclei counted.

Glossary Table (Control group data only) - Males (cont'd)

Parameter	P (mg/dl)		ALP (units/l)		Glu (mg/dl)		BUN (mg/dl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	11.05	8.55	185.2	145.0	222.5	134.2	14.5	14.7
Standard Deviation	2.39	0.74	13.2	27.9	113.9	13.3	3.6	0.8
Range	8.9-14.4	7.3-9.3	162-199	95-175	125-419	110-145	10-20	14-16
Reference Range (in-house)	8.2-14.4	7.3-10.9	148-210	95-253	109-419	104-176	10-20	12-19

Parameter	Urine Sp Gr (SG units)		Urine pH		Urine Ketones (mg/dl)		Liver PCNA RF (%)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	1.050	1.0253	6.67	6.67	5.0	11.7	4.13	4.31
Standard Deviation	0.002	0.0081	0.29	0.29	0.0	5.8	0.40	0.58
Range	1.048-1.052	1.016-1.031	6.5-7.0	6.5-7.0	5-5	5-15	3.44-4.61	3.70-4.98
Reference Range (in-house)	1.028-1.060	1.016-1.052	6.0-7.0	6.5-7.0	5-40	5-15	0.06-4.61	1.98-4.98

Parameter	Urinary Bladder PCNA RF (%)	
Termination (Days)	29	43
Mean	12.86	13.53
Standard Deviation	2.95	1.67
Range	9.64-18.07	11.72-15.81
Reference Range (in-house)	0.00-18.26	0.97-17.52

fl, femtoliter (a billionth of a microliter, 10^{-15} liter); pg, picogram (a trillionth of a gram, 10^{-12} gram); μl, microliter; μg, microgram; mu, milliunit; meq, milliequivalent; ml, milliliter; mg, milligram; dl, deciliter; l, liter; g, gram; mill, million; thsn, thousand; Rel., relative; Wt., weight; g, grams; RBC, red blood count; HGB, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RDW, red cell distribution width; PLTS, platelets; Monos, monocytes; Eosn, eosinophils; PROTIME, prothrombin time; APTT, activated partial thromboplastin time; Chol, cholesterol; Triglyc, triglycerides; LAP, leucine aminopeptidase; UIBC, unsaturated iron binding capacity; TIBC, total iron binding capacity; T-FER, transferrin; Cl^-, chloride; Ca, calcium; P, phosphorus; ALP, alkaline phosphatase; Glu, glucose; BUN, blood urea nitrogen; Sp Gr, specific gravity; pH, measure of hydrogen ion activity; PCNA RF, proliferating cell nuclear antigen replicating fraction, represents the percentage of PCNA positive nuclei out of the total number of nuclei counted.

Glossary Table (Control group data only) - Females

Parameter	Body Wt. (g)		Rel. Adrenal Wt. (%)		Rel. Brain Wt. (%)		Rel. Heart Wt. (%)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	175	177	0.039	0.035	1.07	1.00	0.38	0.35
Standard Deviation	6.4	8.4	0.008	0.008	0.07	0.06	0.04	0.01
Range	167-183	166-187	0.028-0.053	0.029-0.046	1.00-1.21	0.92-1.06	0.33-0.47	0.33-0.35
Reference Range (in-house)	167-192	157-207	0.024-0.053	0.025-0.046	0.91-1.21	0.92-1.15	0.30-0.47	0.30-0.38

Parameter	Rel. Kidney Wt. (%)		Rel. Liver Wt. (%)		Rel. Thyroid Wt. (%)		Rel. Ovary Wt. (%)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	0.79	0.71	2.78	2.59	0.0071	0.0077	0.075	0.052
Standard Deviation	0.05	0.03	0.12	0.08	0.0008	0.0008	0.012	0.015
Range	0.74-0.86	0.69-0.76	2.61-2.92	2.45-2.67	0.0059-0.0081	0.0065-0.0088	0.057-0.088	0.038-0.079
Reference Range (in-house)	0.67-0.86	0.69-0.79	2.35-2.92	2.38-3.10	0.0059-0.0116	0.0065-0.0120	0.033-0.163	0.038-0.085

Parameter	RBC (mill/μl)		HGB (g/dl)		HCT (%)		MCV (fl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	7.350	7.583	16.05	15.68	45.65	46.38	62.10	61.17
Standard Deviation	0.331	0.301	0.67	0.52	1.77	1.78	0.62	0.29
Range	6.80-7.81	7.09-7.97	15.1-17.1	14.9-16.5	42.4-47.6	43.6-48.7	60.9-62.7	60.7-61.5
Reference Range (in-house)	3.20-8.02	6.03-7.97	11.4-18.6	12.4-16.5	29.1-47.6	35.0-48.7	55.4-62.7	54.0-61.5

Parameter	MCH (pg)		MCHC (%)		RDW (%)		PLTS (thsn/μl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	21.83	20.68	35.15	33.83	22.13	15.90	704.3	764.5
Standard Deviation	0.30	0.35	0.60	0.56	2.51	0.49	138.3	39.9
Range	21.4-22.2	20.2-21.0	34.4-35.9	33.0-34.4	17.2-24.0	15.2-16.5	429-801	724-833
Reference Range (in-house)	20.7-33.2	20.2-21.4	34.4-41.0	33.0-39.2	17.2-24.0	15.2-16.5	108-873	68-845

fl, femtoliter (a billionth of a microliter, 10^{-15} liter); pg, picogram (a trillionth of a gram, 10^{-12} gram); μl, microliter; μg, microgram; mu, milliunit; meq, milliequivalent; ml, milliliter; mg, milligram; dl, deciliter; l, liter; g, gram; mill, million; thsn, thousand; Rel., relative; Wt., weight; g, grams; RBC, red blood count; HGB, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RDW, red cell distribution width; PLTS, platelets; Monos, monocytes; Eosn, eosinophils; PROTIME, prothrombin time; APTT, activated partial thromboplastin time; Chol, cholesterol; Triglyc, triglycerides; LAP, leucine aminopeptidase; UIBC, unsaturated iron binding capacity; TIBC, total iron binding capacity; T-FER, transferrin; Cl^-, chloride; Ca, calcium; P, phosphorus; ALP, alkaline phosphatase; Glu, glucose; BUN, blood urea nitrogen; Sp Gr, specific gravity; pH, measure of hydrogen ion activity; PCNA RF, proliferating cell nuclear antigen replicating fraction, represents the percentage of PCNA positive nuclei out of the total number of nuclei counted.

Glossary Table (Control group data only) - Females (cont'd)

Parameter	Monos (thsn/μl)		Eosn (thsn/μl)		PROTIME (seconds)		APTT (seconds)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	0.072	0.077	0.062	0.000	12.60	15.77	40.80	36.83
Standard Deviation	0.051	0.045	0.077	0.000	2.78	2.41	4.09	4.70
Range	0.00-0.15	0.04-0.16	0.00-0.19	0.00-0.00	10.4-17.8	11.3-17.4	34.9-45.9	29.4-41.3
Reference Range (in-house)	0.00-0.53	0.00-0.46	0.00-0.53	0.00-0.26	10.4-31.0	11.3-29.9	20.8-81.9	7.2-69.0

Parameter	Total Protein (g/dl)		Albumin (g/dl)		Globulin (g/dl)		Chol (mg/dl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	6.97	7.25	4.75	4.85	2.22	2.40	79.5	82.0
Standard Deviation	0.22	0.52	0.29	0.32	0.20	0.21	9.4	11.8
Range	6.7-7.2	6.3-7.8	4.2-5.0	4.3-5.2	1.9-2.5	2.0-2.6	63-92	64-91
Reference Range (in-house)	5.8-7.2	6.3-7.8	3.8-5.0	4.3-5.2	1.6-2.6	1.6-2.6	61-92	64-99

Parameter	Triglyc (mg/dl)		LAP (units/l)		Iron (μg/dl)		UIBC (μg/dl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	65.8	61.2	50.23	54.85	261.0	266.3	180.8	180.3
Standard Deviation	10.3	17.1	3.04	1.72	85.2	72.4	84.3	85.3
Range	48-78	45-80	45.6-54.7	52.6-57.4	177-351	201-403	70-262	15-249
Reference Range (in-house)	35-78	41-87	32.6-54.7	40.5-57.4	177-351	201-403	70-262	15-249

Parameter	TIBC (μg/dl)		T-FER (mg/dl)		Cl^- (meq/l)		Ca (mg/dl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	441.8	446.7	345.0	343.3	104.2	100.0	11.23	11.35
Standard Deviation	13.7	24.7	16.7	16.9	1.7	2.0	0.12	0.37
Range	421-461	414-470	325-375	315-360	102-106	98-103	11.0-11.3	10.8-11.7
Reference Range (in-house)	421-461	414-470	325-375	315-360	96-107	98-105	10.5-11.6	10.8-13.1

fl, femtoliter (a billionth of a microliter, 10^{-15} liter); pg, picogram (a trillionth of a gram, 10^{-12} gram); μl, microliter; μg, microgram; mu, milliunit; meq, milliequivalent; ml, milliliter; mg, milligram; dl, deciliter; l, liter; g, gram; mill, million; thsn, thousand; Rel., relative; Wt., weight; g, grams; RBC, red blood count; HGB, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RDW, red cell distribution width; PLTS, platelets; Monos, monocytes; Eosn, eosinophils; PROTIME, prothrombin time; APTT, activated partial thromboplastin time; Chol, cholesterol; Triglyc, triglycerides; LAP, leucine aminopeptidase; UIBC, unsaturated iron binding capacity; TIBC, total iron binding capacity; T-FER, transferrin; Cl^-, chloride; Ca, calcium; P, phosphorus; ALP, alkaline phosphatase; Glu, glucose; BUN, blood urea nitrogen; Sp Gr, specific gravity; pH, measure of hydrogen ion activity; PCNA RF, proliferating cell nuclear antigen replicating fraction, represents the percentage of PCNA positive nuclei out of the total number of nuclei counted.

Glossary Table (Control group data only) - Females (cont'd)

Parameter	P (mg/dl)		ALP (units/l)		Glu (mg/dl)		BUN (mg/dl)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	10.87	8.30	142.5	115.3	156.3	143.3	13.0	15.0
Standard Deviation	1.87	0.72	25.6	13.2	31.1	15.3	1.5	2.2
Range	8.4-13.7	7.7-9.3	95-167	96-128	127-198	125-166	11-15	12-18
Reference Range (in-house)	8.0-13.7	5.2-12.0	95-172	96-212	99-198	107-225	11-20	12-23

Parameter	Urine Sp Gr (SG units)		Urine pH		Urine Ketones (mg/dl)		Liver PCNA RF (%)	
Termination (Days)	29	43	29	43	29	43	29	43
Mean	1.0190	1.0220	6.67	6.33	0	0	3.49	4.24
Standard Deviation	0.0061	0.0106	0.29	0.29	0	0	0.78	0.43
Range	1.015-1.026	1.014-1.034	6.5-7.0	6.0-6.5	0-0	0-0	2.46-4.91	3.86-4.92
Reference Range (in-house)	1.009-1.026	1.008-1.034	6.0-7.5	6.0-7.5	0-5	0-0	0.42-4.91	2.12-5.07

Parameter	Urinary Bladder PCNA RF (%)	
Termination (Days)	29	43
Mean	12.59	10.48
Standard Deviation	2.00	2.40
Range	10.95-16.67	8.42-15.02
Reference Range (in-house)	0.00-21.41	0.25-19.39

fl, femtoliter (a billionth of a microliter, 10^{-15} liter); pg, picogram (a trillionth of a gram, 10^{-12} gram); μl, microliter; μg, microgram; mu, milliunit; meq, milliequivalent; ml, milliliter; mg, milligram; dl, deciliter; l, liter; g, gram; mill, million; thsn, thousand; Rel., relative; Wt., weight; g, grams; RBC, red blood count; HGB, hemoglobin; HCT, hematocrit; MCV, mean corpuscular volume; MCH, mean corpuscular hemoglobin; MCHC, mean corpuscular hemoglobin concentration; RDW, red cell distribution width; PLTS, platelets; Monos, monocytes; Eosn, eosinophils; PROTIME, prothrombin time; APTT, activated partial thromboplastin time; Chol, cholesterol; Triglyc, triglycerides; LAP, leucine aminopeptidase; UIBC, unsaturated iron binding capacity; TIBC, total iron binding capacity; T-FER, transferrin; Cl^-, chloride; Ca, calcium; P, phosphorus; ALP, alkaline phosphatase; Glu, glucose; BUN, blood urea nitrogen; Sp Gr, specific gravity; pH, measure of hydrogen ion activity; PCNA RF, proliferating cell nuclear antigen replicating fraction, represents the percentage of PCNA positive nuclei out of the total number of nuclei counted.

TABLE 1

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF MEAN BODY WEIGHT DATA (g)

Group and Treatment		DAY -7	0	3	7	14	21	28	35	42
1	n	14	14	14	14	14	14	14	6	6
Control - No Treatment	M	206.7	234.4	245.2	258.7	277.1	292.6	309.4	318.0	325.8
Males	SD	7.00	8.78	8.28	9.40	7.91	8.22	9.88	19.50	28.27
3	n	8	8	8	8	8	8	8	0	0
SN-1 120 ppm	M	205.4	230.5	241.0	256.5	277.3	292.5	311.1	---	---
Males	SD	7.65	7.96	9.09	10.23	13.32	14.66	15.74	---	---
5	n	8	8	8	8	8	8	8	0	0
SN-1 470 ppm	M	205.4	231.8	242.4	257.9	278.5	295.6	314.3	---	---
Males	SD	7.60	11.73	12.22	14.88	15.05	16.79	18.56	---	---
7	n	14	14	14	14	14	14	14	6	6
SN-1 1900 ppm	M	206.9	232.1	240.3	252.4	257.4***	275.0**	292.4**	299.5	314.3
Males	SD	6.68	10.52	9.37	8.19	12.11	10.68	12.57	15.58	13.52

n = Number of Animals
M = Mean
SD = Standard Deviation

** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

For days -7 to 28, means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

For days 35 and 42, the experimental mean was compared to the Control mean using Student's t-test.

TABLE 1 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF MEAN BODY WEIGHT DATA (g)

		DAY								
Group and Treatment		-7	0	3	7	14	21	28	35	42
2	n	14	14	14	14	14	14	14	6	6
Control - No Treatment	M	143.5	153.8	158.6	164.4	173.9	180.3	185.1	185.3	188.2
Females	SD	4.29	4.90	5.15	5.26	5.82	6.76	7.03	9.09	8.77
4	n	8	8	8	8	8	8	8	0	0
SN-1 120 ppm	M	144.0	153.4	158.4	163.5	171.0	181.0	183.9	---	---
Females	SD	5.90	5.76	5.07	5.42	5.66	6.76	5.41	---	---
6	n	8	8	8	8	8	8	8	0	0
SN-1 470 ppm	M	144.0	155.1	159.9	165.6	174.8	180.6	186.1	---	---
Females	SD	6.09	7.30	7.94	6.93	8.19	7.46	10.63	---	---
8	n	14	14	14	14	14	14	14	6	6
SN-1 1900 ppm	M	143.4	154.8	158.6	163.0	168.3	174.4	176.7*	180.0	187.5
Females	SD	4.96	4.98	5.81	5.87	7.55	6.33	8.86	8.15	8.50

n = Number of Animals
M = Mean
SD = Standard Deviation

* significantly different from Control at $p<0.05$

For days -7 to 28, means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

For days 35 and 42, the experimental mean was compared to the Control mean using Student's t-test.

AHF STUDY R-1777

TABLE 2

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF MEAN FOOD CONSUMPTION DATA (g/animal/day)

Group and Treatment		DAY -1	7	14	21	28	35	42
1 Control - No Treatment Males	n	14	14	14	14	14	6	6
	M	25.1	23.6	22.1	22.3	22.0	22.7	19.9
3 SN-1 120 ppm Males	n	8	8	8	8	8	0	0
	M	23.8	22.7	21.1	22.4	21.7	---	---
5 SN-1 470 ppm Males	n	8	8	8	8	8	0	0
	M	23.2	21.6	19.6	20.6	19.6*	---	---
7 SN-1 1900 ppm Males	n	14	14	14	14	14	6	6
	M	22.2	20.9*	16.6***	18.9***	18.2***	21.9	22.8

n = Number of Animals
M = Mean

* significantly different from Control at $p<0.05$
*** significantly different from Control at $p<0.001$

For days -1 to 28, means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

For days 35 and 42, the experimental mean was compared to the Control mean using Student's t-test.

AHF STUDY R-1777

TABLE 2 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF MEAN FOOD CONSUMPTION DATA (g/animal/day)

Group and Treatment		DAY -1	7	14	21	28	35	42
2 Control - No Treatment Females	n	14	14	14	14	14	6	6
	M	15.7	14.7	15.0	14.3	14.7	14.1	14.2
4 SN-1 120 ppm Females	n	8	8	8	8	8	0	0
	M	14.1	13.5	13.8	13.8	13.9	---	---
6 SN-1 470 ppm Females	n	8	8	8	8	8	0	0
	M	14.8	13.3	13.3	13.6	14.0	---	---
8 SN-1 1900 ppm Females	n	14	14	14	14	14	6	6
	M	15.3	12.8**	11.7***	11.8***	12.4***	13.4	14.6

n = Number of Animals
M = Mean

** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

For days -1 to 28, means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

For days 35 and 42, the experimental mean was compared to the Control mean using Student's t-test.

AHF STUDY R-1777

TABLE 3

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED HEMATOLOGY DATA

29-DAY SACRIFICE (MALES)

GROUP IDENTIFICATION		RBC	HGB	HCT	MCV	MCH	MCHC	RDW	PLTS	MONOS	EOSN	PROTIME	APTT
1. Control Diet	Mean	7.863	15.82	46.88	59.62	20.12	33.73	26.68	609.7	0.078	0.008	15.03	36.75
	SD	0.170	0.50	1.73	1.35	0.54	0.55	0.25	45.4	0.048	0.020	1.42	7.70
3. SN-1 120 ppm	Mean	7.406*	15.42	44.86	60.64	20.84	34.38	26.66	673.8	0.032	0.042	15.47	30.98
	SD	0.298	0.45	0.82	1.55	0.68	0.64	0.62	31.7	0.046	0.066	0.91	9.05
5. SN-1 470 ppm	Mean	7.950	16.37	47.52	59.75	20.58	34.45	26.22	737.7***	0.050	0.103	15.52	37.10
	SD	0.175	0.20	1.50	0.87	0.39	0.97	0.75	43.9	0.063	0.145	2.07	7.55
7. SN-1 1900 ppm	Mean	7.557	16.05	44.85	59.35	21.25**	35.82***	26.03	821.2***	0.035	0.053	18.08*	25.76
	SD	0.301	0.43	2.05	0.58	0.46	0.95	1.04	71.7	0.042	0.067	0.54	5.19

RBC = Red blood count (millions/microliter)
HGB = Hemoglobin (grams/deciliter)
HCT = Hematocrit (%)
MCV = Mean corpuscular volume (femtoliters)
MCH = Mean corpuscular hemoglobin (picograms)
MCHC = Mean corpuscular hemoglobin concentration (%)

RDW = Red cell distribution width (%)
PLTS = Platelets (thousands/microliter)
MONOS = Monocytes (thousands/microliter)
EOSN = Eosinophils (thousands/microliter)
PROTIME = Prothrombin time (seconds)
APTT = Activated partial thromboplastin time (seconds)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

AHF STUDY R-1777

TABLE 3 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED HEMATOLOGY DATA

29-DAY SACRIFICE (FEMALES)

GROUP IDENTIFICATION		RBC	HGB	HCT	MCV	MCH	MCHC	RDW	PLTS	MONOS	EOSN	PROTIME	APTT
2. Control Diet	Mean	7.350	16.05	45.65	62.10	21.83	35.15	22.13	704.3	0.072	0.062	12.60	40.80
	SD	0.331	0.67	1.77	0.62	0.30	0.60	2.51	138.3	0.051	0.077	2.78	4.09
4. SN-1 120 ppm	Mean	7.117	15.67	44.02	61.87	22.07	35.63	20.18	770.3	0.038	0.025	14.30	35.62
	SD	0.314	0.16	1.41	0.90	0.86	1.02	3.80	59.7	0.034	0.032	3.71	8.53
6. SN-1 470 ppm	Mean	7.278	15.95	44.75	61.50	21.93	35.65	17.97	781.3	0.070	0.048	16.38*	28.87*
	SD	0.265	0.60	1.93	0.46	0.59	1.03	3.38	44.3	0.025	0.051	1.58	7.29
8. SN-1 1900 ppm	Mean	7.262	15.82	43.93	60.50**	21.80	36.03	17.97	783.5	0.040	0.008	19.05***	22.72***
	SD	0.310	0.49	1.95	0.54	0.43	0.92	3.17	103.5	0.022	0.020	0.23	4.32

RBC = Red blood count (millions/microliter)
HGB = Hemoglobin (grams/deciliter)
HCT = Hematocrit (%)
MCV = Mean corpuscular volume (femtoliters)
MCH = Mean corpuscular hemoglobin (picograms)
MCHC = Mean corpuscular hemoglobin concentration (%)

RDW = Red cell distribution width (%)
PLTS = Platelets (thousands/microliter)
MONOS = Monocytes (thousands/microliter)
EOSN = Eosinophils (thousands/microliter)
PROTIME = Prothrombin time (seconds)
APTT = Activated partial thromboplastin time (seconds)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

TABLE 3 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED HEMATOLOGY DATA

43-DAY SACRIFICE (MALES)

GROUP IDENTIFICATION		RBC	HGB	HCT	MCV	MCH	MCHC	RDW	PLTS	MONOS	EOSN	PROTIME	APTT
1. Control Diet	Mean	7.942	15.57	44.92	56.57	19.58	34.65	21.42	823.0	0.037	0.078	16.03	33.03
	SD	0.193	0.41	0.86	0.39	0.23	0.45	2.48	193.5	0.031	0.081	0.91	2.83
7. SN-1 1900 ppm	Mean	8.242	16.57**	47.63**	57.80**	20.12*	34.78	24.35*	800.5	0.090*	0.070	15.47	31.23
	SD	0.289	0.41	1.21	0.60	0.39	0.64	1.57	52.4	0.034	0.065	0.61	3.86

RBC = Red blood count (millions/microliter)
HGB = Hemoglobin (grams/deciliter)
HCT = Hematocrit (%)
MCV = Mean corpuscular volume (femtoliters)
MCH = Mean corpuscular hemoglobin (picograms)
MCHC = Mean corpuscular hemoglobin concentration (%)

RDW = Red cell distribution width (%)
PLTS = Platelets (thousands/microliter)
MONOS = Monocytes (thousands/microliter)
EOSN = Eosinophils (thousands/microliter)
PROTIME = Prothrombin time (seconds)
APTT = Activated partial thromboplastin time (seconds)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$

Experimental means between the groups were compared with the Control using Student's t-test.

TABLE 3 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED HEMATOLOGY DATA

43-DAY SACRIFICE (FEMALES)

GROUP IDENTIFICATION		RBC	HGB	HCT	MCV	MCH	MCHC	RDW	PLTS	MONOS	EOSN	PROTIME	APTT
2. Control Diet	Mean	7.583	15.68	46.38	61.17	20.68	33.83	15.90	764.5	0.077	0.000	15.77	36.83
	SD	0.301	0.52	1.78	0.29	0.35	0.56	0.49	39.9	0.045	0.000	2.41	4.70
8. SN-1 1900 ppm	Mean	7.505	15.85	45.08	60.10**	21.13	35.17**	17.73	756.0	0.060	0.038***	12.55*	28.53*
	SD	0.191	0.18	1.27	0.51	0.39	0.80	2.71	41.1	0.041	0.020	0.49	4.68

RBC = Red blood count (millions/microliter)
HGB = Hemoglobin (grams/deciliter)
HCT = Hematocrit (%)
MCV = Mean corpuscular volume (femtoliters)
MCH = Mean corpuscular hemoglobin (picograms)
MCHC = Mean corpuscular hemoglobin concentration (%)

RDW = Red cell distribution width (%)
PLTS = Platelets (thousands/microliter)
MONOS = Monocytes (thousands/microliter)
EOSN = Eosinophils (thousands/microliter)
PROTIME = Prothrombin time (seconds)
APTT = Activated partial thromboplastin time (seconds)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Experimental means between the groups were compared with the Control using Student's t-test.

TABLE 4

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED CLINICAL CHEMISTRY DATA

29-DAY SACRIFICE (MALES)

GROUP IDENTIFICATION		TOTAL PROTEIN	ALBUMIN	GLOBULIN	CHOLEST	TRIG	LAP	IRON	UIBC
1. Control Diet	Mean	7.40	4.73	2.67	55.7	117.7	51.63	126.0	385.3
	SD	0.22	0.19	0.08	3.4	22.7	1.94	22.3	35.4
3. SN-1 120 ppm	Mean	7.18	4.57	2.62	52.7	79.8*	46.60	90.3*	397.0
	SD	0.13	0.10	0.12	5.0	28.0	1.02	16.9	20.9
5. SN-1 470 ppm	Mean	7.35	4.60	2.75	51.7	76.8*	44.12	52.8***	458.0**
	SD	0.26	0.20	0.22	10.0	21.8	12.22	25.5	35.4
7. SN-1 1900 ppm	Mean	6.85***	4.47*	2.38*	32.0***	68.8**	51.20	50.3***	404.2
	SD	0.23	0.21	0.23	2.5	24.3	2.38	27.6	44.0

TOTAL PROTEIN = Total protein (grams/deciliter)
ALBUMIN = Albumin (grams/deciliter)
GLOBULIN = Globulin (grams/deciliter)
CHOLEST = Cholesterol (milligrams/deciliter)
TRIG = Triglyceride (milligrams/deciliter)
LAP = Leucine aminopeptidase (units/liter)
IRON = Serum iron (micrograms/deciliter)
UIBC = Unsaturated iron binding capacity (micrograms/deciliter)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

TABLE 4 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED CLINICAL CHEMISTRY DATA

29-DAY SACRIFICE (MALES)

GROUP IDENTIFICATION		TIBC	T-FERRIN	CL-	CALCIUM	PHOS	ALK PHOS	GLUCOSE	BUN
1. Control Diet	Mean	511.3	400.8	97.7	12.12	11.05	185.2	222.5	14.5
	SD	22.0	26.9	1.9	0.73	2.39	13.2	113.9	3.6
3. SN-1 120 ppm	Mean	487.3	375.0	99.5	11.65	10.58	182.7	134.0*	14.5
	SD	21.7	19.7	0.5	0.39	1.10	9.1	19.1	2.1
5. SN-1 470 ppm	Mean	510.8	361.7*	100.2*	11.62	11.53	202.0	156.0	18.2*
	SD	29.7	20.4	1.9	0.57	1.49	15.9	23.9	1.2
7. SN-1 1900 ppm	Mean	454.5**	359.2**	101.3***	11.07**	10.70	203.5	139.5	23.0***
	SD	18.2	14.6	1.0	0.23	0.28	16.4	9.4	2.2

TIBC = Total iron binding capacity (micrograms/deciliter)
T-FERRIN = Transferrin (milligrams/deciliter)
CL- = Chloride (milliequivalents/liter)
CALCIUM = Total calcium (milligrams/deciliter)

PHOS = Phosphorus (milligrams/deciliter)
ALK PHOS = Total alkaline phosphatase (units/liter)
GLUCOSE = Glucose (milligrams/deciliter)
BUN = Blood urea nitrogen (milligrams/deciliter)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

AHF STUDY R-1777

TABLE 4 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED CLINICAL CHEMISTRY DATA

29-DAY SACRIFICE (FEMALES)

GROUP IDENTIFICATION		TOTAL PROTEIN	ALBUMIN	GLOBULIN	CHOLEST	TRIG	LAP	IRON	UIBC
2. Control Diet	Mean	6.97	4.75	2.22	79.5	65.8	50.23	261.0	180.8
	SD	0.22	0.29	0.20	9.4	10.3	3.04	85.2	84.3
4. SN-1 120 ppm	Mean	6.80	4.62	2.18	74.7	50.3	49.78	266.5	167.5
	SD	0.29	0.21	0.21	6.7	15.4	0.90	87.5	88.3
6. SN-1 470 ppm	Mean	6.70	4.52	2.18	62.5**	47.5	49.78	135.8**	265.0
	SD	0.44	0.24	0.22	3.5	11.3	0.97	37.7	58.2
8. SN-1 1900 ppm	Mean	6.57	4.58	1.98	48.5***	79.2	54.18**	135.7**	287.7*
	SD	0.26	0.23	0.13	7.8	18.5	1.90	29.9	48.8

TOTAL PROTEIN = Total protein (grams/deciliter)
ALBUMIN = Albumin (grams/deciliter)
GLOBULIN = Globulin (grams/deciliter)
CHOLEST = Cholesterol (milligrams/deciliter)

TRIG = Triglyceride (milligrams/deciliter)
LAP = Leucine aminopeptidase (units/liter)
IRON = Serum iron (micrograms/deciliter)
UIBC = Unsaturated iron binding capacity (micrograms/deciliter)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

TABLE 4 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED CLINICAL CHEMISTRY DATA

29-DAY SACRIFICE (FEMALES)

GROUP IDENTIFICATION		TIBC	T-FERRIN	CL-	CALCIUM	PHOS	ALK PHOS	GLUCOSE	BUN
2. Control Diet	Mean	441.8	345.0	104.2	11.23	10.87	142.5	156.3	13.0
	SD	13.7	16.7	1.7	0.12	1.87	25.6	31.1	1.5
4. SN-1 120 ppm	Mean	434.0	349.2	104.0	11.02	9.88	155.5	122.5*	14.0
	SD	26.4	12.4	2.4	0.31	0.89	10.9	7.5	2.1
6. SN-1 470 ppm	Mean	400.8*	335.0	106.2	11.08	10.65	164.5	129.7	16.7*
	SD	23.1	20.7	3.0	0.38	0.57	18.9	5.4	1.2
8. SN-1 1900 ppm	Mean	423.3	342.5	106.5	11.15	11.68	196.8***	134.0	20.5***
	SD	25.9	9.9	3.1	0.67	1.80	25.5	20.9	2.9

TIBC = Total iron binding capacity (micrograms/deciliter)
T-FERRIN = Transferrin (milligrams/deciliter)
CL- = Chloride (milliequivalents/liter)
CALCIUM = Total calcium (milligrams/deciliter)

PHOS = Phosphorus (milligrams/deciliter)
ALK PHOS = Total alkaline phosphatase (units/liter)
GLUCOSE = Glucose (milligrams/deciliter)
BUN = Blood urea nitrogen (milligrams/deciliter)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

AHF STUDY R-1777

TABLE 4 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED CLINICAL CHEMISTRY DATA

43-DAY SACRIFICE (MALES)

GROUP IDENTIFICATION		TOTAL PROTEIN	ALBUMIN	GLOBULIN	CHOLEST	TRIG	LAP	IRON	UIBC
1. Control Diet	Mean	7.37	4.78	2.58	67.3	127.5	47.60	110.8	391.0
	SD	0.28	0.21	0.12	12.8	27.8	5.75	22.1	42.3
7. SN-1 1900 ppm	Mean	7.05	4.68	2.37*	44.3**	83.8*	48.90	58.7***	397.7
	SD	0.28	0.15	0.21	10.7	24.4	2.25	11.6	20.1

TOTAL PROTEIN = Total protein (grams/deciliter)
ALBUMIN = Albumin (grams/deciliter)
GLOBULIN = Globulin (grams/deciliter)
CHOLEST = Cholesterol (milligrams/deciliter)
TRIG = Triglyceride (milligrams/deciliter)
LAP = Leucine aminopeptidase (units/liter)
IRON = Serum iron (micrograms/deciliter)
UIBC = Unsaturated iron binding capacity (micrograms/deciliter)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Experimental means between the groups were compared with the Control using Student's t-test.

TABLE 4 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED CLINICAL CHEMISTRY DATA

43-DAY SACRIFICE (MALES)

GROUP IDENTIFICATION		TIBC	T-FERRIN	CL-	CALCIUM	PHOS	ALK PHOS	GLUCOSE	BUN
1. Control Diet	Mean	501.8	406.7	95.0	11.38	8.55	145.0	134.2	14.7
	SD	37.2	29.8	1.1	0.25	0.74	27.9	13.3	0.8
7. SN-1 1900 ppm	Mean	456.3*	382.5	98.2*	11.37	9.68*	161.8	169.7*	20.8***
	SD	17.2	9.9	2.6	0.32	0.78	23.1	34.1	2.0

TIBC = Total iron binding capacity (micrograms/deciliter)
T-FERRIN = Transferrin (milligrams/deciliter)
CL- = Chloride (milliequivalents/liter)
CALCIUM = Total calcium (milligrams/deciliter)
PHOS = Phosphorus (milligrams/deciliter)
ALK PHOS = Total alkaline phosphatase (units/liter)
GLUCOSE = Glucose (milligrams/deciliter)
BUN = Blood urea nitrogen (milligrams/deciliter)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
*** significantly different from Control at $p<0.001$

Experimental means between the groups were compared with the Control using Student's t-test.

TABLE 4 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED CLINICAL CHEMISTRY DATA

43-DAY SACRIFICE (FEMALES)

GROUP IDENTIFICATION		TOTAL PROTEIN	ALBUMIN	GLOBULIN	CHOLEST	TRIG	LAP	IRON	UIBC
2. Control Diet	Mean	7.25	4.85	2.40	82.0	61.2	54.85	266.3	180.3
	SD	0.52	0.32	0.21	11.8	17.1	1.72	72.4	85.3
8. SN-1 1900 ppm	Mean	6.77	4.58	2.18	64.8*	68.8	52.38	113.2**	319.2**
	SD	0.41	0.15	0.32	10.3	18.9	3.46	22.7	25.1

TOTAL PROTEIN = Total protein (grams/deciliter)
ALBUMIN = Albumin (grams/deciliter)
GLOBULIN = Globulin (grams/deciliter)
CHOLEST = Cholesterol (milligrams/deciliter)
TRIG = Triglyceride (milligrams/deciliter)
LAP = Leucine aminopeptidase (units/liter)
IRON = Serum iron (micrograms/deciliter)
UIBC = Unsaturated iron binding capacity (micrograms/deciliter)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$

Experimental means between the groups were compared with the Control using Student's t-test.

TABLE 4 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED CLINICAL CHEMISTRY DATA

43-DAY SACRIFICE (FEMALES)

GROUP IDENTIFICATION		TIBC	T-FERRIN	CL-	CALCIUM	PHOS	ALK PHOS	GLUCOSE	BUN
2. Control Diet	Mean	446.7	343.3	100.0	11.35	8.30	115.3	143.3	15.0
	SD	24.7	16.9	2.0	0.37	0.72	13.2	15.3	2.2
8. SN-1 1900 ppm	Mean	432.3	354.2	101.7	10.93	10.23**	157.7**	130.0	22.2***
	SD	21.3	15.9	2.8	0.32	1.21	23.3	8.4	1.6

TIBC = Total iron binding capacity (micrograms/deciliter)
T-FERRIN = Transferrin (milligrams/deciliter)
CL- = Chloride (milliequivalents/liter)
CALCIUM = Total calcium (milligrams/deciliter)
PHOS = Phosphorus (milligrams/deciliter)
ALK PHOS = Total alkaline phosphatase (units/liter)
GLUCOSE = Glucose (milligrams/deciliter)
BUN = Blood urea nitrogen (milligrams/deciliter)

SD = Standard Deviation

** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Experimental means between the groups were compared with the Control using Student's t-test.

TABLE 5

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED URINALYSIS DATA

29-DAY SACRIFICE (MALES)

GROUP IDENTIFICATION		SPECIFIC GRAVITY	pH	KETONES
1. Control Diet	Mean	1.0500	6.67	5.0
	SD	0.0020	0.29	0.0
3. SN-1 120 ppm	Mean	1.0427	6.50	5.0
	SD	0.0042	0.00	0.0
5. SN-1 470 ppm	Mean	1.0387*	6.33	8.3
	SD	0.0058	0.29	5.8
7. SN-1 1900 ppm	Mean	1.0433	6.33	31.7**
	SD	0.0058	0.29	14.4

SPECIFIC GRAVITY = Specific gravity (SG units)
pH = Measure of hydrogen ion activity
KETONES = Ketones (milligrams/deciliter)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

TABLE 5 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED URINALYSIS DATA

29-DAY SACRIFICE (FEMALES)

GROUP IDENTIFICATION		SPECIFIC GRAVITY	pH	KETONES
2. Control Diet	Mean	1.0190	6.67	0.0
	SD	0.0061	0.29	0.0
4. SN-1 120 ppm	Mean	1.0287	6.33	0.0
	SD	0.0126	0.29	0.0
6. SN-1 470 ppm	Mean	1.0250	6.00*	3.3
	SD	0.0017	0.00	2.9
8. SN-1 1900 ppm	Mean	1.0300	6.00*	31.7**
	SD	0.0115	0.00	14.4

SPECIFIC GRAVITY = Specific gravity (SG units)
pH = Measure of hydrogen ion activity
KETONES = Ketones (milligrams/deciliter)

SD = Standard Deviation

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

TABLE 5 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED URINALYSIS DATA

43-DAY SACRIFICE (MALES)

GROUP IDENTIFICATION		SPECIFIC GRAVITY	pH	KETONES
1. Control Diet	Mean	1.0253	6.67	11.7
	SD	0.0081	0.29	5.8
7. SN-1 1900 ppm	Mean	1.0380	6.83	40.0**
	SD	0.0087	0.76	0.0

SPECIFIC GRAVITY = Specific gravity (SG units)
pH = Measure of hydrogen ion activity
KETONES = Ketones (milligrams/deciliter)

SD = Standard Deviation

** significantly different from Control at $p<0.01$

Experimental means between the groups were compared with the Control using Student's t-test.

TABLE 5 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF COMPOUND-RELATED URINALYSIS DATA

43-DAY SACRIFICE (FEMALES)

GROUP IDENTIFICATION		SPECIFIC GRAVITY	pH	KETONES
2. Control Diet	Mean	1.0220	6.33	0.0
	SD	0.0106	0.29	0.0
8. SN-1 1900 ppm	Mean	1.0327	6.00	6.7
	SD	0.0064	0.00	7.6

SPECIFIC GRAVITY = Specific gravity (SG units)
pH = Measure of hydrogen ion activity
KETONES = Ketones (milligrams/deciliter)

SD = Standard Deviation

There was no significant difference from Control.

Experimental means between the groups were compared with the Control using Student's t-test.

TABLE 6

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF BODY AND ABSOLUTE ORGAN WEIGHT MEANS (g)

29-DAY SACRIFICE (MALES)

GROUP # TREATMENT	1 Control - No Treatment	3 SN-1 120 ppm	5 SN-1 470 ppm	7 SN-1 1900 ppm
Body Weight				
Number of Animals	8	8	8	8
Mean	290.9	293.9	293.6	269.9*
Range	280-309	275-321	267-326	251-287
Standard Deviation	8.51	17.48	18.12	12.41
Liver Weight				
Number of Animals	8	8	8	8
Mean	8.681	8.703	9.102	9.832*
Range	8.171-9.249	7.810-10.600	7.990-10.627	8.876-10.927
Standard Deviation	0.464	0.929	0.885	0.696
Kidney Weight				
Number of Animals	8	8	8	8
Mean	2.131	2.128	2.093	2.121
Range	1.999-2.431	1.846-2.463	1.901-2.337	1.839-2.470
Standard Deviation	0.140	0.190	0.142	0.195
Pituitary Weight				
Number of Animals	8	8	8	8
Mean	0.0101	0.0095	0.0095	0.0096
Range	0.0084-0.0125	0.0085-0.0109	0.0085-0.0109	0.0078-0.0118
Standard Deviation	0.0015	0.0008	0.0008	0.0012
Thyroid Weight				
Number of Animals	8	8	8	8
Mean	0.0187	0.0131***	0.0138***	0.0146***
Range	0.0166-0.0211	0.0086-0.0161	0.0111-0.0163	0.0129-0.0180
Standard Deviation	0.0019	0.0022	0.0015	0.0017
Heart Weight				
Number of Animals	8	8	8	8
Mean	0.960	1.015	0.977	1.005
Range	0.847-1.070	0.896-1.154	0.902-1.060	0.885-1.065
Standard Deviation	0.067	0.083	0.054	0.059
Spleen Weight				
Number of Animals	8	8	8	8
Mean	0.653	0.689	0.712	0.615
Range	0.614-0.707	0.582-0.986	0.596-0.809	0.525-0.665
Standard Deviation	0.031	0.127	0.076	0.048
Adrenal Weight				
Number of Animals	8	8	8	8
Mean	0.057	0.051	0.064	0.070
Range	0.040-0.070	0.039-0.066	0.048-0.085	0.055-0.086
Standard Deviation	0.011	0.008	0.014	0.011
Brain Weight				
Number of Animals	8	8	8	8
Mean	1.938	1.946	1.934	2.029
Range	1.857-2.176	1.855-2.052	1.743-2.076	1.912-2.297
Standard Deviation	0.108	0.078	0.105	0.121
Testes Weight				
Number of Animals	8	8	8	8
Mean	3.939	4.095	3.934	4.030
Range	3.739-4.291	3.612-4.841	3.671-4.201	3.596-4.642
Standard Deviation	0.180	0.437	0.193	0.309

* significantly different from Control at $p<0.05$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

TABLE 6 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF BODY AND ABSOLUTE ORGAN WEIGHT MEANS (g)

29-DAY SACRIFICE (FEMALES)

GROUP # TREATMENT	2 Control - No Treatment	4 SN-1 120 ppm	6 SN-1 470 ppm	8 SN-1 1900 ppm
Body Weight				
Number of Animals	8	8	8	8
Mean	174.8	173.6	174.4	166.9
Range	167-183	167-183	160-183	154-179
Standard Deviation	6.39	5.29	8.68	9.00
Liver Weight				
Number of Animals	8	8	8	8
Mean	4.851	4.761	4.929	5.776***
Range	4.496-5.257	4.246-5.190	4.411-5.427	5.241-6.522
Standard Deviation	0.293	0.277	0.341	0.454
Kidney Weight				
Number of Animals	8	8	8	8
Mean	1.372	1.352	1.295	1.334
Range	1.249-1.569	1.255-1.529	1.122-1.449	1.197-1.547
Standard Deviation	0.098	0.094	0.108	0.116
Pituitary Weight				
Number of Animals	8	8	8	8
Mean	0.0128	0.0109	0.0111	0.0111
Range	0.0097-0.0180	0.0094-0.0130	0.0099-0.0135	0.0089-0.0126
Standard Deviation	0.0028	0.0011	0.0013	0.0015
Thyroid Weight				
Number of Animals	8	8	8	8
Mean	0.0125	0.0117	0.0113	0.0121
Range	0.0101-0.0141	0.0095-0.0138	0.0086-0.0137	0.0105-0.0143
Standard Deviation	0.0014	0.0012	0.0016	0.0012
Heart Weight				
Number of Animals	8	8	8	8
Mean	0.660	0.700	0.691	0.651
Range	0.551-0.817	0.607-0.778	0.590-0.764	0.580-0.798
Standard Deviation	0.077	0.066	0.059	0.074
Spleen Weight				
Number of Animals	8	8	8	8
Mean	0.412	0.450	0.435	0.397
Range	0.365-0.471	0.352-0.554	0.397-0.496	0.333-0.469
Standard Deviation	0.037	0.066	0.040	0.046
Adrenal Weight				
Number of Animals	8	8	8	8
Mean	0.068	0.059	0.066	0.060
Range	0.047-0.091	0.052-0.075	0.053-0.086	0.045-0.073
Standard Deviation	0.016	0.007	0.013	0.010
Brain Weight				
Number of Animals	8	8	8	8
Mean	1.859	1.884	1.841	1.803
Range	1.693-2.015	1.794-2.066	1.716-1.925	1.706-1.908
Standard Deviation	0.095	0.094	0.074	0.063
Uterus Weight				
Number of Animals	8	8	8	8
Mean	0.496	0.406	0.541	0.479
Range	0.321-0.955	0.346-0.503	0.289-0.960	0.268-0.903
Standard Deviation	0.205	0.052	0.227	0.261
Ovary Weight				
Number of Animals	8	8	8	8
Mean	0.130	0.099**	0.101**	0.101**
Range	0.105-0.151	0.082-0.128	0.089-0.117	0.074-0.130
Standard Deviation	0.018	0.016	0.011	0.022

** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

TABLE 6 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF BODY AND ABSOLUTE ORGAN WEIGHT MEANS (g)

43-DAY SACRIFICE (MALES)				
GROUP #	1	—	—	7
TREATMENT	Control -	—	—	SN-1
	No Treatment	—	—	1900 ppm
Body Weight				
Number of Animals	6	—	—	6
Mean	306.5	—	—	291.5
Range	254-326	—	—	274-306
Standard Deviation	27.10	—	—	12.42
Liver Weight				
Number of Animals	6	—	—	6
Mean	9.083	—	—	9.398
Range	7.718-9.743	—	—	8.622-10.102
Standard Deviation	0.751	—	—	0.580
Kidney Weight				
Number of Animals	6	—	—	6
Mean	2.151	—	—	2.147
Range	1.713-2.326	—	—	2.005-2.294
Standard Deviation	0.223	—	—	0.108
Pituitary Weight				
Number of Animals	6	—	—	6
Mean	0.0092	—	—	0.0096
Range	0.0067-0.0105	—	—	0.0065-0.0112
Standard Deviation	0.0015	—	—	0.0019
Thyroid Weight				
Number of Animals	6	—	—	6
Mean	0.0173	—	—	0.0153*
Range	0.0158-0.0201	—	—	0.0146-0.0165
Standard Deviation	0.0015	—	—	0.0008
Heart Weight				
Number of Animals	6	—	—	6
Mean	1.067	—	—	0.977
Range	0.915-1.337	—	—	0.940-1.011
Standard Deviation	0.148	—	—	0.026
Spleen Weight				
Number of Animals	6	—	—	6
Mean	0.689	—	—	0.622**
Range	0.647-0.745	—	—	0.578-0.644
Standard Deviation	0.033	—	—	0.025
Adrenal Weight				
Number of Animals	6	—	—	6
Mean	0.0565	—	—	0.0625
Range	0.0470-0.0690	—	—	0.0490-0.0810
Standard Deviation	0.0086	—	—	0.0130
Brain Weight				
Number of Animals	6	—	—	6
Mean	1.936	—	—	1.960
Range	1.842-1.994	—	—	1.910-2.001
Standard Deviation	0.051	—	—	0.033
Testes Weight				
Number of Animals	6	—	—	6
Mean	3.920	—	—	3.912
Range	3.791-4.023	—	—	3.750-4.015
Standard Deviation	0.099	—	—	0.106

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$

The experimental mean was compared to the Control mean using Student's t-test.

TABLE 6 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF BODY AND ABSOLUTE ORGAN WEIGHT MEANS (g)

43-DAY SACRIFICE (FEMALES)				
GROUP #	2	—	—	8
TREATMENT	Control -	—	—	SN-1
	No Treatment	—	—	1900 ppm
Body Weight				
Number of Animals	6	—	—	6
Mean	177.0	—	—	172.8
Range	166-187	—	—	164-185
Standard Deviation	8.44	—	—	8.47
Liver Weight				
Number of Animals	6	—	—	6
Mean	4.588	—	—	5.186**
Range	4.248-4.922	—	—	4.821-5.453
Standard Deviation	0.278	—	—	0.245
Kidney Weight				
Number of Animals	6	—	—	6
Mean	1.255	—	—	1.308
Range	1.138-1.350	—	—	1.276-1.344
Standard Deviation	0.079	—	—	0.026
Pituitary Weight				
Number of Animals	6	—	—	6
Mean	0.0124	—	—	0.0114
Range	0.0100-0.0144	—	—	0.0090-0.0141
Standard Deviation	0.0019	—	—	0.0017
Thyroid Weight				
Number of Animals	6	—	—	6
Mean	0.0137	—	—	0.0120*
Range	0.0115-0.0146	—	—	0.0100-0.0137
Standard Deviation	0.0011	—	—	0.0012
Heart Weight				
Number of Animals	6	—	—	6
Mean	0.611	—	—	0.659
Range	0.566-0.656	—	—	0.606-0.758
Standard Deviation	0.033	—	—	0.062
Spleen Weight				
Number of Animals	6	—	—	6
Mean	0.421	—	—	0.406
Range	0.371-0.448	—	—	0.371-0.435
Standard Deviation	0.030	—	—	0.023
Adrenal Weight				
Number of Animals	6	—	—	6
Mean	0.0626	—	—	0.0594
Range	0.0490-0.0810	—	—	0.0438-0.0842
Standard Deviation	0.0136	—	—	0.0138
Brain Weight				
Number of Animals	6	—	—	6
Mean	1.775	—	—	1.755
Range	1.712-1.830	—	—	1.642-1.799
Standard Deviation	0.045	—	—	0.059
Uterus Weight				
Number of Animals	6	—	—	6
Mean	0.407	—	—	0.463
Range	0.263-0.504	—	—	0.278-0.883
Standard Deviation	0.094	—	—	0.221
Ovary Weight				
Number of Animals	6	—	—	6
Mean	0.0922	—	—	0.0914
Range	0.0702-0.1380	—	—	0.0687-0.1040
Standard Deviation	0.0254	—	—	0.0119

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$

The experimental mean was compared to the Control mean using Student's t-test.

TABLE 6 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF RELATIVE ORGAN WEIGHT MEANS (%)

	29-DAY SACRIFICE (MALES)			
GROUP #	1	3	5	7
TREATMENT	Control - No Treatment	SN-1 120 ppm	SN-1 470 ppm	SN-1 1900 ppm
Liver/Body Wt.				
Number of Animals	8	8	8	8
Mean	2.985	2.957	3.094	3.643***
Range	2.827-3.219	2.791-3.302	2.925-3.260	3.383-3.905
Standard Deviation	0.143	0.180	0.121	0.186
Kidney/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.732	0.723	0.713	0.785*
Range	0.692-0.787	0.669-0.767	0.694-0.739	0.726-0.861
Standard Deviation	0.035	0.028	0.017	0.047
Pituitary/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.0035	0.0032	0.0032	0.0035
Range	0.0028-0.0043	0.0029-0.0038	0.0029-0.0035	0.0030-0.0041
Standard Deviation	0.0005	0.0003	0.0002	0.0004
Thyroid/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.0064	0.0045***	0.0047***	0.0054*
Range	0.0058-0.0074	0.0028-0.0056	0.0038-0.0059	0.0048-0.0068
Standard Deviation	0.0006	0.0009	0.0007	0.0007
Heart/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.330	0.345	0.333	0.373**
Range	0.293-0.373	0.325-0.375	0.306-0.363	0.323-0.408
Standard Deviation	0.024	0.014	0.016	0.028
Spleen/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.224	0.234	0.243	0.228
Range	0.212-0.234	0.199-0.320	0.218-0.280	0.203-0.239
Standard Deviation	0.009	0.038	0.021	0.012
Adrenal/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.020	0.017	0.022	0.026**
Range	0.014-0.024	0.013-0.023	0.017-0.029	0.022-0.030
Standard Deviation	0.004	0.003	0.005	0.003
Brain/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.667	0.663	0.662	0.752**
Range	0.635-0.758	0.609-0.690	0.573-0.778	0.666-0.815
Standard Deviation	0.039	0.031	0.067	0.043
Testes/Body Wt.				
Number of Animals	8	8	8	8
Mean	1.354	1.392	1.343	1.493**
Range	1.265-1.402	1.275-1.572	1.179-1.424	1.426-1.694
Standard Deviation	0.049	0.107	0.088	0.089

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

TABLE 6 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF RELATIVE ORGAN WEIGHT MEANS (%)

29-DAY SACRIFICE (FEMALES)

GROUP # TREATMENT	2 Control - No Treatment	4 SN-1 120 ppm	6 SN-1 470 ppm	8 SN-1 1900 ppm
Liver/Body Wt.				
Number of Animals	8	8	8	8
Mean	2.775	2.743	2.828	3.460***
Range	2.614-2.920	2.454-2.904	2.653-3.198	3.214-3.644
Standard Deviation	0.119	0.149	0.177	0.161
Kidney/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.785	0.778	0.742	0.799
Range	0.737-0.857	0.725-0.836	0.681-0.812	0.717-0.864
Standard Deviation	0.046	0.038	0.044	0.042
Pituitary/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.0073	0.0063	0.0064	0.0066
Range	0.0057-0.0108	0.0056-0.0076	0.0056-0.0082	0.0054-0.0082
Standard Deviation	0.0017	0.0006	0.0009	0.0010
Thyroid/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.0071	0.0067	0.0065	0.0072
Range	0.0059-0.0081	0.0057-0.0078	0.0052-0.0075	0.0066-0.0087
Standard Deviation	0.0008	0.0007	0.0009	0.0006
Heart/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.378	0.403	0.396	0.390
Range	0.330-0.470	0.341-0.454	0.354-0.463	0.347-0.467
Standard Deviation	0.041	0.037	0.032	0.040
Spleen/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.236	0.259	0.249	0.237
Range	0.211-0.271	0.207-0.303	0.228-0.271	0.216-0.262
Standard Deviation	0.019	0.034	0.015	0.018
Adrenal/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.039	0.034	0.038	0.036
Range	0.028-0.053	0.030-0.044	0.030-0.048	0.027-0.042
Standard Deviation	0.008	0.004	0.006	0.006
Brain/Body Wt.				
Number of Animals	8	8	8	8
Mean	1.065	1.085	1.058	1.082
Range	1.005-1.207	1.008-1.167	0.962-1.167	1.025-1.132
Standard Deviation	0.070	0.050	0.066	0.039
Uterus/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.282	0.234	0.309	0.286
Range	0.186-0.522	0.200-0.296	0.181-0.545	0.166-0.564
Standard Deviation	0.108	0.033	0.125	0.154
Ovary/Body Wt.				
Number of Animals	8	8	8	8
Mean	0.075	0.057*	0.058*	0.061
Range	0.057-0.088	0.047-0.075	0.049-0.069	0.045-0.084
Standard Deviation	0.012	0.010	0.009	0.015

* significantly different from Control at $p<0.05$
*** significantly different from Control at $p<0.001$

Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

TABLE 6 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF RELATIVE ORGAN WEIGHT MEANS (%)

43-DAY SACRIFICE (MALES)				
GROUP #	1	—	—	7
TREATMENT	Control -	—	—	SN-1
	No Treatment	—	—	1900 ppm
Liver/Body Wt.				
Number of Animals	6	—	—	6
Mean	2.966	—	—	3.223***
Range	2.848-3.039	—	—	3.086-3.371
Standard Deviation	0.064	—	—	0.110
Kidney/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.701	—	—	0.737*
Range	0.674-0.723	—	—	0.711-0.772
Standard Deviation	0.020	—	—	0.024
Pituitary/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.0030	—	—	0.0033
Range	0.0026-0.0034	—	—	0.0022-0.0039
Standard Deviation	0.0003	—	—	0.0006
Thyroid/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.0056	—	—	0.0053
Range	0.0052-0.0062	—	—	0.0049-0.0054
Standard Deviation	0.0005	—	—	0.0002
Heart/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.348	—	—	0.335
Range	0.309-0.413	—	—	0.316-0.343
Standard Deviation	0.038	—	—	0.011
Spleen/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.226	—	—	0.213
Range	0.202-0.265	—	—	0.209-0.218
Standard Deviation	0.022	—	—	0.004
Adrenal/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.0188	—	—	0.0213
Range	0.0146-0.0272	—	—	0.0179-0.0267
Standard Deviation	0.0047	—	—	0.0036
Brain/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.635	—	—	0.673
Range	0.595-0.725	—	—	0.635-0.702
Standard Deviation	0.047	—	—	0.028
Testes/Body Wt.				
Number of Animals	6	—	—	6
Mean	1.289	—	—	1.344
Range	1.173-1.557	—	—	1.265-1.424
Standard Deviation	0.138	—	—	0.060

* significantly different from Control at $p<0.05$
*** significantly different from Control at $p<0.001$

The experimental mean was compared to the Control mean using Student's t-test.

TABLE 6 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF RELATIVE ORGAN WEIGHT MEANS (%)

43-DAY SACRIFICE (FEMALES)				
GROUP #	2	—	—	8
TREATMENT	Control - No Treatment	—	—	SN-1 1900 ppm
Liver/Body Wt.				
Number of Animals	6	—	—	6
Mean	2.592	—	—	3.003***
Range	2.446-2.675	—	—	2.843-3.164
Standard Deviation	0.080	—	—	0.129
Kidney/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.709	—	—	0.758*
Range	0.686-0.758	—	—	0.709-0.809
Standard Deviation	0.026	—	—	0.038
Pituitary/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.0070	—	—	0.0066
Range	0.0056-0.0085	—	—	0.0050-0.0086
Standard Deviation	0.0011	—	—	0.0012
Thyroid/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.0077	—	—	0.0069
Range	0.0065-0.0088	—	—	0.0060-0.0077
Standard Deviation	0.0008	—	—	0.0006
Heart/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.345	—	—	0.382
Range	0.333-0.353	—	—	0.344-0.451
Standard Deviation	0.008	—	—	0.039
Spleen/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.238	—	—	0.235
Range	0.213-0.256	—	—	0.221-0.261
Standard Deviation	0.017	—	—	0.015
Adrenal/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.0355	—	—	0.0346
Range	0.0294-0.0463	—	—	0.0265-0.0513
Standard Deviation	0.0083	—	—	0.0091
Brain/Body Wt.				
Number of Animals	6	—	—	6
Mean	1.005	—	—	1.017
Range	0.920-1.064	—	—	0.972-1.082
Standard Deviation	0.057	—	—	0.047
Uterus/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.230	—	—	0.272
Range	0.148-0.296	—	—	0.150-0.535
Standard Deviation	0.052	—	—	0.139
Ovary/Body Wt.				
Number of Animals	6	—	—	6
Mean	0.0523	—	—	0.0532
Range	0.0375-0.0789	—	—	0.0384-0.0634
Standard Deviation	0.0153	—	—	0.0086

* significantly different from Control at $p<0.05$
*** significantly different from Control at $p<0.001$

The experimental mean was compared to the Control mean using Student's t-test.

AHF STUDY R-1777 TABLE 7

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF GROSS FINDINGS

29-DAY SACRIFICE (MALES)

	GROUP 1	GROUP 3	GROUP 5	GROUP 7
LIVER				
Discoloration			1/8 (12.50)	
URINARY BLADDER				
Concretion	1/8 (12.50)		1/8 (12.50)	2/8 (25.00)
LUNG				
Focal discolorations			1/8 (12.50)	
Raised, discolored patches (focal patches)			1/8 (12.50)	
Nodules		1/8 (12.50)		
Rough texture			1/8 (12.50)	
ADRENAL GLAND				
Atrophied		1/8 (12.50)		

43-DAY SACRIFICE (MALES)

	GROUP 1			GROUP 7
URINARY BLADDER				
Concretion				1/6 (16.67)

Group 1 = Control - No Treatment
Group 3 = SN-1 120 ppm
Group 5 = SN-1 470 ppm
Group 7 = SN-1 1900 ppm

Percentages in parentheses

TABLE 7 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF GROSS FINDINGS

29-DAY SACRIFICE (FEMALES)

	GROUP 2	GROUP 4	GROUP 6	GROUP 8
LIVER				
Raised area (focus)		1/8 (12.50)		
URINARY BLADDER				
Concretion	1/8 (12.50)			
LUNG				
Focal discolorations				1/8 (12.50)
Raised focal discolorations		2/8 (25.00)	2/8 (25.00)	1/8 (12.50)
Raised foci			1/8 (12.50)	
UTERUS				
Fluid-filled				1/8 (12.50)
ADRENAL GLAND				
Atrophied and hemorrhagic				1/8 (12.50)

43-DAY SACRIFICE (FEMALES)

	GROUP 2			GROUP 8
LIVER				
Focal discoloration	1/6 (16.67)			

Group 2 = Control - No Treatment
Group 4 = SN-1 120 ppm
Group 6 = SN-1 470 ppm
Group 8 = SN-1 1900 ppm

Percentages in parentheses

AHF STUDY R-1777

TABLE 8

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PCNA REPLICATING FRACTIONS
FOR HEPATOCELLULAR NUCLEI (%)

GROUP #	1	3	5	7
TREATMENT	Control - No Treatment	SN-1 120 ppm	SN-1 470 ppm	SN-1 1900 ppm
29-DAY SACRIFICE (MALES)[1]				
Number of Animals	8	8	8	7[3]
Mean	4.13	4.36	4.50	5.69***
Range	3.44-4.61	3.94-4.95	3.65-5.37	4.85-6.56
Standard Deviation	0.40	0.39	0.57	0.56
43-DAY SACRIFICE (MALES)[2]				
Number of Animals	6	—	—	6
Mean	4.31	—	—	4.39
Range	3.70-4.98	—	—	3.17-5.55
Standard Deviation	0.58	—	—	0.95

*** significantly different from Control at $p<0.001$

[1] Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

[2] The experimental mean was compared to the Control mean using Student's t-test.

[3] Liver tissue was not successfully stained for one animal in group 7 (29-day sac.).

TABLE 8 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PCNA REPLICATING FRACTIONS
FOR HEPATOCELLULAR NUCLEI (%)

GROUP #	2	4	6	8
TREATMENT	Control - No Treatment	SN-1 120 ppm	SN-1 470 ppm	SN-1 1900 ppm
29-DAY SACRIFICE (FEMALES)[1]				
Number of Animals	8	8	8	8
Mean	3.49	3.69	3.68	5.48***
Range	2.46-4.91	2.88-4.81	3.22-4.74	4.40-7.05
Standard Deviation	0.78	0.68	0.49	0.79
43-DAY SACRIFICE (FEMALES)[2]				
Number of Animals	6	—	—	6
Mean	4.24	—	—	5.39***
Range	3.86-4.92	—	—	4.71-5.77
Standard Deviation	0.43	—	—	0.39

*** significantly different from Control at $p<0.001$

[1] Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

[2] The experimental mean was compared to the Control mean using Student's t-test.

TABLE 9

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PCNA REPLICATING FRACTIONS
FOR UROTHELIAL CELL NUCLEI (%)

GROUP #	1	3	5	7
TREATMENT	Control - No Treatment	SN-1 120 ppm	SN-1 470 ppm	SN-1 1900 ppm
29-DAY SACRIFICE (MALES)[1]				
Number of Animals	8	6[3]	8	7[3]
Mean	12.86	17.79**	15.83	18.50**
Range	9.64-18.07	13.18-21.55	13.39-18.18	14.55-21.55
Standard Deviation	2.95	3.45	1.96	2.16
43-DAY SACRIFICE (MALES)[2]				
Number of Animals	5[3]	—	—	5[3]
Mean	13.53	—	—	13.83
Range	11.72-15.81	—	—	11.52-15.38
Standard Deviation	1.67	—	—	1.53

** significantly different from Control at $p<0.01$

[1] Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

[2] The experimental mean was compared to the Control mean using Student's t-test.

[3] Liver tissue was not successfully stained for two animals in group 3 (29-day sac.) and for one animal each in group 7 (29-day sac.), group 1 (43-day sac.) and group 7 (43-day sac.).

TABLE 9 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PCNA REPLICATING FRACTIONS
FOR UROTHELIAL CELL NUCLEI (%)

GROUP #	2	4	6	8
TREATMENT	Control - No Treatment	SN-1 120 ppm	SN-1 470 ppm	SN-1 1900 ppm
29-DAY SACRIFICE (FEMALES)[1]				
Number of Animals	7[3]	8	8	8
Mean	12.59	12.89	17.91**	17.53**
Range	10.95-16.67	10.08-15.30	14.59-21.46	11.52-21.96
Standard Deviation	2.00	1.80	2.62	3.90
43-DAY SACRIFICE (FEMALES)[2]				
Number of Animals	6	—	—	6
Mean	10.48	—	—	14.79*
Range	8.42-15.02	—	—	10.41-17.49
Standard Deviation	2.40	—	—	2.49

* significantly different from Control at $p<0.05$
** significantly different from Control at $p<0.01$

[1] Means were compared by ANOVA followed by Dunnett's multiple comparisons test where each group is compared with the Control.

[2] The experimental mean was compared to the Control mean using Student's t-test.

[3] No epithelium tissue was available for one animal in group 1 (29-day sac.).

TABLE 10

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PERTINENT HISTOPATHOLOGY FINDINGS

29-DAY SACRIFICE (MALES)

	GROUP 1	GROUP 3[1]	GROUP 5[1]	GROUP 7
LIVER				
Foci of hepatocellular alteration	1/8 (12.50)			1/8 (12.50)
Hepatocellular apoptosis without cell degeneration				5/8 (62.50)
Hepatocellular apoptosis with cell degeneration				2/8 (25.00)
KIDNEY				
Chronic progressive nephropathy (minimal)	5/8 (62.50)			4/8 (50.00)
LUNG				
Perivascular lymphoid infiltration	4/8 (50.00)			5/8 (62.50)
Perivascular lymphoid infiltration with aggregates of foamy histiocytes	1/8 (12.50)			
Minimal inflammatory response	1/8 (12.50)			

Group 1 = Control - No Treatment
Group 3 = SN-1 120 ppm
Group 5 = SN-1 470 ppm
Group 7 = SN-1 1900 ppm

Percentages in parentheses

[1] As per protocol, no histopathology was performed on groups 3 and 5, except for liver, urinary bladder, heart, spleen and exposure-related lesions.

TABLE 10 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PERTINENT HISTOPATHOLOGY FINDINGS

29-DAY SACRIFICE (MALES)

	GROUP 1	GROUP 3[1]	GROUP 5[1]	GROUP 7
PITUITARY GLAND				
Cyst				1/8 (12.50)
THYROID				
Ultimobranchial cyst	1/8 (12.50)			
HEART				
Cardiomyopathy/ myocytic degeneration	2/8 (25.00)	4/8 (50.00)	8/8 (100.00)	7/8 (87.50)
PANCREAS				
Focal atrophy	1/8 (12.50)			
SPLEEN				
Extramedullary hematopoiesis with pigmentation	8/8 (100.00)	8/8 (100.00)	8/8 (100.00)	8/8 (100.00)
Congestion		3/8 (37.50)	3/8 (37.50)	8/8 (100.00)
OTHER				
Forestomach hyperplasia				1/8 (12.50)

Group 1 = Control - No Treatment
Group 3 = SN-1 120 ppm
Group 5 = SN-1 470 ppm
Group 7 = SN-1 1900 ppm

Percentages in parentheses

[1] As per protocol, no histopathology was performed on groups 3 and 5, except for liver, urinary bladder, heart, spleen and exposure-related lesions.

TABLE 10 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PERTINENT HISTOPATHOLOGY FINDINGS

29-DAY SACRIFICE (FEMALES)

	GROUP 2	GROUP 4[1]	GROUP 6[1]	GROUP 8
LIVER				
Foci of hepatocellular alteration			1/8 (12.50)	
Hepatocellular apoptosis				1/8 (12.50)
Hepatocellular cytoplasmic vacuolation			1/8 (12.50)	
KIDNEY				
Chronic progressive nephropathy (minimal)	2/8 (25.00)			
Mineralization (minimal)	1/8 (12.50)			6/8 (75.00)
LUNG				
Perivascular lymphoid infiltration	1/8 (12.50)			1/8 (12.50)
Perivascular lymphoid infiltration with aggregates of foamy histiocytes				3/8 (37.50)
Aggregates of foamy histiocytes with inflammatory lesions	5/8 (62.50)			
Inflammatory lesions only	1/8 (12.50)			2/8 (25.00)
Inflammatory lesions with local hemorrhage	1/8 (12.50)			
THYROID				
Ultimobranchial cyst				1/8 (12.50)

Group 2 = Control - No Treatment
Group 4 = SN-1 120 ppm
Group 6 = SN-1 470 ppm
Group 8 = SN-1 1900 ppm

Percentages in parentheses

[1] As per protocol, no histopathology was performed on groups 4 and 6, except for liver, urinary bladder, heart, spleen and exposure-related lesions.

TABLE 10 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PERTINENT HISTOPATHOLOGY FINDINGS

29-DAY SACRIFICE (FEMALES)

	GROUP 2	GROUP 4[1]	GROUP 6[1]	GROUP 8
HEART				
Cardiomyopathy/ myocytic degeneration		1/8 (12.50)	8/8 (100.00)	7/8 (87.50)
Focus of hemorrhage	1/8 (12.50)			
PANCREAS				
Focal atrophy and increase of interstitial collagen				1/8 (12.50)
UTERUS				
Endometrial hyperplasia	1/8 (12.50)			
VAGINA				
Squamous epithelial cyst	2/8 (25.00)			
SPLEEN				
Extramedullary hematopoiesis with pigmentation	8/8 (100.00)	8/8 (100.00)	8/8 (100.00)	8/8 (100.00)
Congestion		3/8 (37.50)	6/8 (75.00)	8/8 (100.00)
HARDERIAN GLAND				
Local inflammatory infiltrates	1/8 (12.50)			

Group 2 = Control - No Treatment
Group 4 = SN-1 120 ppm
Group 6 = SN-1 470 ppm
Group 8 = SN-1 1900 ppm

Percentages in parentheses

[1] As per protocol, no histopathology was performed on groups 4 and 6, except for liver, urinary bladder, heart, spleen and exposure-related lesions.

TABLE 10 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PERTINENT HISTOPATHOLOGY FINDINGS

43-DAY SACRIFICE (MALES)

	GROUP 1			GROUP 7
LIVER				
Hepatocellular apoptosis				3/6 (50.00)
KIDNEY				
Chronic progressive nephropathy (minimal)	5/6 (83.33)			6/6 (100.00)
LUNG				
Perivascular lymphoid infiltration	1/6 (16.67)			1/6 (16.67)
Perivascular lymphoid infiltration with aggregates of foamy histiocytes	2/6 (33.33)			2/6 (33.33)
THYROID				
Ultimobranchial cyst				1/6 (16.67)
HEART				
Cardiomyopathy/ myocytic degeneration	3/6 (50.00)			4/6 (66.67)
SPLEEN				
Extramedullary hematopoiesis with pigmentation	6/6 (100.00)			6/6 (100.00)
Congestion				6/6 (100.00)
MESENTERIC LYMPH NODE				
Granulomatous inflammation				2/6 (33.33)
OTHER				
Focal chronic inflammation in skeletal muscle (thigh)				1/6 (16.67)

Group 1 = Control - No Treatment

Group 7 = SN-1 1900 ppm

Percentages in parentheses

TABLE 10 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

SUMMARY OF PERTINENT HISTOPATHOLOGY FINDINGS

43-DAY SACRIFICE (FEMALES)

	GROUP 2			GROUP 8
LIVER				
Foci of hepatocellular alteration with focal fibrosis of the portal tract	1/6 (16.67)			
Hepatocellular apoptosis				3/6 (50.00)
KIDNEY				
Chronic progressive nephropathy with mineralization (minimal)	1/6 (16.67)			
Mineralization with a cortical cyst (minimal)				1/6 (16.67)
Mineralization only	5/6 (83.33)			4/6 (66.67)
LUNG				
Perivascular lymphoid infiltration only				1/6 (16.67)
Perivascular lymphoid infiltration with aggregates of foamy histiocytes				4/6 (66.67)
HEART				
Cardiomyopathy/myocytic degeneration and fibrosis				1/6 (16.67)
PANCREAS				
Foci of cytoplasmic eosinophilia with focal atrophy				1/6 (16.67)
SPLEEN				
Extramedullary hematopoiesis with pigmentation	6/6 (100.00)			6/6 (100.00)
Congestion				6/6 (100.00)

Group 2 = Control - No Treatment

Group 8 = SN-1 1900 ppm

Percentages in parentheses

APPENDIX 1

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)
Group 1: Control - Males

	DAY								
ANIMAL #	-7	0	3	7	14	21	28	35	42
1-1	195	221	234	246	269	289	307	---	---
1-2	200	223	234	247	271	290	308	---	---
2-1	200	222	233	245	265	279	291	283	271
2-2	201	227	239	252	270	284	297	---	---
3-1	203	232	242	255	272	286	300	310	323
3-2	203	235	246	260	278	292	302	---	---
4-1	206	237	247	262	281	298	317	330	339
4-2	206	236	244	256	273	287	308	319	333
5-1	207	234	248	260	276	288	309	---	---
5-2	211	238	246	258	275	290	309	---	---
6-1	213	240	256	270	287	304	320	336	350
6-2	214	242	252	267	286	302	316	330	339
7-1	216	242	252	268	286	301	321	---	---
7-2	219	252	260	276	291	306	326	---	---
MEAN	206.7	234.4	245.2	258.7	277.1	292.6	309.4	318.0	325.8
SD	7.00	8.78	8.28	9.40	7.91	8.22	9.88	19.50	28.27

SD = Standard Deviation --- indicates that animal has been sacrificed

APPENDIX 1 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)
Group 3: SN-1 120 ppm - Males

	DAY								
ANIMAL #	-7	0	3	7	14	21	28	35	42
15-1	202	227	239	251	266	279	295	---	---
15-2	203	233	238	258	284	303	324	---	---
16-1	195	223	237	255	278	293	312	---	---
16-2	199	221	228	243	264	279	295	---	---
17-1	203	225	235	249	265	280	297	---	---
17-2	210	232	243	254	270	283	305	---	---
18-1	213	240	253	267	292	306	325	---	---
18-2	218	243	255	275	299	317	336	---	---
MEAN	205.4	230.5	241.0	256.5	277.3	292.5	311.1	---	---
SD	7.65	7.96	9.09	10.23	13.32	14.66	15.74	---	---

SD = Standard Deviation --- indicates that animal has been sacrificed

APPENDIX 1 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)
Group 5: SN-1 470 ppm - Males

	DAY								
ANIMAL #	-7	0	3	7	14	21	28	35	42
23-1	196	216	226	235	259	272	288	---	---
23-2	198	223	234	249	270	287	307	---	---
24-1	202	221	231	244	263	280	294	---	---
24-2	203	232	243	260	284	304	326	---	---
25-1	203	237	248	262	278	296	315	---	---
25-2	210	238	248	265	284	302	321	---	---
26-1	213	234	244	265	283	297	316	---	---
26-2	218	253	265	283	307	327	347	---	---
MEAN	205.4	231.8	242.4	257.9	278.5	295.6	314.3	---	---
SD	7.60	11.73	12.22	14.88	15.05	16.79	18.56	---	---

SD = Standard Deviation --- indicates that animal has been sacrificed

APPENDIX 1 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)
Group 7: SN-1 1900 ppm - Males

	DAY								
ANIMAL #	-7	0	3	7	14	21	28	35	42
31-1	197	217	224	238	248	261	279	283	303
31-2	197	219	232	244	239	258	273	---	---
32-1	202	230	236	253	265	280	307	301	314
32-2	202	223	228	244	239	262	277	279	296
33-1	202	227	239	257	246	275	294	---	---
33-2	204	218	230	248	241	265	283	---	---
34-1	205	230	238	256	270	277	295	312	326
34-2	207	236	244	243	268	283	284	---	---
35-1	208	235	244	256	262	278	293	304	315
35-2	212	236	246	253	268	282	298	---	---
36-1	213	241	247	254	256	266	285	---	---
36-2	214	247	252	265	267	286	309	---	---
37-1	216	249	254	266	268	286	308	318	332
37-2	217	242	250	257	266	291	309	---	---
MEAN	206.9	232.1	240.3	252.4	257.4	275.0	292.4	299.5	314.3
SD	6.68	10.52	9.37	8.19	12.11	10.68	12.57	15.58	13.52

SD = Standard Deviation --- indicates that animal has been sacrificed

APPENDIX 1 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)
Group 2: Control - Females

	DAY								
ANIMAL #	-7	0	3	7	14	21	28	35	42
8-1	137	150	154	162	170	181	183	---	---
8-2	138	149	155	159	169	175	185	184	186
9-1	138	150	161	168	178	184	190	193	199
9-2	140	148	152	155	163	167	171	173	179
10-1	142	147	151	157	167	173	179	---	---
10-2	143	151	153	162	171	176	177	179	181
11-1	143	152	156	161	169	175	181	---	---
11-2	143	159	162	168	181	186	194	---	---
12-1	144	154	158	164	176	182	184	---	---
12-2	147	156	162	167	177	183	188	---	---
13-1	147	160	162	168	181	190	193	---	---
13-2	148	162	167	174	182	191	197	198	199
14-1	148	156	161	168	175	184	186	---	---
14-2	151	159	166	168	176	177	184	185	185
MEAN	143.5	153.8	158.6	164.4	173.9	180.3	185.1	185.3	188.2
SD	4.29	4.90	5.15	5.26	5.82	6.76	7.03	9.09	8.77

SD = Standard Deviation --- indicates that animal has been sacrificed

APPENDIX 1 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)
Group 4: SN-1 120 ppm - Females

	DAY								
ANIMAL #	-7	0	3	7	14	21	28	35	42
19-1	137	146	153	159	165	176	181	---	---
19-2	138	150	155	163	170	178	181	---	---
20-1	140	151	157	160	164	179	180	---	---
20-2	141	148	154	160	167	173	181	---	---
21-1	145	153	157	160	175	183	187	---	---
21-2	148	157	159	162	171	178	181	---	---
22-1	150	160	166	171	176	187	184	---	---
22-2	153	162	166	173	180	194	196	---	---
MEAN	144.0	153.4	158.4	163.5	171.0	181.0	183.9	---	---
SD	5.90	5.76	5.07	5.42	5.66	6.76	5.41	---	---

SD = Standard Deviation --- indicates that animal has been sacrificed

APPENDIX 1 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)
Group 6: SN-1 470 ppm - Females

	DAY								
ANIMAL #	-7	0	3	7	14	21	28	35	42
27-1	137	145	146	154	160	167	167	---	---
27-2	137	150	153	160	172	177	179	---	---
28-1	140	148	155	162	167	177	179	---	---
28-2	141	152	159	163	179	184	190	---	---
29-1	146	158	166	169	176	184	191	---	---
29-2	148	164	167	173	180	191	197	---	---
30-1	150	161	167	171	178	178	187	---	---
30-2	153	163	166	173	186	187	199	---	---
MEAN	144.0	155.1	159.9	165.6	174.8	180.6	186.1	---	---
SD	6.09	7.30	7.94	6.93	8.19	7.46	10.63	---	---

SD = Standard Deviation --- indicates that animal has been sacrificed

APPENDIX 1 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)
Group 8: SN-1 1900 ppm - Females

	DAY								
ANIMAL #	-7	0	3	7	14	21	28	35	42
38-1	137	147	150	154	156	166	166	173	185
38-2	137	153	158	166	169	175	180	185	193
39-1	139	153	156	158	164	170	172	174	179
39-2	139	151	153	155	156	163	165	---	---
40-1	141	153	156	161	168	174	177	182	190
40-2	141	156	161	165	175	179	186	193	200
41-1	142	150	155	161	169	175	172	---	---
41-2	142	151	155	161	166	174	175	---	---
42-1	146	153	154	160	164	169	168	173	178
42-2	146	161	164	172	175	178	182	---	---
43-1	147	157	160	166	166	176	173	---	---
43-2	148	155	160	162	167	173	174	---	---
44-1	150	163	166	166	180	183	188	---	---
44-2	153	164	172	175	181	187	196	---	---
MEAN	143.4	154.8	158.6	163.0	168.3	174.4	176.7	180.0	187.5
SD	4.96	4.98	5.81	5.87	7.55	6.33	8.86	8.15	8.50

SD = Standard Deviation --- indicates that animal has been sacrificed

APPENDIX 2

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL FOOD CONSUMPTION DATA (g/animal/day)[1]
Group 1: Control - Males

	DAY						
CAGE #	-1	7	14	21	28	35	42
1	21.4	20.2	22.6	22.4	22.1	---[3]	---
2	25.9	24.9	23.1	23.8	24.1	18.4[2]	15.1
3	23.2	22.2	20.4	20.4	18.5	24.9[2]	21.7
4	27.6	23.8	21.2	22.4	23.4	22.2	21.3
5	24.9	21.8	21.1	20.5	20.3	---[3]	---
6	26.8	25.8	23.3	23.3	22.5	24.3	19.9
7	25.7	26.5	23.3	23.3	23.3	---[3]	---
MEAN	25.1	23.6	22.1	22.3	22.0	22.7	19.9

[1] Total food consumption per cage divided by number of animals in each cage (2 at start of study)
[2] Following scheduled sacrifice, each cage now contains only 1 animal from this point onward.
[3] Both animals have been sacrificed.

Note: Means were calculated using the total raw data rather than the rounded off (to the nearest tenth) numbers presented here, taking into account the number of animals (1 or 2) remaining in each cage following the 29-day sacrifice. Attempts to recalculate means from the data presented may therefore, produce slightly different results.

APPENDIX 2 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL FOOD CONSUMPTION DATA (g/animal/day)[1]
Group 3: SN-1 120 ppm - Males

	DAY						
CAGE #	-1	7	14	21	28	35	42
15	25.6	23.3	21.5	24.6	23.3	---[2]	---
16	22.6	22.5	20.4	21.5	20.8	---[2]	---
17	22.6	21.8	20.7	22.3	20.7	---[2]	---
18	24.3	23.1	21.6	21.4	22.1	---[2]	---
MEAN	23.8	22.7	21.1	22.4	21.7	---	---

[1] Total food consumption per cage divided by number of animals in each cage (2 at start of study)
[2] Both animals have been sacrificed.

Note: Means were calculated using the total raw data rather than the rounded off (to the nearest tenth) numbers presented here. Attempts to recalculate means from the data presented may therefore, produce slightly different results.

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL FOOD CONSUMPTION DATA (g/animal/day)[1]
Group 5: SN-1 470 ppm - Males

	DAY						
CAGE #	-1	7	14	21	28	35	42
23	19.4	20.6	18.8	18.6	18.2	---[2]	---
24	23.2	20.5	18.5	20.2	18.7	---[2]	---
25	27.0	22.4	21.0	23.4	21.3	---[2]	---
26	23.2	22.9	20.1	20.3	20.0	---[2]	---
MEAN	23.2	21.6	19.6	20.6	19.6	---	---

[1] Total food consumption per cage divided by number of animals in each cage (2 at start of study)
[2] Both animals have been sacrificed.

Note: Means were calculated using the total raw data rather than the rounded off (to the nearest tenth) numbers presented here. Attempts to recalculate means from the data presented may therefore, produce slightly different results.

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL FOOD CONSUMPTION DATA (g/animal/day)[1]
Group 7: SN-1 1900 ppm - Males

	DAY						
CAGE #	-1	7	14	21	28	35	42
31	22.5	23.5	16.0	19.7	17.7	20.5[2]	22.6
32	20.6	19.3	15.2	18.1	18.1	17.5	20.6
33	18.6	21.3	11.4	19.4	18.3	---[3]	---
34	22.6	19.3	19.7	18.4	16.9	24.3[2]	25.3
35	24.2	21.0	17.7	18.8	19.3	24.4[2]	22.8
36	24.7	20.7	16.6	17.5	17.2	---[3]	---
37	22.1	21.4	19.3	20.6	20.1	27.5[2]	24.8
MEAN	22.2	20.9	16.6	18.9	18.2	21.9	22.8

[1] Total food consumption per cage divided by number of animals in each cage (2 at start of study)
[2] Following scheduled sacrifice, each cage now contains only 1 animal from this point onward.
[3] Both animals have been sacrificed.

Note: Means were calculated using the total raw data rather than the rounded off (to the nearest tenth) numbers presented here, taking into account the number of animals (1 or 2) remaining in each cage following the 29-day sacrifice. Attempts to recalculate means from the data presented may therefore, produce slightly different results.

APPENDIX 2 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL FOOD CONSUMPTION DATA (g/animal/day)[1]
Group 2: Control - Females

	DAY						
CAGE #	-1	7	14	21	28	35	42
8	14.3	14.7	14.7	14.6	14.9	14.6[2]	14.3
9	17.6	15.8	17.6	14.3	15.2	14.8	13.6
10	15.9	15.1	15.0	14.6	14.7	12.9[2]	14.5
11	16.8	14.9	14.4	14.3	14.5	---[3]	---
12	17.2	14.5	15.7	14.6	14.5	---[3]	---
13	13.8	14.4	13.7	14.6	15.8	14.3[2]	15.4
14	14.5	13.6	13.8	13.3	13.5	13.1[2]	13.5
MEAN	15.7	14.7	15.0	14.3	14.7	14.1	14.2

[1] Total food consumption per cage divided by number of animals in each cage (2 at start of study)
[2] Following scheduled sacrifice, each cage now contains only 1 animal from this point onward.
[3] Both animals have been sacrificed.

Note: Means were calculated using the total raw data rather than the rounded off (to the nearest tenth) numbers presented here, taking into account the number of animals (1 or 2) remaining in each cage following the 29-day sacrifice. Attempts to recalculate means from the data presented may therefore, produce slightly different results.

APPENDIX 2 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL FOOD CONSUMPTION DATA (g/animal/day)[1]
Group 4: SN-1 120 ppm - Females

	DAY						
CAGE #	-1	7	14	21	28	35	42
19	13.8	14.4	14.4	13.4	14.7	---[2]	---
20	13.3	12.1	11.9	12.3	12.9	---[2]	---
21	16.1	14.7	15.9	15.6	14.2	---[2]	---
22	13.1	13.1	13.2	13.9	13.8	---[2]	---
MEAN	14.1	13.5	13.8	13.8	13.9	---	---

[1] Total food consumption per cage divided by number of animals in each cage (2 at start of study)
[2] Both animals have been sacrificed.

Note: Means were calculated using the total raw data rather than the rounded off (to the nearest tenth) numbers presented here. Attempts to recalculate means from the data presented may therefore, produce slightly different results.

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL FOOD CONSUMPTION DATA (g/animal/day)[1]
Group 6: SN-1 470 ppm - Females

	DAY						
CAGE #	-1	7	14	21	28	35	42
27	15.1	13.2	13.8	13.8	13.3	---[2]	---
28	13.1	13.4	13.3	14.2	13.6	---[2]	---
29	17.2	14.6	13.3	14.8	14.8	---[2]	---
30	14.0	11.9	12.9	11.6	14.3	---[2]	---
MEAN	14.8	13.3	13.3	13.6	14.0	---	---

[1] Total food consumption per cage divided by number of animals in each cage (2 at start of study)
[2] Both animals have been sacrificed.

Note: Means were calculated using the total raw data rather than the rounded off (to the nearest tenth) numbers presented here. Attempts to recalculate means from the data presented may therefore, produce slightly different results.

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL FOOD CONSUMPTION DATA (g/animal/day)[1]
Group 8: SN-1 1900 ppm - Females

	DAY						
CAGE #	-1	7	14	21	28	35	42
38	13.7	14.1	11.3	10.7	12.5	14.4	15.0
39	15.6	11.7	10.1	11.6	12.1	13.0[2]	15.3
40	14.4	12.1	13.1	12.3	12.5	13.4	14.3
41	17.3	14.0	12.1	12.1	12.7	---[3]	---
42	14.1	12.9	11.4	10.3	11.4	11.9[2]	13.9
43	12.9	11.9	11.3	12.2	11.9	---[3]	---
44	19.2	12.6	12.9	13.2	13.9	---[3]	---
MEAN	15.3	12.8	11.7	11.8	12.4	13.4	14.6

[1] Total food consumption per cage divided by number of animals in each cage (2 at start of study)
[2] Following scheduled sacrifice, each cage now contains only 1 animal from this point onward.
[3] Both animals have been sacrificed.

Note: Means were calculated using the total raw data rather than the rounded off (to the nearest tenth) numbers presented here, taking into account the number of animals (1 or 2) remaining in each cage following the 29-day sacrifice. Attempts to recalculate means from the data presented may therefore, produce slightly different results.

Appendix 3
Individual Hematology Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	WBC THSN/UL	RBC MILL/UL	HGB GM/DL	HCT PERCENT	MCV FL
N 0072951	1-2	1	M		4.1	7.93	16.5	48.7	61.4
N 0072952	2-2	1	M		4.2	8.00	16.4	49.0	61.3
N 0072953	3-2	1	M		4.9	7.66	15.5	45.0	58.7
N 0072954	5-1	1	M		4.2	8.03	15.5	47.2	58.8
N 0072955	7-1	1	M		4.5	7.64	15.4	45.1	59.0
N 0072956	7-2	1	M		7.9	7.92	15.6	46.3	58.5
	Mean				4.97	7.863	15.82	46.88	59.62
	S.D.				1.47	.17	.5	1.73	1.35
Group 1									
N 0072957	15-1	3	M		2.9	7.75	15.4	45.6	58.8
N 0072958	15-2	3	M		5.1	7.39	15.1	44.3	60.0
N 0072959	16-2	3	M		3.5	7.04	15.2	43.9	62.4
N 0072960	17-1	3	M		5.2	7.20	15.2	44.7	62.1
N 0072961	17-2	3	M						
N 0072962	18-1	3	M		6.1	7.65	16.2	45.8	59.9
	Mean				4.56	7.406	15.42	44.86	60.64
	S.D.				1.32	.298	.45	.82	1.55
Group 3									
N 0072963	23-1	5	M		4.8	8.07	16.7	49.1	60.8
N 0072964	23-2	5	M		8.5	8.25	16.4	49.5	60.0
N 0072965	24-2	5	M		2.8	7.82	16.3	47.2	60.3
Reference Range					9.4 - 14.9	6.2 - 9	13.4 - 16.4	40 - 49	52 - 66

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	WBC THSN/UL	RBC MILL/UL	HGB GM/DL	HCT PERCENT	MCV FL
N 0072966	25-1	5	M		4.5	7.81	16.4	45.9	58.8
N 0072967	25-2	5	M		6.2	7.89	16.1	47.3	60.0
N 0072968	26-1	5	M		4.9	7.86	16.3	46.1	58.6
	Mean				5.28	7.95	16.37	47.52	59.75
	S.D.				1.92	.175	.2	1.5	.87
Group 5									
N 0072969	31-2	7	M		4.1	7.49	16.3	44.9	59.9
N 0072970	33-1	7	M		7.7	7.65	16.0	45.7	59.8
N 0072971	34-2	7	M		4.8	7.93	16.5	47.0	59.3
N 0072972	35-2	7	M		5.3	7.83	16.4	46.7	59.6
N 0072973	36-2	7	M		5.1	7.23	15.4	42.8	59.2
N 0072974	37-2	7	M		5.9	7.21	15.7	42.0	58.3
	Mean				5.48	7.557	16.05	44.85	59.35
	S.D.				1.24	.301	.43	2.05	.58
Group 7									
Reference Range					9.4 - 14.9	6.2 - 9	13.4 - 16.4	40 - 49	52 - 66

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	MCH PICO GRA	MCHC PERCENT	PLATELET THSN/UL	RDW	BANDS THSN/UL
N 0072951	1-2	1	M		20.8	33.9	529	27.0	0.00
N 0072952	2-2	1	M		20.5	33.5	617	26.9	0.00
N 0072953	3-2	1	M		20.2	34.4	617	26.4	0.00
N 0072954	5-1	1	M		19.3	32.8	670	26.5	0.00
N 0072955	7-1	1	M		20.2	34.1	615	26.8	0.00
N 0072956	7-2	1	M		19.7	33.7	610	26.5	0.00
	Mean				20.12	33.73	609.7	26.68	0
	S.D.				.54	.55	45.4	.25	0
Group 1									
N 0072957	15-1	3	M		19.9	33.8	626	27.3	0.00
N 0072958	15-2	3	M		20.4	34.1	696	25.9	0.00
N 0072959	16-2	3	M		21.6	34.6	708	26.1	0.00
N 0072960	17-1	3	M		21.1	34.0	665	27.1	0.00
N 0072961	17-2	3	M						
N 0072962	18-1	3	M		21.2	35.4	674	26.9	0.00
	Mean				20.84	34.38	673.8	26.66	0
	S.D.				.68	.64	31.7	.62	0
Group 3									
N 0072963	23-1	5	M		20.7	34.0	716	27.1	0.00
N 0072964	23-2	5	M		19.9	33.1	800	26.9	0.00
N 0072965	24-2	5	M		20.8	34.5	701	26.2	0.00
Reference Range					17.7 - 19.1	32 - 33.5	780 - 1400	0 - 0	0 - .06

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	MCH PICO GRA	MCHC PERCENT	PLATELET THSN/UL	RDW	BANDS THSN/UL
N 0072966	25-1	5	M		21.0	35.7	686	25.3	0.00
N 0072967	25-2	5	M		20.4	34.0	754	26.4	0.00
N 0072968	26-1	5	M		20.7	35.4	769	25.4	0.00
	Mean				20.58	34.45	737.7	26.22	0
	S.D.				.39	.97	43.9	.75	0
Group 5									
N 0072969	31-2	7	M		21.8	36.3	766	26.6	0.00
N 0072970	33-1	7	M		20.9	35.0	763	27.3	0.00
N 0072971	34-2	7	M		20.8	35.1	938	25.5	0.00
N 0072972	35-2	7	M		20.9	35.1	792	25.7	0.00
N 0072973	36-2	7	M		21.3	36.0	787	24.4	0.00
N 0072974	37-2	7	M		21.8	37.4	881	26.7	0.00
	Mean				21.25	35.82	821.2	26.03	0
	S.D.				.46	.95	71.7	1.04	0
Group 7									
Reference Range					17.7 - 19.1	32 - 33.5	780 - 1400	0 - 0	0 - .06

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SEGS THSN/UL	LYMPHS THSN/UL	MONOS THSN/UL	EOSN THSN/UL	BASOS THSN/UL
N 0072951	1-2	1	M		0.70	3.36	0.04	0.00	0.00
N 0072952	2-2	1	M		0.71	3.44	0.04	0.00	0.00
N 0072953	3-2	1	M		1.13	3.68	0.10	0.00	0.00
N 0072954	5-1	1	M		0.76	3.40	0.04	0.00	0.00
N 0072955	7-1	1	M		0.95	3.42	0.09	0.05	0.00
N 0072956	7-2	1	M		1.11	6.64	0.16	0.00	0.00
	Mean				.893	3.99	.078	.008	0
	S.D.				.197	1.303	.048	.02	0
Group 1									
N 0072957	15-1	3	M		0.49	2.35	0.00	0.06	0.00
N 0072958	15-2	3	M		1.02	3.83	0.10	0.15	0.00
N 0072959	16-2	3	M		0.95	2.56	0.00	0.00	0.00
N 0072960	17-1	3	M		1.20	4.00	0.00	0.00	0.00
N 0072961	17-2	3	M						
N 0072962	18-1	3	M		1.40	4.64	0.06	0.00	0.00
	Mean				1.012	3.476	.032	.042	0
	S.D.				.34	.983	.046	.066	0
Group 3									
N 0072963	23-1	5	M		1.87	2.83	0.05	0.05	0.00
N 0072964	23-2	5	M		1.79	6.38	0.17	0.17	0.00
N 0072965	24-2	5	M		0.62	2.13	0.03	0.03	0.00
Reference Range					.58 - 6.3	3.78 - 14.9	.02 - 1.2	0 - .31	0 - .01

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SEGS THSN/UL	LYMPHS THSN/UL	MONOS THSN/UL	EOSN THSN/UL	BASOS THSN/UL
N 0072966	25-1	5	M		1.17	3.29	0.05	0.00	0.00
N 0072967	25-2	5	M		1.05	4.77	0.00	0.37	0.00
N 0072968	26-1	5	M		0.88	4.02	0.00	0.00	0.00
	Mean				1.23	3.903	.05	.103	0
	S.D.				.501	1.521	.063	.145	0
Group 5									
N 0072969	31-2	7	M		0.45	3.65	0.00	0.00	0.00
N 0072970	33-1	7	M		1.00	6.55	0.00	0.15	0.00
N 0072971	34-2	7	M		0.82	3.98	0.00	0.00	0.00
N 0072972	35-2	7	M		0.80	4.45	0.05	0.00	0.00
N 0072973	36-2	7	M		0.66	4.28	0.10	0.05	0.00
N 0072974	37-2	7	M		0.71	5.02	0.06	0.12	0.00
	Mean				.74	4.655	.035	.053	0
	S.D.				.184	1.037	.042	.067	0
Group 7									
Reference Range					.58 - 6.3	3.78 - 14.9	.02 - 1.2	0 - .31	0 - .01

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	PROTIME SECONDS	APTT SECONDS	RETIC PERCENT
N 0072951	1-2	1	M				1.6
N 0072952	2-2	1	M		13.0	39.4	1.7
N 0072953	3-2	1	M		16.3	40.4	1.6
N 0072954	5-1	1	M		15.4	41.9	1.5
N 0072955	7-1	1	M		15.4	25.3	1.7
N 0072956	7-2	1	M				1.5
	Mean				15.03	36.75	1.6
	S.D.				1.42	7.7	.09
Group 1							
N 0072957	15-1	3	M		14.2	37.4	1.8
N 0072958	15-2	3	M		15.8	28.0	1.8
N 0072959	16-2	3	M		15.9	23.4	1.8
N 0072960	17-1	3	M		15.3	28.9	1.4
N 0072961	17-2	3	M		16.8	22.3	1.4
N 0072962	18-1	3	M		14.8	45.9	1.9
	Mean				15.47	30.98	1.68
	S.D.				.91	9.05	.22
Group 3							
N 0072963	23-1	5	M		14.4	32.3	1.0
N 0072964	23-2	5	M		13.8	33.8	1.6
N 0072965	24-2	5	M		12.9	40.9	1.6
Reference Range					11.5 - 14.3	15.4 - 22.2	.1 - 4

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	PROTIME SECONDS	APTT SECONDS	RETIC PERCENT
N 0072966	25-1	5	M		16.9	42.4	1.7
N 0072967	25-2	5	M		17.8	46.8	2.0
N 0072968	26-1	5	M		17.3	26.4	1.7
	Mean				15.52	37.1	1.6
	S.D.				2.07	7.55	.33
Group 5							
N 0072969	31-2	7	M		17.9	26.3	1.5
N 0072970	33-1	7	M		18.4	33.9	1.4
N 0072971	34-2	7	M		18.8	22.4	1.3
N 0072972	35-2	7	M				1.6
N 0072973	36-2	7	M		17.4	25.9	2.1
N 0072974	37-2	7	M		17.9	20.3	1.9
	Mean				18.08	25.76	1.63
	S.D.				.54	5.19	.31
Group 7							
Reference Range					11.5 - 14.3	15.4 - 22.2	.1 - 4

Approved ---------- Date ----------
2/10/97

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ATLYMPH THSN/UL	METAS THSN/UL	MYELOS THSN/UL	NRBC /100 WBC	OTHER
N 0072951	1-2	1	M		0.00	0.00	0.00	0	
N 0072952	2-2	1	M		0.00	0.00	0.00	0	
N 0072953	3-2	1	M		0.00	0.00	0.00	0	
N 0072954	5-1	1	M		0.00	0.00	0.00	0	
N 0072955	7-1	1	M		0.00	0.00	0.00	0	
N 0072956	7-2	1	M		0.00	0.00	0.00	0	
	Mean				0	0	0	0	
	S.D.				0	0	0	0	
Group 1									
N 0072957	15-1	3	M		0.00	0.00	0.00	0	
N 0072958	15-2	3	M		0.00	0.00	0.00	0	
N 0072959	16-2	3	M		0.00	0.00	0.00	1	
N 0072960	17-1	3	M		0.00	0.00	0.00	0	
N 0072961	17-2	3	M		0.00	0.00	0.00	0	
N 0072962	18-1	3	M		0.00	0.00	0.00	0	
	Mean				0	0	0	.2	
	S.D.				0	0	0	.4	
Group 3									
N 0072963	23-1	5	M		0.00	0.00	0.00	0	
N 0072964	23-2	5	M		0.00	0.00	0.00	0	
N 0072965	24-2	5	M		0.00	0.00	0.00	0	
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ATLYMPH THSN/UL	METAS THSN/UL	MYELOS THSN/UL	NRBC /100 WBC	OTHER
N 0072966	25-1	5	M		0.00	0.00	0.00	0	
N 0072967	25-2	5	M		0.00	0.00	0.00	0	
N 0072968	26-1	5	M		0.00	0.00	0.00	0	
	Mean				0	0	0	0	
	S.D.				0	0	0	0	
Group 5									
N 0072969	31-2	7	M		0.00	0.00	0.00	0	
N 0072970	33-1	7	M		0.00	0.00	0.00	0	
N 0072971	34-2	7	M		0.00	0.00	0.00	0	
N 0072972	35-2	7	M		0.00	0.00	0.00	0	
N 0072973	36-2	7	M		0.00	0.00	0.00	0	
N 0072974	37-2	7	M		0.00	0.00	0.00	0	
	Mean				0	0	0	0	
	S.D.				0	0	0	0	
Group 7									
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	WBC THSN/UL	RBC MILL/UL	HGB GM/DL	HCT PERCENT	MCV FL
N 0073679	10-1	2	F		7.5	7.53	16.3	46.8	62.1
N 0073680	11-1	2	F		3.4	7.33	15.7	45.7	62.3
N 0073681	11-2	2	F		4.7	7.32	16.2	45.6	62.3
N 0073682	12-1	2	F		6.3	7.81	17.1	47.6	60.9
N 0073683	13-1	2	F		4.0	7.31	15.9	45.8	62.7
N 0073684	14-1	2	F		4.4	6.80	15.1	42.4	62.3
	Mean				5.05	7.35	16.05	45.65	62.1
	S.D.				1.54	.331	.67	1.77	.62
Group 2									
N 0073685	19-1	4	F		4.2	6.69	15.7	41.8	62.5
N 0073686	19-2	4	F		2.9	7.28	15.7	44.5	61.1
N 0073687	20-1	4	F		4.8	7.12	15.6	44.1	61.9
N 0073688	21-1	4	F		4.5	6.92	15.4	43.2	62.4
N 0073689	21-2	4	F		7.1	7.61	15.9	46.0	60.5
N 0073690	22-2	4	F		2.3	7.08	15.7	44.5	62.8
	Mean				4.3	7.117	15.67	44.02	61.87
	S.D.				1.68	.314	.16	1.41	.9
Group 4									
N 0073691	27-1	6	F		4.3	7.25	15.3	44.2	61.0
N 0073692	28-1	6	F		3.4	7.74	17.0	48.1	62.2
N 0073693	28-2	6	F		3.9	7.34	16.2	45.3	61.7
Reference Range					9.4 - 14.9	6.2 - 9	13.4 - 16.4	40 - 49	52 - 66

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	WBC THSN/UL	RBC MILL/UL	HGB GM/DL	HCT PERCENT	MCV FL
N 0073694	29-1	6	F		3.6	7.14	15.5	43.9	61.5
N 0073695	29-2	6	F		4.8	6.94	15.9	42.3	61.0
N 0073696	30-2	6	F		4.4	7.26	15.8	44.7	61.6
	Mean				4.07	7.278	15.95	44.75	61.5
	S.D.				.53	.265	.6	1.93	.46
Group 6									
N 0073697	39-2	8	F		2.4	7.52	16.4	45.4	60.4
N 0073698	41-2	8	F		3.2	7.11	15.8	42.3	59.5
N 0073699	42-2	8	F		6.1	6.78	15.1	41.2	60.8
N 0073700	43-2	8	F		4.9	7.65	16.2	46.4	60.6
N 0073701	44-1	8	F		4.8	7.32	16.0	44.7	61.1
N 0073702	44-2	8	F		2.4	7.19	15.4	43.6	60.6
	Mean				3.97	7.262	15.82	43.93	60.5
	S.D.				1.52	.31	.49	1.95	.54
Group 8									
Reference Range					9.4 - 14.9	6.2 - 9	13.4 - 16.4	40 - 49	52 - 66

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	MCH PICO GRA	MCHC PERCENT	PLATELET THSN/UL	RDW	BANDS THSN/UL
N 0073679	10-1	2	F		21.6	34.8	720	23.7	0.00
N 0073680	11-1	2	F		21.4	34.4	801	24.0	0.00
N 0073681	11-2	2	F		22.1	35.5	730	22.9	0.00
N 0073682	12-1	2	F		21.9	35.9	429	17.2	0.00
N 0073683	13-1	2	F		21.8	34.7	765	22.9	0.00
N 0073684	14-1	2	F		22.2	35.6	781	22.1	0.00
	Mean				21.83	35.15	704.3	22.13	0
	S.D.				.3	.6	138.3	2.51	0
Group 2									
N 0073685	19-1	4	F		23.5	37.6	673	21.8	0.00
N 0073686	19-2	4	F		21.6	35.3	791	21.3	0.00
N 0073687	20-1	4	F		21.9	35.4	832	16.1	0.00
N 0073688	21-1	4	F		22.3	35.6	729	23.8	0.00
N 0073689	21-2	4	F		20.9	34.6	778	14.8	0.00
N 0073690	22-2	4	F		22.2	35.3	819	23.3	0.00
	Mean				22.07	35.63	770.3	20.18	0
	S.D.				.86	1.02	59.7	3.8	0
Group 4									
N 0073691	27-1	6	F		21.1	34.6	712	16.4	0.00
N 0073692	28-1	6	F		22.0	35.3	770	24.1	0.00
N 0073693	28-2	6	F		22.1	35.8	786	17.4	0.00
Reference Range					17.7 - 19.1	32 - 33.5	780 - 1400	0 - 0	0 - .06

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	MCH PICO GRA	MCHC PERCENT	PLATELET THSN/UL	RDW	BANDS THSN/UL
N 0073694	29-1	6	F		21.7	35.3	763	19.3	0.00
N 0073695	29-2	6	F		22.9	37.6	835	14.7	0.00
N 0073696	30-2	6	F		21.8	35.3	822	15.9	0.00
	Mean				21.93	35.65	781.3	17.97	0
	S.D.				.59	1.03	44.3	3.38	0
Group 6									
N 0073697	39-2	8	F		21.8	36.1	753	19.0	0.00
N 0073698	41-2	8	F		22.2	37.4	668	16.5	0.00
N 0073699	42-2	8	F		22.3	36.7	939	17.5	0.00
N 0073700	43-2	8	F		21.2	34.9	827	16.0	0.00
N 0073701	44-1	8	F		21.9	35.8	834	23.8	0.00
N 0073702	44-2	8	F		21.4	35.3	680	15.0	0.00
	Mean				21.8	36.03	783.5	17.97	0
	S.D.				.43	.92	103.5	3.17	0
Group 8									
Reference Range					17.7 - 19.1	32 - 33.5	780 - 1400	0 - 0	0 - .06

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SEGS THSN/UL	LYMPHS THSN/UL	MONOS THSN/UL	EOSN THSN/UL	BASOS THSN/UL
N 0073679	10-1	2	F		1.05	6.30	0.15	0.00	0.00
N 0073680	11-1	2	F		0.41	2.89	0.00	0.10	0.00
N 0073681	11-2	2	F		0.71	3.90	0.09	0.00	0.00
N 0073682	12-1	2	F		0.82	5.23	0.06	0.19	0.00
N 0073683	13-1	2	F		0.56	3.32	0.04	0.08	0.00
N 0073684	14-1	2	F		0.70	3.61	0.09	0.00	0.00
	Mean				.708	4.208	.072	.062	0
	S.D.				.219	1.296	.051	.077	0
Group 2									
N 0073685	19-1	4	F		0.71	3.44	0.04	0.00	0.00
N 0073686	19-2	4	F		0.32	2.44	0.09	0.06	0.00
N 0073687	20-1	4	F		1.06	3.74	0.00	0.00	0.00
N 0073688	21-1	4	F		0.72	3.74	0.05	0.00	0.00
N 0073689	21-2	4	F		1.07	5.96	0.00	0.07	0.00
N 0073690	22-2	4	F		0.53	1.70	0.05	0.02	0.00
	Mean				.735	3.503	.038	.025	0
	S.D.				.294	1.451	.034	.032	0
Group 4									
N 0073691	27-1	6	F		0.43	3.83	0.04	0.00	0.00
N 0073692	28-1	6	F		0.37	2.92	0.07	0.03	0.00
N 0073693	28-2	6	F		0.62	3.08	0.08	0.12	0.00
Reference Range					.58 - 6.3	3.78 - 14.9	.02 - 1.2	0 - .31	0 - .01

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SEGS THSN/UL	LYMPHS THSN/UL	MONOS THSN/UL	EOSN THSN/UL	BASOS THSN/UL
N 0073694	29-1	6	F		0.40	3.13	0.04	0.04	0.00
N 0073695	29-2	6	F		0.82	3.79	0.10	0.10	0.00
N 0073696	30-2	6	F		0.57	3.74	0.09	0.00	0.00
	Mean				.535	3.415	.07	.048	0
	S.D.				.171	.414	.025	.051	0
Group 6									
N 0073697	39-2	8	F		0.22	2.14	0.05	0.00	0.00
N 0073698	41-2	8	F		0.64	2.53	0.03	0.00	0.00
N 0073699	42-2	8	F		0.67	5.37	0.06	0.00	0.00
N 0073700	43-2	8	F		0.88	3.97	0.05	0.00	0.00
N 0073701	44-1	8	F		0.34	4.37	0.05	0.05	0.00
N 0073702	44-2	8	F		0.31	2.09	0.00	0.00	0.00
	Mean				.51	3.412	.04	.008	0
	S.D.				.258	1.357	.022	.02	0
Group 8									
Reference Range					.58 - 6.3	3.78 - 14.9	.02 - 1.2	0 - .31	0 - .01

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	PROTIME SECONDS	APTT SECONDS	RETIC PERCENT
N 0073679	10-1	2	F		13.4	45.9	1.6
N 0073680	11-1	2	F		12.3	38.4	1.1
N 0073681	11-2	2	F		17.8	43.9	1.2
N 0073682	12-1	2	F		10.9	38.9	1.3
N 0073683	13-1	2	F		10.4	34.9	1.1
N 0073684	14-1	2	F		10.8	42.8	1.2
	Mean				12.6	40.8	1.25
	S.D.				2.78	4.09	.19
Group 2							
N 0073685	19-1	4	F		9.9	41.4	1.3
N 0073686	19-2	4	F		9.3	43.8	1.3
N 0073687	20-1	4	F		16.9	27.3	1.2
N 0073688	21-1	4	F		17.4	44.4	0.9
N 0073689	21-2	4	F		16.9	25.9	1.5
N 0073690	22-2	4	F		15.4	30.9	1.4
	Mean				14.3	35.62	1.27
	S.D.				3.71	8.53	.21
Group 4							
N 0073691	27-1	6	F		15.8	29.4	1.3
N 0073692	28-1	6	F		16.3	25.9	1.5
N 0073693	28-2	6	F		15.3	37.9	0.9
Reference Range					11.5 - 14.3	15.4 - 22.2	.1 - 4

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	PROTIME SECONDS	APTT SECONDS	RETIC PERCENT
N 0073694	29-1	6	F		14.4	35.3	1.6
N 0073695	29-2	6	F		18.1	27.3	1.4
N 0073696	30-2	6	F		18.4	17.4	1.7
	Mean				16.38	28.87	1.4
	S.D.				1.58	7.29	.28
Group 6							
N 0073697	39-2	8	F		18.9	19.9	1.1
N 0073698	41-2	8	F		19.3	23.9	1.2
N 0073699	42-2	8	F		18.9	17.4	1.1
N 0073700	43-2	8	F		18.9	29.3	1.0
N 0073701	44-1	8	F		19.4	25.4	1.0
N 0073702	44-2	8	F		18.9	20.4	1.2
	Mean				19.05	22.72	1.1
	S.D.				.23	4.32	.09
Group 8							
Reference Range					11.5 - 14.3	15.4 - 22.2	.1 - 4

Approved ---------- Date 2/10/97

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ATLYMPH THSN/UL	METAS THSN/UL	MYELOS THSN/UL	NRBC /100 WBC	OTHER
N 0073679	10-1	2	F		0.00	0.00	0.00	1	
N 0073680	11-1	2	F		0.00	0.00	0.00	3	
N 0073681	11-2	2	F		0.00	0.00	0.00	0	
N 0073682	12-1	2	F		0.00	0.00	0.00	1	
N 0073683	13-1	2	F		0.00	0.00	0.00	0	
N 0073684	14-1	2	F		0.00	0.00	0.00	0	
	Mean				0	0	0	.8	
	S.D.				0	0	0	1.2	
Group 2									
N 0073685	19-1	4	F		0.00	0.00	0.00	0	
N 0073686	19-2	4	F		0.00	0.00	0.00	0	
N 0073687	20-1	4	F		0.00	0.00	0.00	1	
N 0073688	21-1	4	F		0.00	0.00	0.00	0	
N 0073689	21-2	4	F		0.00	0.00	0.00	0	
N 0073690	22-2	4	F		0.00	0.00	0.00	2	
	Mean				0	0	0	.5	
	S.D.				0	0	0	.8	
Group 4									
N 0073691	27-1	6	F		0.00	0.00	0.00	0	
N 0073692	28-1	6	F		0.00	0.00	0.00	0	
N 0073693	28-2	6	F		0.00	0.00	0.00	0	
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Appendix 3 (cont'd)
Individual Hematology Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ATLYMPH THSN/UL	METAS THSN/UL	MYELOS THSN/UL	NRBC /100 WBC	OTHER
N 0073694	29-1	6	F		0.00	0.00	0.00	0	
N 0073695	29-2	6	F		0.00	0.00	0.00	0	
N 0073696	30-2	6	F		0.00	0.00	0.00	0	
	Mean				0	0	0	0	
	S.D.				0	0	0	0	
Group 6									
N 0073697	39-2	8	F		0.00	0.00	0.00	1	
N 0073698	41-2	8	F		0.00	0.00	0.00	0	
N 0073699	42-2	8	F		0.00	0.00	0.00	2	
N 0073700	43-2	8	F		0.00	0.00	0.00	0	
N 0073701	44-1	8	F		0.00	0.00	0.00	0	
N 0073702	44-2	8	F		0.00	0.00	0.00	0	
	Mean				0	0	0	.5	
	S.D.				0	0	0	.8	
Group 8									
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Appendix 4
Individual Hematology Data
43-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	WBC THSN/UL	RBC MILL/UL	HGB GM/DL	HCT PERCENT	MCV FL
N 0074363	2-1	1	M		6.9	7.95	15.6	45.2	56.9
N 0074364	3-1	1	M		6.0	7.59	14.9	43.4	57.2
N 0074365	4-1	1	M		6.7	7.90	15.6	44.6	56.4
N 0074366	4-2	1	M		3.0	8.14	16.2	45.9	56.4
N 0074367	6-1	1	M		6.6	7.99	15.6	45.0	56.3
N 0074368	6-2	1	M		5.9	8.08	15.5	45.4	56.2
	Mean				5.85	7.942	15.57	44.92	56.57
	S.D.				1.45	.193	.41	.86	.39
Group 1									
N 0074369	31-1	7	M		4.8	7.98	16.1	46.8	58.6
N 0074370	32-1	7	M		6.0	8.05	16.1	46.8	58.1
N 0074371	32-2	7	M		4.3	8.42	17.0	48.2	57.2
N 0074372	34-1	7	M		5.2	8.19	16.5	47.5	58.0
N 0074373	35-1	7	M		4.8	8.74	17.0	49.8	57.0
N 0074374	37-1	7	M		4.3	8.07	16.7	46.7	57.9
	Mean				4.9	8.242	16.57	47.63	57.8
	S.D.				.64	.289	.41	1.21	.6
Group 7									
Reference Range					9.4 - 14.9	6.2 - 9	13.4 - 16.4	40 - 49	52 - 66

Appendix 4 (cont'd)
Individual Hematology Data
43-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	MCH PICO GRA	MCHC PERCENT	PLATELET THSN/UL	RDW	BANDS THSN/UL
N 0074363	2-1	1	M		19.6	34.5	1214	24.5	0.00
N 0074364	3-1	1	M		19.6	34.3	723	24.6	0.00
N 0074365	4-1	1	M		19.7	35.0	721	19.1	0.00
N 0074366	4-2	1	M		19.9	35.3	735	19.7	0.00
N 0074367	6-1	1	M		19.5	34.7	796	20.6	0.00
N 0074368	6-2	1	M		19.2	34.1	749	20.0	0.00
	Mean				19.58	34.65	823	21.42	0
	S.D.				.23	.45	193.5	2.48	0
Group 1									
N 0074369	31-1	7	M		20.2	34.4	747	25.0	0.00
N 0074370	32-1	7	M		20.0	34.4	802	25.6	0.00
N 0074371	32-2	7	M		20.2	35.3	811	24.4	0.00
N 0074372	34-1	7	M		20.1	34.7	739	25.6	0.00
N 0074373	35-1	7	M		19.5	34.1	881	21.4	0.00
N 0074374	37-1	7	M		20.7	35.8	823	24.1	0.00
	Mean				20.12	34.78	800.5	24.35	0
	S.D.				.39	.64	52.4	1.57	0
Group 7									
Reference Range					17.7 - 19.1	32 - 33.5	780 - 1400	0 - 0	0 - .06

Appendix 4 (cont'd)
Individual Hematology Data
43-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SEGS THSN/UL	LYMPHS THSN/UL	MONOS THSN/UL	EOSN THSN/UL	BASOS THSN/UL
N 0074363	2-1	1	M		1.93	4.76	0.00	0.21	0.00
N 0074364	3-1	1	M		1.02	4.92	0.06	0.00	0.00
N 0074365	4-1	1	M		0.60	6.03	0.00	0.07	0.00
N 0074366	4-2	1	M		0.51	2.46	0.03	0.00	0.00
N 0074367	6-1	1	M		1.32	5.08	0.07	0.13	0.00
N 0074368	6-2	1	M		0.94	4.84	0.06	0.06	0.00
	Mean				1.053	4.682	.037	.078	0
	S.D.				.52	1.183	.031	.081	0
Group 1									
N 0074369	31-1	7	M		0.86	3.84	0.10	0.00	0.00
N 0074370	32-1	7	M		0.90	4.92	0.12	0.06	0.00
N 0074371	32-2	7	M		0.95	3.14	0.13	0.09	0.00
N 0074372	34-1	7	M		0.31	4.73	0.05	0.10	0.00
N 0074373	35-1	7	M		0.86	3.84	0.05	0.00	0.05
N 0074374	37-1	7	M		0.56	3.48	0.09	0.17	0.00
	Mean				.74	3.992	.09	.07	.008
	S.D.				.251	.699	.034	.065	.02
Group 7									
Reference Range					.58 - 6.3	3.78 - 14.9	.02 - 1.2	0 - .31	0 - .01

Appendix 4 (cont'd)
Individual Hematology Data
43-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	PROTIME SECONDS	APTT SECONDS	RETIC PERCENT
N 0074363	2-1	1	M		17.4	30.9	1.1
N 0074364	3-1	1	M		15.9	29.4	2.2
N 0074365	4-1	1	M		15.4	34.8	2.0
N 0074366	4-2	1	M		15.3	35.3	2.4
N 0074367	6-1	1	M		16.9	31.4	1.4
N 0074368	6-2	1	M		15.3	36.4	2.2
	Mean				16.03	33.03	1.88
	S.D.				.91	2.83	.52
Group 1							
N 0074369	31-1	7	M		15.9	31.8	2.1
N 0074370	32-1	7	M		14.9	30.8	1.3
N 0074371	32-2	7	M		15.4	30.9	0.9
N 0074372	34-1	7	M		16.4	28.3	1.6
N 0074373	35-1	7	M		15.4	27.3	1.9
N 0074374	37-1	7	M		14.8	38.3	2.0
	Mean				15.47	31.23	1.63
	S.D.				.61	3.86	.46
Group 7							
Reference Range					11.5 - 14.3	15.4 - 22.2	.1 - 4

Approved ---------- Date 2/19/97
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Appendix 4 (cont'd)
Individual Hematology Data
43-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ATLYMPH THSN/UL	METAS THSN/UL	MYELOS THSN/UL	NRBC /100 WBC	OTHER
N 0074363	2-1	1	M		0.00	0.00	0.00	0	
N 0074364	3-1	1	M		0.00	0.00	0.00	0	
N 0074365	4-1	1	M		0.00	0.00	0.00	0	
N 0074366	4-2	1	M		0.00	0.00	0.00	0	
N 0074367	6-1	1	M		0.00	0.00	0.00	0	
N 0074368	6-2	1	M		0.00	0.00	0.00	0	
	Mean				0	0	0	0	
	S.D.				0	0	0	0	
Group 1									
N 0074369	31-1	7	M		0.00	0.00	0.00	0	
N 0074370	32-1	7	M		0.00	0.00	0.00	0	
N 0074371	32-2	7	M		0.00	0.00	0.00	0	
N 0074372	34-1	7	M		0.00	0.00	0.00	0	
N 0074373	35-1	7	M		0.00	0.00	0.00	0	
N 0074374	37-1	7	M		0.00	0.00	0.00	0	
	Mean				0	0	0	0	
	S.D.				0	0	0	0	
Group 7									
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Appendix 4 (cont'd)
Individual Hematology Data
43-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	WBC THSN/UL	RBC MILL/UL	HGB GM/DL	HCT PERCENT	MCV FL
N 0075401	8-2	2	F		3.4	7.97	16.5	48.7	61.1
N 0075402	9-1	2	F		3.0	7.75	15.7	47.6	61.4
N 0075403	9-2	2	F		4.4	7.67	15.5	46.6	60.7
N 0075404	10-2	2	F		5.4	7.43	15.6	45.3	61.0
N 0075405	13-2	2	F		4.2	7.59	15.9	46.5	61.3
N 0075406	14-2	2	F		4.2	7.09	14.9	43.6	61.5
	Mean				4.1	7.583	15.68	46.38	61.17
	S.D.				.84	.301	.52	1.78	.29
Group 2									
N 0075407	38-1	8	F		3.6	7.36	15.7	44.7	60.8
N 0075408	38-2	8	F		3.6	7.40	15.9	44.0	59.5
N 0075409	39-1	8	F		5.7	7.64	16.1	45.6	59.7
N 0075410	40-1	8	F		3.9	7.59	15.9	45.5	60.0
N 0075411	40-2	8	F		4.8	7.27	15.6	43.6	60.0
N 0075412	42-1	8	F		3.8	7.77	15.9	47.1	60.6
	Mean				4.23	7.505	15.85	45.08	60.1
	S.D.				.85	.191	.18	1.27	.51
Group 8									
Reference Range					9.4 - 14.9	6.2 - 9	13.4 - 16.4	40 - 49	52 - 66

Appendix 4 (cont'd)
Individual Hematology Data
43-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	MCH PICO GRA	MCHC PERCENT	PLATELET THSN/UL	RDW	BANDS THSN/UL
N 0075401	8-2	2	F		20.7	33.9	833	16.2	0.00
N 0075402	9-1	2	F		20.3	33.0	724	15.2	0.00
N 0075403	9-2	2	F		20.2	33.3	748	15.8	0.00
N 0075404	10-2	2	F		21.0	34.4	761	15.5	0.00
N 0075405	13-2	2	F		20.9	34.2	735	16.2	0.00
N 0075406	14-2	2	F		21.0	34.2	786	16.5	0.00
	Mean				20.68	33.83	764.5	15.9	0
	S.D.				.35	.56	39.9	.49	0
Group 2									
N 0075407	38-1	8	F		21.3	35.1	757	15.2	0.00
N 0075408	38-2	8	F		21.5	36.1	712	18.6	0.00
N 0075409	39-1	8	F		21.1	35.3	780	17.5	0.00
N 0075410	40-1	8	F		20.9	34.9	701	16.4	0.00
N 0075411	40-2	8	F		21.5	35.8	802	16.0	0.00
N 0075412	42-1	8	F		20.5	33.8	784	22.7	0.00
	Mean				21.13	35.17	756	17.73	0
	S.D.				.39	.8	41.1	2.71	0
Group 8									
Reference Range					17.7 - 19.1	32 - 33.5	780 - 1400	0 - 0	0 - .06

Appendix 4 (cont'd)
Individual Hematology Data
43-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SEGS THSN/UL	LYMPHS THSN/UL	MONOS THSN/UL	EOSN THSN/UL	BASOS THSN/UL
N 0075401	8-2	2	F		0.58	2.75	0.07	0.00	0.00
N 0075402	9-1	2	F		0.27	2.67	0.06	0.00	0.00
N 0075403	9-2	2	F		0.97	3.34	0.09	0.00	0.00
N 0075404	10-2	2	F		0.59	4.64	0.16	0.00	0.00
N 0075405	13-2	2	F		0.55	3.61	0.04	0.00	0.00
N 0075406	14-2	2	F		0.67	3.49	0.04	0.00	0.00
	Mean				.605	3.417	.077	0	0
	S.D.				.225	.714	.045	0	0
Group 2									
N 0075407	38-1	8	F		0.40	3.13	0.07	0.00	0.00
N 0075408	38-2	8	F		0.47	3.06	0.04	0.04	0.00
N 0075409	39-1	8	F		1.03	4.50	0.11	0.06	0.00
N 0075410	40-1	8	F		0.70	3.16	0.00	0.04	0.00
N 0075411	40-2	8	F		0.67	3.98	0.10	0.05	0.00
N 0075412	42-1	8	F		0.42	3.31	0.04	0.04	0.00
	Mean				.615	3.523	.06	.038	0
	S.D.				.24	.585	.041	.02	0
Group 8									
Reference Range					.58 - 6.3	3.78 - 14.9	.02 - 1.2	0 - .31	0 - .01

Appendix 4 (cont'd)
Individual Hematology Data
43-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	PROTIME SECONDS	APTT SECONDS	RETIC PERCENT
N 0075401	8-2	2	F		17.4	39.9	1.8
N 0075402	9-1	2	F		17.4	32.8	2.4
N 0075403	9-2	2	F		11.3	41.3	2.0
N 0075404	10-2	2	F		17.3	39.8	1.9
N 0075405	13-2	2	F		16.4	29.4	1.7
N 0075406	14-2	2	F		14.8	37.8	1.6
	Mean				15.77	36.83	1.9
	S.D.				2.41	4.7	.28
Group 2							
N 0075407	38-1	8	F		12.3	31.3	1.9
N 0075408	38-2	8	F		12.9	35.4	2.1
N 0075409	39-1	8	F		13.3	27.4	2.5
N 0075410	40-1	8	F		11.9	24.8	1.7
N 0075411	40-2	8	F		12.4	22.4	2.2
N 0075412	42-1	8	F		12.5	29.9	2.4
	Mean				12.55	28.53	2.13
	S.D.				.49	4.68	.3
Group 8							
Reference Range					11.5 - 14.3	15.4 - 22.2	.1 - 4

Approved ---------- Date 2/19/97

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Appendix 4 (cont'd)
Individual Hematology Data
43-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 HEMAT Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ATLYMPH THSN/UL	METAS THSN/UL	MYELOS THSN/UL	NRBC /100 WBC	OTHER
N 0075401	8-2	2	F		0.00	0.00	0.00	0	
N 0075402	9-1	2	F		0.00	0.00	0.00	0	
N 0075403	9-2	2	F		0.00	0.00	0.00	1	
N 0075404	10-2	2	F		0.00	0.00	0.00	0	
N 0075405	13-2	2	F		0.00	0.00	0.00	0	
N 0075406	14-2	2	F		0.00	0.00	0.00	1	
	Mean				0	0	0	.3	
	S.D.				0	0	0	.5	
Group 2									
N 0075407	38-1	8	F		0.00	0.00	0.00	1	
N 0075408	38-2	8	F		0.00	0.00	0.00	0	
N 0075409	39-1	8	F		0.00	0.00	0.00	1	
N 0075410	40-1	8	F		0.00	0.00	0.00	0	
N 0075411	40-2	8	F		0.00	0.00	0.00	0	
N 0075412	42-1	8	F		0.00	0.00	0.00	2	
	Mean				0	0	0	.7	
	S.D.				0	0	0	.8	
Group 8									
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Appendix 5
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SODIUM MEQ/L	K+ MEQ/L	CL- MEQ/L	CALCIUM MG/DL	PHOS MG/DL
N 0072975	1-2	1	M		143	7.3	95	13.1	12.2
N 0072976	2-2	1	M		148	5.9	98	11.7	9.1
N 0072977	3-2	1	M		148	5.8	96	11.4	8.9
N 0072978	5-1	1	M		149	5.6	98	11.5	8.9
N 0072979	7-1	1	M		147	6.1	100	12.1	12.8
N 0072980	7-2	1	M		144	8.2	99	12.9	14.4
	Mean				146.5	6.48	97.7	12.12	11.05
	S.D.				2.4	1.03	1.9	.73	2.39
Group 1									
N 0072981	15-1	3	M		148	5.4	100	11.3	9.6
N 0072982	15-2	3	M		148	5.1	100	11.4	9.7
N 0072983	16-2	3	M		150	5.7	99	12.1	10.9
N 0072984	17-1	3	M		147	6.5	100	12.2	12.6
N 0072985	17-2	3	M		149	5.7	99	11.5	10.2
N 0072986	18-1	3	M		146	6.0	99	11.4	10.5
	Mean				148	5.73	99.5	11.65	10.58
	S.D.				1.4	.48	.5	.39	1.1
Group 3									
N 0072987	23-1	5	M		150	6.1	99	11.7	11.1
N 0072988	23-2	5	M		149	6.2	100	12.2	13.0
N 0072989	24-2	5	M		150	5.5	98	11.5	10.0
Reference Range					141 - 151	5 - 7.6	84 - 109	9.4 - 13.8	7.9 - 10.7

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SODIUM MEQ/L	K+ MEQ/L	CL- MEQ/L	CALCIUM MG/DL	PHOS MG/DL
N 0072990	25-1	5	M		144	6.4	103	11.1	13.7
N 0072991	25-2	5	M		150	5.6	99	12.3	11.1
N 0072992	26-1	5	M		145	5.4	102	10.9	10.3
	Mean				148	5.87	100.2	11.62	11.53
	S.D.				2.8	.42	1.9	.57	1.49
Group 5									
N 0072993	31-2	7	M		147	6.3	101	11.4	10.9
N 0072994	33-1	7	M		146	6.7	101	11.0	10.6
N 0072995	34-2	7	M		149	5.6	103	11.2	10.2
N 0072996	35-2	7	M		148	6.4	101	11.0	10.7
N 0072997	36-2	7	M		147	6.2	100	11.1	10.8
N 0072998	37-2	7	M		145	6.0	102	10.7	11.0
	Mean				147	6.2	101.3	11.07	10.7
	S.D.				1.4	.37	1	.23	.28
Group 7									
Reference Range					141 - 151	5 - 7.6	84 - 109	9.4 - 13.8	7.9 - 10.7

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALT-SGPT U/L	AST-SGOT U/L	ALK PHOS U/L	GLUCOSE MG/DL	BUN MG/DL
N 0072975	1-2	1	M		87	183	193	419	17
N 0072976	2-2	1	M		72	127	199	142	10
N 0072977	3-2	1	M		58	82	179	125	12
N 0072978	5-1	1	M		43	111	191	134	13
N 0072979	7-1	1	M		73	225	187	257	20
N 0072980	7-2	1	M		89	275	162	258	15
	Mean				70.3	167.2	185.2	222.5	14.5
	S.D.				17.5	73.8	13.2	113.9	3.6
Group 1									
N 0072981	15-1	3	M		40	141	184	130	17
N 0072982	15-2	3	M		57	131	187	122	14
N 0072983	16-2	3	M		52	166	174	130	15
N 0072984	17-1	3	M		88	204	184	172	14
N 0072985	17-2	3	M		42	127	171	130	16
N 0072986	18-1	3	M		63	88	196	120	11
	Mean				57	142.8	182.7	134	14.5
	S.D.				17.5	39.2	9.1	19.1	2.1
Group 3									
N 0072987	23-1	5	M		64	212	202	147	19
N 0072988	23-2	5	M		85	198	232	152	19
N 0072989	24-2	5	M		60	225	200	166	18
Reference Range					20 - 56	68 - 192	17 - 245	74 - 319	12 - 23

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALT-SGPT U/L	AST-SGOT U/L	ALK PHOS U/L	GLUCOSE MG/DL	BUN MG/DL
N 0072990	25-1	5	M		101	428	201	199	16
N 0072991	25-2	5	M		59	189	189	138	19
N 0072992	26-1	5	M		60	186	188	134	18
	Mean				71.5	239.7	202	156	18.2
	S.D.				17.5	93.4	15.9	23.9	1.2
Group 5									
N 0072993	31-2	7	M		70	201	212	152	26
N 0072994	33-1	7	M		61	149	210	151	20
N 0072995	34-2	7	M		48	176	183	133	23
N 0072996	35-2	7	M		65	154	228	134	21
N 0072997	36-2	7	M		59	135	198	131	24
N 0072998	37-2	7	M		66	177	190	136	24
	Mean				61.5	165.3	203.5	139.5	23
	S.D.				7.7	23.8	16.4	9.4	2.2
Group 7									
Reference Range					20 - 56	68 - 192	17 - 245	74 - 319	12 - 23

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	CREAT MG/DL	CHOLEST MG/DL	TRIG MG/DL	T BILI MG/DL	TP G/DL
N 0072975	1-2	1	M		0.7	58	130	0.1	7.8
N 0072976	2-2	1	M		0.6	58	91	0.0	7.5
N 0072977	3-2	1	M		0.7	49	86	0.0	7.2
N 0072978	5-1	1	M		0.6	56	130	0.1	7.3
N 0072979	7-1	1	M		0.7	57	135	0.1	7.3
N 0072980	7-2	1	M		0.7	56	134	0.5	7.3
	Mean				.67	55.7	117.7	.13	7.4
	S.D.				.05	3.4	22.7	.19	.22
Group 1									
N 0072981	15-1	3	M		0.6	56	79	0.1	7.4
N 0072982	15-2	3	M		0.7	59	122	0.1	7.0
N 0072983	16-2	3	M		0.7	48	63	0.1	7.2
N 0072984	17-1	3	M		0.7	52	102	0.1	7.2
N 0072985	17-2	3	M		0.6	55	45	0.1	7.2
N 0072986	18-1	3	M		0.6	46	68	0.1	7.1
	Mean				.65	52.7	79.8	.1	7.18
	S.D.				.05	5	28	0	.13
Group 3									
N 0072987	23-1	5	M		0.6	55	93	0.1	7.5
N 0072988	23-2	5	M		0.8	43	90	0.0	7.3
N 0072989	24-2	5	M		0.7	64	99	0.0	7.6
Reference Range					.4 - 1	48 - 96	3 - 125	0 - .5	4.8 - 9.2

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	CREAT MG/DL	CHOLEST MG/DL	TRIG MG/DL	T BILI MG/DL	TP G/DL
N 0072990	25-1	5	M		0.7	42	79	0.1	7.0
N 0072991	25-2	5	M		0.7	62	48	0.0	7.6
N 0072992	26-1	5	M		0.6	44	52	0.1	7.1
	Mean				.68	51.7	76.8	.05	7.35
	S.D.				.08	10	21.8	.05	.26
Group 5									
N 0072993	31-2	7	M		0.7	33	67	0.1	7.0
N 0072994	33-1	7	M		0.6	28	87	0.1	6.6
N 0072995	34-2	7	M		0.7	35	29	0.1	6.8
N 0072996	35-2	7	M		0.6	33	100	0.1	7.2
N 0072997	36-2	7	M		0.6	30	61	0.1	6.9
N 0072998	37-2	7	M		0.6	33	69	0.1	6.6
	Mean				.63	32	68.8	.1	6.85
	S.D.				.05	2.5	24.3	0	.23
Group 7									
Reference Range					.4 - 1	48 - 96	3 - 125	0 - .5	4.8 - 9.2

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALBUMIN G/DL	GLOBULIN G/DL	A/G RATIO	LAP U/L	IRON UG/DL
N 0072975	1-2	1	M		5.0	2.8	1.8	54.8	135
N 0072976	2-2	1	M		4.9	2.6	1.9	52.0	104
N 0072977	3-2	1	M		4.5	2.7	1.7	49.4	141
N 0072978	5-1	1	M		4.7	2.6	1.8	52.6	92
N 0072979	7-1	1	M		4.6	2.7	1.7	50.3	145
N 0072980	7-2	1	M		4.7	2.6	1.8	50.7	139
	Mean				4.73	2.67	1.78	51.63	126
	S.D.				.19	.08	.08	1.94	22.3
Group 1									
N 0072981	15-1	3	M		4.6	2.8	1.6	46.8	99
N 0072982	15-2	3	M		4.4	2.6	1.7	47.9	74
N 0072983	16-2	3	M		4.7	2.5	1.9	45.4	88
N 0072984	17-1	3	M		4.6	2.6	1.8	46.5	120
N 0072985	17-2	3	M		4.5	2.7	1.7	45.5	83
N 0072986	18-1	3	M		4.6	2.5	1.8	47.5	78
	Mean				4.57	2.62	1.75	46.6	90.3
	S.D.				.1	.12	.1	1.02	16.9
Group 3									
N 0072987	23-1	5	M		4.8	2.7	1.8	50.3	61
N 0072988	23-2	5	M		4.4	2.9	1.5	19.6	88
N 0072989	24-2	5	M		4.9	2.7	1.8	52.5	57
Reference Range					2.9 - 6	1.1 - 3.8	.7 - 4	0 - 0	45 - 380

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALBUMIN G/DL	GLOBULIN G/DL	A/G RATIO	LAP U/L	IRON UG/DL
N 0072990	25-1	5	M		4.5	2.5	1.8	48.0	9
N 0072991	25-2	5	M		4.5	3.1	1.5	48.4	50
N 0072992	26-1	5	M		4.5	2.6	1.7	45.9	52
	Mean				4.6	2.75	1.68	44.12	52.8
	S.D.				.2	.22	.15	12.22	25.5
Group 5									
N 0072993	31-2	7	M		4.7	2.3	2.0	53.4	34
N 0072994	33-1	7	M		4.5	2.1	2.1	51.8	46
N 0072995	34-2	7	M		4.1	2.7	1.5	52.4	82
N 0072996	35-2	7	M		4.6	2.6	1.8	52.8	14
N 0072997	36-2	7	M		4.5	2.4	1.9	49.7	84
N 0072998	37-2	7	M		4.4	2.2	2.0	47.1	42
	Mean				4.47	2.38	1.88	51.2	50.3
	S.D.				.21	.23	.21	2.38	27.6
Group 7									
Reference Range					2.9 - 6	1.1 - 3.8	.7 - 4	0 - 0	45 - 380

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	UIBC UG/DL	TIBC UG/DL	T-FERRIN MG/DL	EPO MU/ML	SAMQUAL
N 0072975	1-2	1	M		400	535	385	50.84	
N 0072976	2-2	1	M		419	523	400	67.16	
N 0072977	3-2	1	M		333	474	360	46.89	
N 0072978	5-1	1	M		423	515	430	42.67	
N 0072979	7-1	1	M		378	523	430	52.45	
N 0072980	7-2	1	M		359	498	400	52.86	
	Mean				385.3	511.3	400.8	52.145	
	S.D.				35.4	22	26.9	8.308	
Group 1									
N 0072981	15-1	3	M		419	518	400	57.02	
N 0072982	15-2	3	M		402	476	385	51.31	
N 0072983	16-2	3	M		412	500	385	48.06	
N 0072984	17-1	3	M		371	491	345	40.07	
N 0072985	17-2	3	M		371	454	375	84.96	
N 0072986	18-1	3	M		407	485	360	51.88	
	Mean				397	487.3	375	55.55	
	S.D.				20.9	21.7	19.7	15.455	
Group 3									
N 0072987	23-1	5	M		466	527	385	42.41	
N 0072988	23-2	5	M		432	520	360	51.18	
N 0072989	24-2	5	M		482	539	385	40.55	
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	UIBC UG/DL	TIBC UG/DL	T-FERRIN MG/DL	EPO MU/ML	SAMQUAL
N 0072990	25-1	5	M		500	509	345	38.60	
N 0072991	25-2	5	M		466	516	360	51.92	
N 0072992	26-1	5	M		402	454	335	35.76	
	Mean				458	510.8	361.7	43.403	
	S.D.				35.4	29.7	20.4	6.688	
Group 5									
N 0072993	31-2	7	M		439	473	360	47.62	
N 0072994	33-1	7	M		396	442	345	31.32	
N 0072995	34-2	7	M		350	432	345	52.36	
N 0072996	35-2	7	M		465	479	360	34.50	
N 0072997	36-2	7	M		363	447	385	48.52	
N 0072998	37-2	7	M		412	454	360	43.56	
	Mean				404.2	454.5	359.2	42.98	
	S.D.				44	18.2	14.6	8.348	
Group 7									
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Approved ---------- Date 2/19/97

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SODIUM MEQ/L	K+ MEQ/L	CL- MEQ/L	CALCIUM MG/DL	PHOS MG/DL
N 0073727	10-1	2	F		148	7.5	106	11.3	13.7
N 0073728	11-1	2	F		146	6.8	103	11.0	10.6
N 0073729	11-2	2	F		145	7.0	102	11.2	10.0
N 0073730	12-1	2	F		151	8.4	106	11.3	12.3
N 0073731	13-1	2	F		153	5.8	103	11.3	8.4
N 0073732	14-1	2	F		150	5.7	105	11.3	10.2
	Mean				148.8	6.87	104.2	11.23	10.87
	S.D.				3.1	1.03	1.7	.12	1.87
Group 2									
N 0073733	19-1	4	F		149	6.5	101	11.0	9.1
N 0073734	19-2	4	F		153	5.7	106	10.7	9.8
N 0073735	20-1	4	F		151	5.4	101	11.3	10.4
N 0073736	21-1	4	F		151	6.6	106	11.2	10.5
N 0073737	21-2	4	F		151	7.2	106	11.3	10.9
N 0073738	22-2	4	F		151	5.3	104	10.6	8.6
	Mean				151	6.12	104	11.02	9.88
	S.D.				1.3	.76	2.4	.31	.89
Group 4									
N 0073739	27-1	6	F		151	6.1	110	10.6	10.9
N 0073740	28-1	6	F		149	7.0	105	11.4	11.6
N 0073741	28-2	6	F		154	6.7	108	11.0	10.7
Reference Range					141 - 151	5 - 7.6	84 - 109	9.4 - 13.8	7.9 - 10.7

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SODIUM MEQ/L	K+ MEQ/L	CL- MEQ/L	CALCIUM MG/DL	PHOS MG/DL
N 0073742	29-1	6	F		149	6.5	104	10.7	10.5
N 0073743	29-2	6	F		149	6.1	102	11.3	10.0
N 0073744	30-2	6	F		153	6.5	108	11.5	10.2
	Mean				150.8	6.48	106.2	11.08	10.65
	S.D.				2.2	.35	3	.38	.57
Group 6									
N 0073745	39-2	8	F		149	7.7	103	11.1	11.9
N 0073746	41-2	8	F		147	7.3	106	10.4	12.9
N 0073747	42-2	8	F		152	6.2	108	10.9	10.1
N 0073748	43-2	8	F		155	7.1	111	11.1	9.8
N 0073749	44-1	8	F		154	6.9	108	11.0	10.9
N 0073750	44-2	8	F		147	8.5	103	12.4	14.5
	Mean				150.7	7.28	106.5	11.15	11.68
	S.D.				3.5	.78	3.1	.67	1.8
Group 8									
Reference Range					141 - 151	5 - 7.6	84 - 109	9.4 - 13.8	7.9 - 10.7

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALT-SGPT U/L	AST-SGOT U/L	ALK PHOS U/L	GLUCOSE MG/DL	BUN MG/DL
N 0073727	10-1	2	F		83	443	144	141	14
N 0073728	11-1	2	F		63	286	95	155	14
N 0073729	11-2	2	F		68	245	150	190	12
N 0073730	12-1	2	F		81	261	167	198	12
N 0073731	13-1	2	F		52	96	138	127	11
N 0073732	14-1	2	F		33	104	161	127	15
	Mean				63.3	239.2	142.5	156.3	13
	S.D.				18.8	128.9	25.6	31.1	1.5
Group 2									
N 0073733	19-1	4	F		34	107	173	121	13
N 0073734	19-2	4	F		38	140	155	128	17
N 0073735	20-1	4	F		33	85	144	118	14
N 0073736	21-1	4	F		58	124	146	117	12
N 0073737	21-2	4	F		67	207	152	135	12
N 0073738	22-2	4	F		33	92	163	116	16
	Mean				43.8	125.8	155.5	122.5	14
	S.D.				14.9	44.6	10.9	7.5	2.1
Group 4									
N 0073739	27-1	6	F		62	245	163	124	16
N 0073740	28-1	6	F		64	306	199	131	17
N 0073741	28-2	6	F		69	138	163	135	16
Reference Range					20 - 56	68 - 192	17 - 245	74 - 319	12 - 23

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALT-SGPT U/L	AST-SGOT U/L	ALK PHOS U/L	GLUCOSE MG/DL	BUN MG/DL
N 0073742	29-1	6	F		41	99	166	129	16
N 0073743	29-2	6	F		48	171	153	123	19
N 0073744	30-2	6	F		39	98	143	136	16
	Mean				53.8	176.2	164.5	129.7	16.7
	S.D.				12.8	83.8	18.9	5.4	1.2
Group 6									
N 0073745	39-2	8	F		62	167	244	112	22
N 0073746	41-2	8	F		102	311	198	150	20
N 0073747	42-2	8	F		50	107	185	120	21
N 0073748	43-2	8	F		49	174	201	128	18
N 0073749	44-1	8	F		55	118	181	126	17
N 0073750	44-2	8	F		99	409	172	168	25
	Mean				69.5	214.3	196.8	134	20.5
	S.D.				24.5	119.9	25.5	20.9	2.9
Group 8									
Reference Range					20 - 56	68 - 192	17 - 245	74 - 319	12 - 23

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
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Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	CREAT MG/DL	CHOLEST MG/DL	TRIG MG/DL	T BILI MG/DL	TP G/DL
N 0073727	10-1	2	F		0.7	80	67	0.6	7.1
N 0073728	11-1	2	F		0.6	79	78	0.5	7.1
N 0073729	11-2	2	F		0.7	82	70	0.3	7.0
N 0073730	12-1	2	F		0.7	63	71	0.3	6.7
N 0073731	13-1	2	F		0.6	92	61	0.1	7.2
N 0073732	14-1	2	F		0.7	81	48	0.1	6.7
	Mean				.67	79.5	65.8	.32	6.97
	S.D.				.05	9.4	10.3	.2	.22
Group 2									
N 0073733	19-1	4	F		0.7	84	58	0.1	6.9
N 0073734	19-2	4	F		0.7	73	42	0.2	7.0
N 0073735	20-1	4	F		0.7	82	34	0.2	7.2
N 0073736	21-1	4	F		0.6	68	62	0.2	6.4
N 0073737	21-2	4	F		0.6	70	71	0.2	6.7
N 0073738	22-2	4	F		0.6	71	35	0.1	6.6
	Mean				.65	74.7	50.3	.17	6.8
	S.D.				.05	6.7	15.4	.05	.29
Group 4									
N 0073739	27-1	6	F		0.6	63	46	0.2	6.3
N 0073740	28-1	6	F		0.7	56	48	0.3	7.0
N 0073741	28-2	6	F		0.6	62	69	0.2	6.3
Reference Range					.4 - 1	48 - 96	3 - 125	0 - .5	4.8 - 9.2

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	CREAT MG/DL	CHOLEST MG/DL	TRIG MG/DL	T BILI MG/DL	TP G/DL
N 0073742	29-1	6	F		0.6	63	43	0.1	6.3
N 0073743	29-2	6	F		0.7	65	43	0.2	7.2
N 0073744	30-2	6	F		0.6	66	36	0.2	7.1
	Mean				.63	62.5	47.5	.2	6.7
	S.D.				.05	3.5	11.3	.06	.44
Group 6									
N 0073745	39-2	8	F		0.7	37	64	0.2	6.7
N 0073746	41-2	8	F		0.6	49	112	0.5	6.4
N 0073747	42-2	8	F		0.7	49	67	0.4	6.4
N 0073748	43-2	8	F		0.7	45	65	0.2	6.6
N 0073749	44-1	8	F		0.6	50	80	0.2	6.3
N 0073750	44-2	8	F		0.7	61	87	0.5	7.0
	Mean				.67	48.5	79.2	.33	6.57
	S.D.				.05	7.8	18.5	.15	.26
Group 8									
Reference Range					.4 - 1	48 - 96	3 - 125	0 - .5	4.8 - 9.2

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALBUMIN G/DL	GLOBULIN G/DL	A/G RATIO	LAP U/L	IRON UG/DL
N 0073727	10-1	2	F		4.9	2.2	2.2	52.1	331
N 0073728	11-1	2	F		5.0	2.1	2.4	49.2	177
N 0073729	11-2	2	F		4.7	2.3	2.0	49.8	351
N 0073730	12-1	2	F		4.8	1.9	2.5	54.7	194
N 0073731	13-1	2	F		4.9	2.3	2.1	50.0	180
N 0073732	14-1	2	F		4.2	2.5	1.7	45.6	333
	Mean				4.75	2.22	2.15	50.23	261
	S.D.				.29	.2	.29	3.04	85.2
Group 2									
N 0073733	19-1	4	F		4.9	2.0	2.5	49.1	254
N 0073734	19-2	4	F		4.8	2.2	2.2	50.0	165
N 0073735	20-1	4	F		4.6	2.6	1.8	48.5	350
N 0073736	21-1	4	F		4.3	2.1	2.0	51.1	207
N 0073737	21-2	4	F		4.6	2.1	2.2	50.2	230
N 0073738	22-2	4	F		4.5	2.1	2.1	49.8	393
	Mean				4.62	2.18	2.13	49.78	266.5
	S.D.				.21	.21	.23	.9	87.5
Group 4									
N 0073739	27-1	6	F		4.3	2.0	2.2	49.8	121
N 0073740	28-1	6	F		4.8	2.2	2.2	50.9	121
N 0073741	28-2	6	F		4.3	2.0	2.2	51.0	120
Reference Range					2.9 - 6	1.1 - 3.8	.7 - 4	0 - 0	45 - 380

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALBUMIN G/DL	GLOBULIN G/DL	A/G RATIO	LAP U/L	IRON UG/DL
N 0073742	29-1	6	F		4.3	2.0	2.2	49.3	208
N 0073743	29-2	6	F		4.7	2.5	1.9	49.0	102
N 0073744	30-2	6	F		4.7	2.4	2.0	48.7	143
	Mean				4.52	2.18	2.12	49.78	135.8
	S.D.				.24	.22	.13	.97	37.7
Group 6									
N 0073745	39-2	8	F		4.8	1.9	2.5	56.9	100
N 0073746	41-2	8	F		4.6	1.8	2.6	53.6	124
N 0073747	42-2	8	F		4.3	2.1	2.0	51.8	109
N 0073748	43-2	8	F		4.5	2.1	2.1	54.6	159
N 0073749	44-1	8	F		4.4	1.9	2.3	52.6	177
N 0073750	44-2	8	F		4.9	2.1	2.3	55.6	145
	Mean				4.58	1.98	2.3	54.18	135.7
	S.D.				.23	.13	.23	1.9	29.9
Group 8									
Reference Range					2.9 - 6	1.1 - 3.8	.7 - 4	0 - 0	45 - 380

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	UIBC UG/DL	TIBC UG/DL	SAMQUAL	T-FERRIN MG/DL	EPO MU/ML
N 0073727	10-1	2	F		130	461		375	44.80
N 0073728	11-1	2	F		261	438		345	56.06
N 0073729	11-2	2	F		70	421		325	39.82
N 0073730	12-1	2	F		243	437		345	38.20
N 0073731	13-1	2	F		262	442		335	58.75
N 0073732	14-1	2	F		119	452		345	53.99
	Mean				180.8	441.8		345	48.603
	S.D.				84.3	13.7		16.7	8.802
Group 2									
N 0073733	19-1	4	F		205	459		360	52.93
N 0073734	19-2	4	F		285	450		335	49.08
N 0073735	20-1	4	F		113	463		360	45.77
N 0073736	21-1	4	F		198	405		335	37.91
N 0073737	21-2	4	F		177	407		345	48.33
N 0073738	22-2	4	F		27	420		360	40.36
	Mean				167.5	434		349.2	45.73
	S.D.				88.3	26.4		12.4	5.654
Group 4									
N 0073739	27-1	6	F		271	392		335	48.19
N 0073740	28-1	6	F		297	418		345	47.46
N 0073741	28-2	6	F		275	395		360	36.94
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Appendix 5 (cont'd)
Individual Clinical
Chemistry Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	UIBC UG/DL	TIBC UG/DL	SAMQUAL	T-FERRIN MG/DL	EPO MU/ML
N 0073742	29-1	6	F		160	368		300	35.52
N 0073743	29-2	6	F		333	435		345	55.17
N 0073744	30-2	6	F		254	397		325	38.54
	Mean				265	400.8		335	43.637
	S.D.				58.2	23.1		20.7	7.811
Group 6									
N 0073745	39-2	8	F		328	428		345	41.71
N 0073746	41-2	8	F		324	448		335	41.40
N 0073747	42-2	8	F		310	419		335	52.95
N 0073748	43-2	8	F		247	406		345	40.62
N 0073749	44-1	8	F		208	385		335	45.35
N 0073750	44-2	8	F		309	454		360	39.22
	Mean				287.7	423.3		342.5	43.542
	S.D.				48.8	25.9		9.9	5.039
Group 8									
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Approved ---------- Date 2/19/97

Appendix 6
Individual Clinical
Chemistry Data
43-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SODIUM MEQ/L	K+ MEQ/L	CL- MEQ/L	CALCIUM MG/DL	PHOS MG/DL
N 0074375	2-1	1	M		150	6.1	97	11.1	8.6
N 0074376	3-1	1	M		147	5.2	95	11.4	9.3
N 0074377	4-1	1	M		146	5.7	95	11.3	7.3
N 0074378	4-2	1	M		147	5.8	95	11.2	8.4
N 0074379	6-1	1	M		148	5.9	94	11.8	9.3
N 0074380	6-2	1	M		147	5.8	94	11.5	8.4
	Mean				147.5	5.75	95	11.38	8.55
	S.D.				1.4	.3	1.1	.25	.74
Group 1									
N 0074381	31-1	7	M		148	5.9	97	11.0	9.1
N 0074382	32-1	7	M		146	6.2	96	11.1	9.0
N 0074383	32-2	7	M		143	5.9	96	11.3	10.0
N 0074384	34-1	7	M		152	5.7	102	11.4	10.4
N 0074385	35-1	7	M		152	6.1	101	11.9	10.7
N 0074386	37-1	7	M		148	6.6	97	11.5	8.9
	Mean				148.2	6.07	98.2	11.37	9.68
	S.D.				3.5	.31	2.6	.32	.78
Group 7									
Reference Range					141 - 151	5 - 7.6	84 - 109	9.4 - 13.8	7.9 - 10.7

Appendix 6 (cont'd)
Individual Clinical
Chemistry Data
43-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALT-SGPT U/L	AST-SGOT U/L	ALK PHOS U/L	GLUCOSE MG/DL	BUN MG/DL
N 0074375	2-1	1	M		48	68	95	110	15
N 0074376	3-1	1	M		67	204	157	143	14
N 0074377	4-1	1	M		76	86	175	132	14
N 0074378	4-2	1	M		46	82	158	131	15
N 0074379	6-1	1	M		43	85	133	144	16
N 0074380	6-2	1	M		58	69	152	145	14
	Mean				56.3	99	145	134.2	14.7
	S.D.				13.1	52	27.9	13.3	.8
Group 1									
N 0074381	31-1	7	M		58	118	166	146	21
N 0074382	32-1	7	M		64	101	121	151	22
N 0074383	32-2	7	M		57	151	162	153	24
N 0074384	34-1	7	M		70	201	190	206	18
N 0074385	35-1	7	M		79	283	175	220	20
N 0074386	37-1	7	M		57	185	157	142	20
	Mean				64.2	173.2	161.8	169.7	20.8
	S.D.				8.9	65.9	23.1	34.1	2
Group 7									
Reference Range					20 - 56	68 - 192	17 - 245	74 - 319	12 - 23

Appendix 6 (cont'd)
Individual Clinical
Chemistry Data
43-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	CREAT MG/DL	CHOLEST MG/DL	TRIG MG/DL	T BILI MG/DL	TP G/DL
N 0074375	2-1	1	M		0.6	93	146	0.4	7.0
N 0074376	3-1	1	M		0.7	60	112	0.0	7.1
N 0074377	4-1	1	M		0.7	64	174	0.1	7.3
N 0074378	4-2	1	M		0.7	59	97	0.1	7.5
N 0074379	6-1	1	M		0.7	63	115	0.1	7.7
N 0074380	6-2	1	M		0.6	65	121	0.2	7.6
	Mean				.67	67.3	127.5	.15	7.37
	S.D.				.05	12.8	27.8	.14	.28
Group 1									
N 0074381	31-1	7	M		0.7	47	129	0.1	6.8
N 0074382	32-1	7	M		0.6	60	74	0.1	7.2
N 0074383	32-2	7	M		0.6	52	71	0.2	7.2
N 0074384	34-1	7	M		0.6	36	88	0.1	6.6
N 0074385	35-1	7	M		0.8	31	58	0.1	7.2
N 0074386	37-1	7	M		0.7	40	83	0.1	7.3
	Mean				.67	44.3	83.8	.12	7.05
	S.D.				.08	10.7	24.4	.04	.28
Group 7									
Reference Range					.4 - 1	48 - 96	3 - 125	0 - .5	4.8 - 9.2

Appendix 6 (cont'd)
Individual Clinical
Chemistry Data
43-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALBUMIN G/DL	GLOBULIN G/DL	A/G RATIO	LAP U/L	IRON UG/DL
N 0074375	2-1	1	M		4.5	2.5	1.8	37.0	148
N 0074376	3-1	1	M		4.6	2.5	1.8	48.9	101
N 0074377	4-1	1	M		4.7	2.6	1.8	53.3	94
N 0074378	4-2	1	M		5.0	2.5	2.0	51.8	99
N 0074379	6-1	1	M		4.9	2.8	1.8	46.6	95
N 0074380	6-2	1	M		5.0	2.6	1.9	48.0	128
	Mean				4.78	2.58	1.85	47.6	110.8
	S.D.				.21	.12	.08	5.75	22.1
Group 1									
N 0074381	31-1	7	M		4.5	2.3	2.0	51.8	58
N 0074382	32-1	7	M		4.7	2.5	1.9	45.4	78
N 0074383	32-2	7	M		4.8	2.4	2.0	48.0	47
N 0074384	34-1	7	M		4.6	2.0	2.3	49.0	51
N 0074385	35-1	7	M		4.6	2.6	1.8	50.8	66
N 0074386	37-1	7	M		4.9	2.4	2.0	48.4	52
	Mean				4.68	2.37	2	48.9	58.7
	S.D.				.15	.21	.17	2.25	11.6
Group 7									
Reference Range					2.9 - 6	1.1 - 3.8	.7 - 4	0 - 0	45 - 380

Appendix 6 (cont'd)
Individual Clinical
Chemistry Data
43-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	UIBC UG/DL	TIBC UG/DL	T-FERRIN MG/DL	EPO MU/ML
N 0074375	2-1	1	M		339	487	385	29.79
N 0074376	3-1	1	M		351	452	385	35.16
N 0074377	4-1	1	M		381	475	375	56.03
N 0074378	4-2	1	M		412	511	415	38.98
N 0074379	6-1	1	M		452	547	450	37.56
N 0074380	6-2	1	M		411	539	430	47.19
	Mean				391	501.8	406.7	40.785
	S.D.				42.3	37.2	29.8	9.377
Group 1								
N 0074381	31-1	7	M		376	434	385	33.82
N 0074382	32-1	7	M		378	456	375	45.87
N 0074383	32-2	7	M		410	457	375	52.37
N 0074384	34-1	7	M		390	441	385	34.70
N 0074385	35-1	7	M		404	470	400	50.32
N 0074386	37-1	7	M		428	480	375	45.94
	Mean				397.7	456.3	382.5	43.837
	S.D.				20.1	17.2	9.9	7.839
Group 7								
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0

Approved ----------[signature]---------- Date --2/19/97--

Appendix 6 (cont'd)
Individual Clinical
Chemistry Data
43-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	SODIUM MEQ/L	K+ MEQ/L	CL- MEQ/L	CALCIUM MG/DL	PHOS MG/DL
N 0075413	8-2	2	F		148	7.0	98	11.6	9.3
N 0075414	9-1	2	F		151	6.2	101	11.6	7.9
N 0075415	9-2	2	F		148	5.8	98	11.4	7.7
N 0075416	10-2	2	F		145	5.8	99	11.0	9.1
N 0075417	13-2	2	F		153	6.4	101	11.7	8.1
N 0075418	14-2	2	F		150	6.3	103	10.8	7.7
	Mean				149.2	6.25	100	11.35	8.3
	S.D.				2.8	.45	2	.37	.72
Group 2									
N 0075419	38-1	8	F		150	6.4	102	11.1	9.4
N 0075420	38-2	8	F		145	7.1	101	10.6	10.8
N 0075421	39-1	8	F		147	6.8	107	10.6	11.9
N 0075422	40-1	8	F		148	6.5	99	11.1	8.8
N 0075423	40-2	8	F		148	6.0	100	10.8	9.4
N 0075424	42-1	8	F		147	6.9	101	11.4	11.1
	Mean				147.5	6.62	101.7	10.93	10.23
	S.D.				1.6	.4	2.8	.32	1.21
Group 8									
Reference Range					141 - 151	5 - 7.6	84 - 109	9.4 - 13.8	7.9 - 10.7

Appendix 6 (cont'd)
Individual Clinical
Chemistry Data
43-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALT-SGPT U/L	AST-SGOT U/L	ALK PHOS U/L	GLUCOSE MG/DL	BUN MG/DL
N 0075413	8-2	2	F		73	219	102	150	16
N 0075414	9-1	2	F		52	93	126	166	13
N 0075415	9-2	2	F		50	133	118	136	16
N 0075416	10-2	2	F		44	131	128	152	15
N 0075417	13-2	2	F		46	118	96	131	18
N 0075418	14-2	2	F		58	88	122	125	12
	Mean				53.8	130.3	115.3	143.3	15
	S.D.				10.6	47.3	13.2	15.3	2.2
Group 2									
N 0075419	38-1	8	F		47	241	139	144	22
N 0075420	38-2	8	F		103	480	151	131	20
N 0075421	39-1	8	F		131	489	187	118	24
N 0075422	40-1	8	F		52	140	129	129	22
N 0075423	40-2	8	F		51	111	157	127	24
N 0075424	42-1	8	F		67	239	183	131	21
	Mean				75.2	283.3	157.7	130	22.2
	S.D.				34.3	164.3	23.3	8.4	1.6
Group 8									
Reference Range					20 - 56	68 - 192	17 - 245	74 - 319	12 - 23

Appendix 6 (cont'd)
Individual Clinical
Chemistry Data
43-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	CREAT MG/DL	CHOLEST MG/DL	TRIG MG/DL	T BILI MG/DL	TP G/DL
N 0075413	8-2	2	F		0.7	90	73	0.4	7.6
N 0075414	9-1	2	F		0.7	91	77	0.2	7.4
N 0075415	9-2	2	F		0.7	89	80	0.1	7.3
N 0075416	10-2	2	F		0.7	70	45	0.1	7.1
N 0075417	13-2	2	F		0.7	88	45	0.2	7.8
N 0075418	14-2	2	F		0.6	64	47	0.1	6.3
	Mean				.68	82	61.2	.18	7.25
	S.D.				.04	11.8	17.1	.12	.52
Group 2									
N 0075419	38-1	8	F		0.7	76	63	0.2	7.0
N 0075420	38-2	8	F		0.6	59	103	0.5	6.5
N 0075421	39-1	8	F		0.7	48	76	0.4	6.2
N 0075422	40-1	8	F		0.7	73	48	0.2	6.8
N 0075423	40-2	8	F		0.7	69	62	0.2	6.7
N 0075424	42-1	8	F		0.7	64	61	0.2	7.4
	Mean				.68	64.8	68.8	.28	6.77
	S.D.				.04	10.3	18.9	.13	.41
Group 8									
Reference Range					.4 - 1	48 - 96	3 - 125	0 - .5	4.8 - 9.2

Appendix 6 (cont'd)
Individual Clinical
Chemistry Data
43-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	ALBUMIN G/DL	GLOBULIN G/DL	A/G RATIO	LAP U/L	IRON UG/DL
N 0075413	8-2	2	F		5.1	2.5	2.0	55.0	270
N 0075414	9-1	2	F		4.9	2.5	2.0	57.4	271
N 0075415	9-2	2	F		4.9	2.4	2.0	55.7	232
N 0075416	10-2	2	F		4.7	2.4	2.0	53.3	403
N 0075417	13-2	2	F		5.2	2.6	2.0	55.1	221
N 0075418	14-2	2	F		4.3	2.0	2.2	52.6	201
	Mean				4.85	2.4	2.03	54.85	266.3
	S.D.				.32	.21	.08	1.72	72.4
Group 2									
N 0075419	38-1	8	F		4.5	2.5	1.8	55.3	142
N 0075420	38-2	8	F		4.6	1.9	2.4	48.2	96
N 0075421	39-1	8	F		4.4	1.8	2.4	47.7	103
N 0075422	40-1	8	F		4.7	2.1	2.2	54.3	103
N 0075423	40-2	8	F		4.5	2.2	2.0	54.7	93
N 0075424	42-1	8	F		4.8	2.6	1.8	54.1	142
	Mean				4.58	2.18	2.1	52.38	113.2
	S.D.				.15	.32	.28	3.46	22.7
Group 8									
Reference Range					2.9 - 6	1.1 - 3.8	.7 - 4	0 - 0	45 - 380

Appendix 6 (cont'd)
Individual Clinical
Chemistry Data
43-Day Sacrifice (females)

ANILYTICS INCORPORATED

200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 CHEM Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	UIBC UG/DL	TIBC UG/DL	SAMQUAL	T-FERRIN MG/DL	EPO MU/ML
N 0075413	8-2	2	F		186	456		360	69.43
N 0075414	9-1	2	F		182	453		335	59.20
N 0075415	9-2	2	F		237	469		345	56.06
N 0075416	10-2	2	F		15	418		345	40.74
N 0075417	13-2	2	F		249	470		360	46.32
N 0075418	14-2	2	F		213	414		315	37.93
	Mean				180.3	446.7		343.3	51.613
	S.D.				85.3	24.7		16.9	12.069
Group 2									
N 0075419	38-1	8	F		304	446		360	46.28
N 0075420	38-2	8	F		348	444		335	37.06
N 0075421	39-1	8	F		295	398		335	33.26
N 0075422	40-1	8	F		350	453		375	31.04
N 0075423	40-2	8	F		322	415		360	42.80
N 0075424	42-1	8	F		296	438		360	57.34
	Mean				319.2	432.3		354.2	41.297
	S.D.				25.1	21.3		15.9	9.718
Group 8									
Reference Range					0 - 0	0 - 0	0 - 0	0 - 0	0 - 0

Approved ---------- Date 2/19/97

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Appendix 7
Individual Urinalysis Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	COLOR	APPEAR	UR.SP.GR SG UNITS	GLUCO MG/DL	BILIRUBN # PLUS
N 0072939	1-2	1	M				1.050	0	0
N 0072940	5-1	1	M				1.052	0	0
N 0072941	7-1	1	M				1.048	0	0
	Mean						1.05	0	0
	S.D.						.002	0	0
Group 1									
N 0072942	15-1	3	M				1.044	0	0
N 0072943	16-2	3	M				1.038	0	0
N 0072944	17-1	3	M				1.046	0	0
	Mean						1.0427	0	0
	S.D.						.0042	0	0
Group 3									
N 0072945	23-1	5	M				1.042	0	0
N 0072946	24-2	5	M				1.032	0	0
N 0072947	25-2	5	M				1.042	0	0
	Mean						1.0387	0	0
	S.D.						.0058	0	0
Group 5									
Reference Range					0 - 0	0 - 0	1.03 - 1.078	0 - 0	0 - 1

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	COLOR	APPEAR	UR.SP.GR SG UNITS	GLUCO MG/DL	BILIRUBN # PLUS
N 0072948	31-2	7	M				1.040	0	0
N 0072949	34-2	7	M				1.050	0	0
N 0072950	36-2	7	M				1.040	0	0
	Mean						1.0433	0	0
	S.D.						.0058	0	0
Group 7									
Reference Range					0 - 0	0 - 0	1.03 - 1.078	0 - 0	0 - 1

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	KETONES MG/DL	BLOOD # PLUS	pH pH	PROTEIN MG/DL	UROBIL EHR U/DL
N 0072939	1-2	1	M		5	2.0	6.5	30	0.2
N 0072940	5-1	1	M		5	0.0	6.5	100	0.2
N 0072941	7-1	1	M		5	2.0	7.0	100	0.2
	Mean				5	1.33	6.67	76.7	.2
	S.D.				0	1.15	.29	40.4	0
Group 1									
N 0072942	15-1	3	M		5	0.0	6.5	30	0.2
N 0072943	16-2	3	M		5	0.0	6.5	30	0.2
N 0072944	17-1	3	M		5	0.0	6.5	30	0.2
	Mean				5	0	6.5	30	.2
	S.D.				0	0	0	0	0
Group 3									
N 0072945	23-1	5	M		5	0.0	6.0	30	0.2
N 0072946	24-2	5	M		5	0.5	6.5	30	0.2
N 0072947	25-2	5	M		15	0.0	6.5	100	0.2
	Mean				8.3	.17	6.33	53.3	.2
	S.D.				5.8	.29	.29	40.4	0
Group 5									
Reference Range					0 - 0	0 - 0	6 - 8	0 - 300	.2 - 1

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	KETONES MG/DL	BLOOD # PLUS	pH pH	PROTEIN MG/DL	UROBIL EHR U/DL
N 0072948	31-2	7	M		40	0.0	6.5	30	0.2
N 0072949	34-2	7	M		15	0.0	6.0	100	0.2
N 0072950	36-2	7	M		40	0.0	6.5	30	0.2
	Mean				31.7	0	6.33	53.3	.2
	S.D.				14.4	0	.29	40.4	0
Group 7									
Reference Range					0 - 0	0 - 0	6 - 8	0 - 300	.2 - 1

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	VOLUME ML
N 0072939	1-2	1	M		5.0
N 0072940	5-1	1	M		4.5
N 0072941	7-1	1	M		6.0
	Mean				5.17
	S.D.				.76
Group 1					
N 0072942	15-1	3	M		6.0
N 0072943	16-2	3	M		5.5
N 0072944	17-1	3	M		5.0
	Mean				5.5
	S.D.				.5
Group 3					
N 0072945	23-1	5	M		6.5
N 0072946	24-2	5	M		9.5
N 0072947	25-2	5	M		7.0
	Mean				7.67
	S.D.				1.61
Group 5					
Reference Range					0 - 0

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/22/97
Date Received: 01/23/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	VOLUME ML
N 0072948	31-2	7	M		7.5
N 0072949	34-2	7	M		6.5
N 0072950	36-2	7	M		9.5
	Mean				7.83
	S.D.				1.53

Group 7

Reference Range 0 - 0

Approved ---------- Date 2/10/97

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Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	COLOR	APPEAR	UR.SP.GR SG UNITS	GLUCO MG/DL	BILIRUBN # PLUS
N 0073667	11-1	2	F				1.016	0	0
N 0073668	12-1	2	F				1.015	0	0
N 0073669	14-1	2	F				1.026	0	0
	Mean						1.019	0	0
	S.D.						.0061	0	0
Group 2									
N 0073670	19-2	4	F				1.042	0	0
N 0073671	20-1	4	F				1.027	0	0
N 0073672	22-2	4	F				1.017	0	0
	Mean						1.0287	0	0
	S.D.						.0126	0	0
Group 4									
N 0073673	28-1	6	F				1.026	0	0
N 0073674	29-2	6	F				1.026	0	0
N 0073675	30-2	6	F				1.023	0	0
	Mean						1.025	0	0
	S.D.						.0017	0	0
Group 6									
Reference Range					0 - 0	0 - 0	1.03 - 1.078	0 - 0	0 - 1

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	COLOR	APPEAR	UR.SP.GR SG UNITS	GLUCO MG/DL	BILIRUBN # PLUS
N 0073676	39-2	8	F				1.019	0	0
N 0073677	43-2	8	F				1.029	0	0
N 0073678	44-2	8	F				1.042	0	0
	Mean						1.03	0	0
	S.D.						.0115	0	0
Group 8									
Reference Range					0 - 0	0 - 0	1.03 - 1.078	0 - 0	0 - 1

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	KETONES MG/DL	BLOOD # PLUS	pH pH	PROTEIN MG/DL	UROBIL EHR U/DL
N 0073667	11-1	2	F		0	0.0	6.5	15	0.2
N 0073668	12-1	2	F		0	0.0	7.0	15	0.2
N 0073669	14-1	2	F		0	0.0	6.5	15	0.2
	Mean				0	0	6.67	15	.2
	S.D.				0	0	.29	0	0
Group 2									
N 0073670	19-2	4	F		0	0.0	6.0	30	0.2
N 0073671	20-1	4	F		0	0.0	6.5	30	0.2
N 0073672	22-2	4	F		0	0.0	6.5	15	0.2
	Mean				0	0	6.33	25	.2
	S.D.				0	0	.29	8.7	0
Group 4									
N 0073673	28-1	6	F		5	1.0	6.0	15	0.2
N 0073674	29-2	6	F		5	0.0	6.0	15	0.2
N 0073675	30-2	6	F		0	0.0	6.0	15	0.2
	Mean				3.3	.33	6	15	.2
	S.D.				2.9	.58	0	0	0
Group 6									
Reference Range					0 - 0	0 - 0	6 - 8	0 - 300	.2 - 1

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED

200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	KETONES MG/DL	BLOOD # PLUS	pH pH	PROTEIN MG/DL	UROBIL EHR U/DL
N 0073676	39-2	8	F		15	0.0	6.0	15	0.2
N 0073677	43-2	8	F		40	0.0	6.0	15	0.2
N 0073678	44-2	8	F		40	0.0	6.0	15	0.2
	Mean				31.7	0	6	15	.2
	S.D.				14.4	0	0	0	0

Group 8

Reference Range	0 - 0	0 - 0	6 - 8	0 - 300	.2 - 1

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	VOLUME ML
N 0073667	11-1	2	F		10.0
N 0073668	12-1	2	F		11.0
N 0073669	14-1	2	F		7.5
	Mean				9.5
	S.D.				1.8
Group 2					
N 0073670	19-2	4	F		3.5
N 0073671	20-1	4	F		4.5
N 0073672	22-2	4	F		8.5
	Mean				5.5
	S.D.				2.65
Group 4					
N 0073673	28-1	6	F		7.0
N 0073674	29-2	6	F		6.0
N 0073675	30-2	6	F		7.5
	Mean				6.83
	S.D.				.76
Group 6					
Reference Range					0 - 0

Appendix 7 (cont'd)
Individual Urinalysis Data
29-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 01/29/97
Date Received: 01/30/97
Date Reported: 02/10/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	VOLUME ML
N 0073676	39-2	8	F		12.0
N 0073677	43-2	8	F		6.0
N 0073678	44-2	8	F		6.0
	Mean				8
	S.D.				3.46

Group 8

Reference Range 0 - 0

Approved ---------- Date 2/10/97
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Appendix 8
Individual Urinalysis Data
43-Day Sacrifice (males)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	COLOR	APPEAR	UR.SP.GR SG UNITS	GLUCO MG/DL	BILIRUBN # PLUS
N 0074357	3-1	1	M				1.031	0	0
N 0074358	4-2	1	M				1.029	0	0
N 0074359	6-1	1	M				1.016	0	0
	Mean						1.0253	0	0
	S.D.						.0081	0	0
Group 1									
N 0074360	32-2	7	M				1.044	0	0
N 0074361	35-1	7	M				1.042	0	0
N 0074362	37-1	7	M				1.028	0	0
	Mean						1.038	0	0
	S.D.						.0087	0	0
Group 7									
Reference Range					0 - 0	0 - 0	1.03 - 1.078	0 - 0	0 - 1

Appendix 8 (cont'd)
Individual Urinalysis Data
43-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	KETONES MG/DL	BLOOD # PLUS	pH pH	PROTEIN MG/DL	UROBIL EHR U/DL
N 0074357	3-1	1	M		15	0.0	6.5	30	0.2
N 0074358	4-2	1	M		15	0.0	6.5	30	0.2
N 0074359	6-1	1	M		5	0.0	7.0	15	0.2
	Mean				11.7	0	6.67	25	.2
	S.D.				5.8	0	.29	8.7	0
Group 1									
N 0074360	32-2	7	M		40	3.0	7.5	100	0.2
N 0074361	35-1	7	M		40	2.0	6.0	30	0.2
N 0074362	37-1	7	M		40	0.0	7.0	30	0.2
	Mean				40	1.67	6.83	53.3	.2
	S.D.				0	1.53	.76	40.4	0
Group 7									
Reference Range					0 - 0	0 - 0	6 - 8	0 - 300	.2 - 1

Appendix 8 (cont'd)
Individual Urinalysis Data
43-Day Sacrifice (males)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/05/97
Date Received: 02/06/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	VOLUME ML
N 0074357	3-1	1	M		7.5
N 0074358	4-2	1	M		6.5
N 0074359	6-1	1	M		14.0
	Mean				9.33
	S.D.				4.07
Group 1					
N 0074360	32-2	7	M		5.0
N 0074361	35-1	7	M		6.5
N 0074362	37-1	7	M		10.5
	Mean				7.33
	S.D.				2.84
Group 7					
Reference Range					0 - 0

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Appendix 8 (cont'd)
Individual Urinalysis Data
43-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	COLOR	APPEAR	UR.SP.GR SG UNITS	GLUCO MG/DL	BILIRUBN # PLUS
N 0074600	9-2	2	F				1.018	0	0
N 0074601	10-2	2	F				1.014	0	0
N 0074602	13-2	2	F				1.034	0	0
	Mean						1.022	0	0
	S.D.						.0106	0	0
Group 2									
N 0074603	38-1	8	F				1.030	0	0
N 0074604	40-1	8	F				1.028	0	0
N 0074605	42-1	8	F				1.040	0	0
	Mean						1.0327	0	0
	S.D.						.0064	0	0
Group 8									
Reference Range					0 - 0	0 - 0	1.03 - 1.078	0 - 0	0 - 1

Appendix 8 (cont'd)
Individual Urinalysis Data
43-Day Sacrifice (females)

ANILYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	KETONES MG/DL	BLOOD # PLUS	pH pH	PROTEIN MG/DL	UROBIL EHR U/DL
N 0074600	9-2	2	F		0	0.5	6.5	15	0.2
N 0074601	10-2	2	F		0	0.0	6.5	15	0.2
N 0074602	13-2	2	F		0	0.0	6.0	30	0.2
	Mean				0	.17	6.33	20	.2
	S.D.				0	.29	.29	8.7	0
Group 2									
N 0074603	38-1	8	F		0	0.0	6.0	15	0.2
N 0074604	40-1	8	F		5	0.0	6.0	15	0.2
N 0074605	42-1	8	F		15	1.0	6.0	30	0.2
	Mean				6.7	.33	6	20	.2
	S.D.				7.6	.58	0	8.7	0
Group 8									
Reference Range					0 - 0	0 - 0	6 - 8	0 - 300	.2 - 1

Appendix 8 (cont'd)
Individual Urinalysis Data
43-Day Sacrifice (females)

ANALYTICS INCORPORATED
200 Girard Street, Suite 200, Gaithersburg, MD 20877
301-921-0168 800-237-2815

Client: AMERICAN HEALTH FOUNDATION
1 DANA RD
VALHALLA, NY 10595
(914) 592-2600

Date Collected: 02/12/97
Date Received: 02/13/97
Date Reported: 02/19/97

Client No. 1215 Study: R-1777 URINE Species: RAT

Accession No.	Animal No.	Gp	Sex	Age	VOLUME ML
N 0074600	9-2	2	F		9.0
N 0074601	10-2	2	F		9.5
N 0074602	13-2	2	F		3.5
	Mean				7.33
	S.D.				3.33
Group 2					
N 0074603	38-1	8	F		5.0
N 0074604	40-1	8	F		5.5
N 0074605	42-1	8	F		5.5
	Mean				5.33
	S.D.				.29
Group 8					
Reference Range					0 - 0

Approved ----------Sc------ Date -2/19/97-

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APPENDIX 9

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	BODY WT.
Control -	1-1	289
No Treatment	1-2	287
	2-2	280
	3-2	289
	5-1	288
	5-2	289
	7-1	296
	7-2	309
MEAN (n=8)		**290.9**
STANDARD DEVIATION		**8.51**

GROUP 3	ANIMAL #	BODY WT.
SN-1	15-1	275
120 ppm	15-2	308
	16-1	293
	16-2	276
	17-1	278
	17-2	290
	18-1	310
	18-2	321
MEAN (n=8)		**293.9**
STANDARD DEVIATION		**17.48**

GROUP 5	ANIMAL #	BODY WT.
SN-1	23-1	267
470 ppm	23-2	289
	24-1	274
	24-2	304
	25-1	295
	25-2	298
	26-1	296
	26-2	326
MEAN (n=8)		**293.6**
STANDARD DEVIATION		**18.12**

GROUP 7	ANIMAL #	BODY WT.
SN-1	31-2	251
1900 ppm	33-1	274
	33-2	258
	34-2	265
	35-2	278
	36-1	264
	36-2	282
	37-2	287
MEAN (n=8)		**269.9**
STANDARD DEVIATION		**12.41**

APPENDIX 9 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	BODY WT.
Control -	8-1	173
No Treatment	10-1	167
	11-1	167
	11-2	183
	12-1	172
	12-2	179
	13-1	183
	14-1	174
MEAN (n=8)		**174.8**
STANDARD DEVIATION		**6.39**

GROUP 4	ANIMAL #	BODY WT.
SN-1	19-1	171
120 ppm	19-2	170
	20-1	167
	20-2	170
	21-1	177
	21-2	173
	22-1	178
	22-2	183
MEAN (n=8)		**173.6**
STANDARD DEVIATION		**5.29**

GROUP 6	ANIMAL #	BODY WT.
SN-1	27-1	160
470 ppm	27-2	169
	28-1	165
	28-2	179
	29-1	180
	29-2	183
	30-1	176
	30-2	183
MEAN (n=8)		**174.4**
STANDARD DEVIATION		**8.68**

GROUP 8	ANIMAL #	BODY WT.
SN-1	39-2	154
1900 ppm	41-1	161
	41-2	167
	42-2	171
	43-1	164
	43-2	160
	44-1	179
	44-2	179
MEAN (n=8)		**166.9**
STANDARD DEVIATION		**9.00**

APPENDIX 10

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL BODY WEIGHTS (g)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	BODY WT.	GROUP 7	ANIMAL #	BODY WT.
Control -	2-1	254	SN-1	31-1	282
No Treatment	3-1	304	1900 ppm	32-1	296
	4-1	321		32-2	274
	4-2	310		34-1	306
	6-1	326		35-1	288
	6-2	324		37-1	303
MEAN (n=6)		**306.5**	**MEAN (n=6)**		**291.5**
STANDARD DEVIATION		**27.10**	**STANDARD DEVIATION**		**12.42**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	BODY WT.	GROUP 8	ANIMAL #	BODY WT.
Control -	8-2	175	SN-1	38-1	165
No Treatment	9-1	186	1900 ppm	38-2	179
	9-2	166		39-1	168
	10-2	170		40-1	176
	13-2	187		40-2	185
	14-2	178		42-1	164
MEAN (n=6)		**177.0**	**MEAN (n=6)**		**172.8**
STANDARD DEVIATION		**8.44**	**STANDARD DEVIATION**		**8.47**

APPENDIX 11

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE LIVER WEIGHTS (g)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	LIVER WT.
Control -	1-1	8.915
No Treatment	1-2	9.239
	2-2	8.203
	3-2	8.171
	5-1	8.179
	5-2	8.563
	7-1	9.249
	7-2	8.930
MEAN (n=8)		**8.681**
STANDARD DEVIATION		**0.464**

GROUP 3	ANIMAL #	LIVER WT.
SN-1	15-1	8.200
120 ppm	15-2	9.181
	16-1	9.146
	16-2	7.810
	17-1	7.916
	17-2	8.119
	18-1	8.653
	18-2	10.600
MEAN (n=8)		**8.703**
STANDARD DEVIATION		**0.929**

GROUP 5	ANIMAL #	LIVER WT.
SN-1	23-1	7.990
470 ppm	23-2	8.742
	24-1	8.014
	24-2	9.804
	25-1	9.444
	25-2	9.076
	26-1	9.121
	26-2	10.627
MEAN (n=8)		**9.102**
STANDARD DEVIATION		**0.885**

GROUP 7	ANIMAL #	LIVER WT.
SN-1	31-2	8.876
1900 ppm	33-1	10.299
	33-2	10.076
	34-2	8.964
	35-2	9.515
	36-1	9.782
	36-2	10.214
	37-2	10.927
MEAN (n=8)		**9.832**
STANDARD DEVIATION		**0.696**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE LIVER WEIGHTS (g)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	LIVER WT.
Control -	8-1	4.645
No Treatment	10-1	4.786
	11-1	4.608
	11-2	5.257
	12-1	4.496
	12-2	4.716
	13-1	5.217
	14-1	5.080
MEAN (n=8)		**4.851**
STANDARD DEVIATION		**0.293**

GROUP 4	ANIMAL #	LIVER WT.
SN-1	19-1	4.916
120 ppm	19-2	4.936
	20-1	4.727
	20-2	4.587
	21-1	4.710
	21-2	4.246
	22-1	4.778
	22-2	5.190
MEAN (n=8)		**4.761**
STANDARD DEVIATION		**0.277**

GROUP 6	ANIMAL #	LIVER WT.
SN-1	27-1	4.411
470 ppm	27-2	4.685
	28-1	5.277
	28-2	5.050
	29-1	4.823
	29-2	5.427
	30-1	4.670
	30-2	5.085
MEAN (n=8)		**4.929**
STANDARD DEVIATION		**0.341**

GROUP 8	ANIMAL #	LIVER WT.
SN-1	39-2	5.400
1900 ppm	41-1	5.241
	41-2	6.049
	42-2	6.005
	43-1	5.271
	43-2	5.679
	44-1	6.041
	44-2	6.522
MEAN (n=8)		**5.776**
STANDARD DEVIATION		**0.454**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE KIDNEY WEIGHTS (g)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	KIDNEY WT.
Control -	1-1	2.063
No Treatment	1-2	2.232
	2-2	2.067
	3-2	2.032
	5-1	2.138
	5-2	1.999
	7-1	2.087
	7-2	2.431
MEAN (n=8)		**2.131**
STANDARD DEVIATION		**0.140**

GROUP 3	ANIMAL #	KIDNEY WT.
SN-1	15-1	1.956
120 ppm	15-2	2.194
	16-1	2.172
	16-2	1.846
	17-1	2.023
	17-2	2.125
	18-1	2.246
	18-2	2.463
MEAN (n=8)		**2.128**
STANDARD DEVIATION		**0.190**

GROUP 5	ANIMAL #	KIDNEY WT.
SN-1	23-1	1.962
470 ppm	23-2	2.030
	24-1	1.901
	24-2	2.246
	25-1	2.102
	25-2	2.092
	26-1	2.070
	26-2	2.337
MEAN (n=8)		**2.093**
STANDARD DEVIATION		**0.142**

GROUP 7	ANIMAL #	KIDNEY WT.
SN-1	31-2	1.839
1900 ppm	33-1	2.091
	33-2	2.059
	34-2	1.923
	35-2	2.138
	36-1	2.203
	36-2	2.244
	37-2	2.470
MEAN (n=8)		**2.121**
STANDARD DEVIATION		**0.195**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE KIDNEY WEIGHTS (g)

29-DAY SACRIFICE (FEMALES)

GROUP 2 Control - No Treatment	ANIMAL #	KIDNEY WT.
	8-1	1.348
	10-1	1.249
	11-1	1.352
	11-2	1.569
	12-1	1.328
	12-2	1.323
	13-1	1.349
	14-1	1.459
MEAN (n=8)		**1.372**
STANDARD DEVIATION		**0.098**

GROUP 4 SN-1 120 ppm	ANIMAL #	KIDNEY WT.
	19-1	1.337
	19-2	1.352
	20-1	1.273
	20-2	1.287
	21-1	1.454
	21-2	1.255
	22-1	1.328
	22-2	1.529
MEAN (n=8)		**1.352**
STANDARD DEVIATION		**0.094**

GROUP 6 SN-1 470 ppm	ANIMAL #	KIDNEY WT.
	27-1	1.122
	27-2	1.151
	28-1	1.340
	28-2	1.327
	29-1	1.354
	29-2	1.316
	30-1	1.301
	30-2	1.449
MEAN (n=8)		**1.295**
STANDARD DEVIATION		**0.108**

GROUP 8 SN-1 1900 ppm	ANIMAL #	KIDNEY WT.
	39-2	1.218
	41-1	1.283
	41-2	1.197
	42-2	1.353
	43-1	1.302
	43-2	1.328
	44-1	1.447
	44-2	1.547
MEAN (n=8)		**1.334**
STANDARD DEVIATION		**0.116**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE PITUITARY GLAND WEIGHTS (g)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	PITUITARY WT.
Control -	1-1	0.0085
No Treatment	1-2	0.0094
	2-2	0.0089
	3-2	0.0125
	5-1	0.0112
	5-2	0.0107
	7-1	0.0084
	7-2	0.0115
MEAN (n=8)		**0.0101**
STANDARD DEVIATION		**0.0015**

GROUP 3	ANIMAL #	PITUITARY WT.
SN-1	15-1	0.0091
120 ppm	15-2	0.0093
	16-1	0.0087
	16-2	0.0085
	17-1	0.0098
	17-2	0.0109
	18-1	0.0091
	18-2	0.0103
MEAN (n=8)		**0.0095**
STANDARD DEVIATION		**0.0008**

GROUP 5	ANIMAL #	PITUITARY WT.
SN-1	23-1	0.0085
470 ppm	23-2	0.0101
	24-1	0.0087
	24-2	0.0087
	25-1	0.0101
	25-2	0.0097
	26-1	0.0095
	26-2	0.0109
MEAN (n=8)		**0.0095**
STANDARD DEVIATION		**0.0008**

GROUP 7	ANIMAL #	PITUITARY WT.
SN-1	31-2	0.0087
1900 ppm	33-1	0.0100
	33-2	0.0078
	34-2	0.0104
	35-2	0.0090
	36-1	0.0090
	36-2	0.0098
	37-2	0.0118
MEAN (n=8)		**0.0096**
STANDARD DEVIATION		**0.0012**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE PITUITARY GLAND WEIGHTS (g)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	PITUITARY WT.
Control -	8-1	0.0121
No Treatment	10-1	0.0180
	11-1	0.0097
	11-2	0.0129
	12-1	0.0098
	12-2	0.0110
	13-1	0.0152
	14-1	0.0139
MEAN (n=8)		**0.0128**
STANDARD DEVIATION		**0.0028**

GROUP 4	ANIMAL #	PITUITARY WT.
SN-1	19-1	0.0130
120 ppm	19-2	0.0105
	20-1	0.0094
	20-2	0.0105
	21-1	0.0102
	21-2	0.0107
	22-1	0.0118
	22-2	0.0112
MEAN (n=8)		**0.0109**
STANDARD DEVIATION		**0.0011**

GROUP 6	ANIMAL #	PITUITARY WT.
SN-1	27-1	0.0110
470 ppm	27-2	0.0103
	28-1	0.0135
	28-2	0.0102
	29-1	0.0108
	29-2	0.0127
	30-1	0.0099
	30-2	0.0106
MEAN (n=8)		**0.0111**
STANDARD DEVIATION		**0.0013**

GROUP 8	ANIMAL #	PITUITARY WT.
SN-1	39-2	0.0126
1900 ppm	41-1	0.0090
	41-2	0.0102
	42-2	0.0125
	43-1	0.0089
	43-2	0.0119
	44-1	0.0116
	44-2	0.0119
MEAN (n=8)		**0.0111**
STANDARD DEVIATION		**0.0015**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE THYROID GLAND WEIGHTS (g)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	THYROID WT.
Control -	1-1	0.0175
No Treatment	1-2	0.0211
	2-2	0.0167
	3-2	0.0203
	5-1	0.0166
	5-2	0.0201
	7-1	0.0173
	7-2	0.0201
MEAN (n=8)		**0.0187**
STANDARD DEVIATION		**0.0019**

GROUP 3	ANIMAL #	THYROID WT.
SN-1	15-1	0.0152
120 ppm	15-2[1]	0.0086
	16-1	0.0122
	16-2	0.0130
	17-1	0.0134
	17-2	0.0161
	18-1	0.0136
	18-2	0.0130
MEAN (n=8)		**0.0131**
STANDARD DEVIATION		**0.0022**

GROUP 5	ANIMAL #	THYROID WT.
SN-1	23-1	0.0137
470 ppm	23-2	0.0144
	24-1	0.0163
	24-2	0.0130
	25-1	0.0129
	25-2	0.0147
	26-1	0.0111
	26-2	0.0142
MEAN (n=8)		**0.0138**
STANDARD DEVIATION		**0.0015**

GROUP 7	ANIMAL #	THYROID WT.
SN-1	31-2	0.0129
1900 ppm	33-1	0.0163
	33-2	0.0141
	34-2	0.0180
	35-2	0.0140
	36-1	0.0142
	36-2	0.0136
	37-2	0.0140
MEAN (n=8)		**0.0146**
STANDARD DEVIATION		**0.0017**

[1] only one thyroid found when weighing

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE THYROID GLAND WEIGHTS (g)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	THYROID WT.
Control -	8-1	0.0140
No Treatment	10-1	0.0120
	11-1	0.0133
	11-2	0.0115
	12-1	0.0101
	12-2	0.0119
	13-1	0.0141
	14-1	0.0127
MEAN (n=8)		**0.0125**
STANDARD DEVIATION		**0.0014**

GROUP 4	ANIMAL #	THYROID WT.
SN-1	19-1	0.0119
120 ppm	19-2	0.0112
	20-1	0.0095
	20-2	0.0124
	21-1	0.0108
	21-2	0.0117
	22-1	0.0138
	22-2	0.0119
MEAN (n=8)		**0.0117**
STANDARD DEVIATION		**0.0012**

GROUP 6	ANIMAL #	THYROID WT.
SN-1	27-1	0.0119
470 ppm	27-2	0.0115
	28-1	0.0086
	28-2	0.0116
	29-1	0.0107
	29-2	0.0097
	30-1	0.0123
	30-2	0.0137
MEAN (n=8)		**0.0113**
STANDARD DEVIATION		**0.0016**

GROUP 8	ANIMAL #	THYROID WT.
SN-1	39-2	0.0112
1900 ppm	41-1	0.0113
	41-2	0.0120
	42-2	0.0121
	43-1	0.0143
	43-2	0.0105
	44-1	0.0127
	44-2	0.0124
MEAN (n=8)		**0.0121**
STANDARD DEVIATION		**0.0012**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE HEART WEIGHTS (g)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	HEART WT.
Control -	1-1	0.967
No Treatment	1-2	1.070
	2-2	0.979
	3-2	0.918
	5-1	0.921
	5-2	0.847
	7-1	0.960
	7-2	1.016
MEAN (n=8)		**0.960**
STANDARD DEVIATION		**0.067**

GROUP 3	ANIMAL #	HEART WT.
SN-1	15-1	0.958
120 ppm	15-2	1.154
	16-1	0.989
	16-2	0.896
	17-1	0.965
	17-2	0.999
	18-1	1.068
	18-2	1.091
MEAN (n=8)		**1.015**
STANDARD DEVIATION		**0.083**

GROUP 5	ANIMAL #	HEART WT.
SN-1	23-1	0.903
470 ppm	23-2	0.978
	24-1	0.995
	24-2	0.996
	25-1	0.902
	25-2	1.016
	26-1	0.967
	26-2	1.060
MEAN (n=8)		**0.977**
STANDARD DEVIATION		**0.054**

GROUP 7	ANIMAL #	HEART WT.
SN-1	31-2	1.024
1900 ppm	33-1	0.885
	33-2	0.989
	34-2	1.009
	35-2	1.063
	36-1	1.041
	36-2	0.967
	37-2	1.065
MEAN (n=8)		**1.005**
STANDARD DEVIATION		**0.059**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE HEART WEIGHTS (g)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	HEART WT.
Control -	8-1	0.664
No Treatment	10-1	0.628
	11-1	0.551
	11-2	0.697
	12-1	0.609
	12-2	0.654
	13-1	0.661
	14-1	0.817
MEAN (n=8)		**0.660**
STANDARD DEVIATION		**0.077**

GROUP 4	ANIMAL #	HEART WT.
SN-1	19-1	0.777
120 ppm	19-2	0.701
	20-1	0.629
	20-2	0.707
	21-1	0.778
	21-2	0.650
	22-1	0.607
	22-2	0.749
MEAN (n=8)		**0.700**
STANDARD DEVIATION		**0.066**

GROUP 6	ANIMAL #	HEART WT.
SN-1	27-1	0.590
470 ppm	27-2	0.670
	28-1	0.764
	28-2	0.716
	29-1	0.638
	29-2	0.719
	30-1	0.677
	30-2	0.751
MEAN (n=8)		**0.691**
STANDARD DEVIATION		**0.059**

GROUP 8	ANIMAL #	HEART WT.
SN-1	39-2	0.643
1900 ppm	41-1	0.606
	41-2	0.580
	42-2	0.798
	43-1	0.597
	43-2	0.639
	44-1	0.723
	44-2	0.621
MEAN (n=8)		**0.651**
STANDARD DEVIATION		**0.074**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE SPLEEN WEIGHTS (g)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	SPLEEN WT.
Control -	1-1	0.614
No Treatment	1-2	0.631
	2-2	0.638
	3-2	0.659
	5-1	0.674
	5-2	0.671
	7-1	0.628
	7-2	0.707
MEAN (n=8)		**0.653**
STANDARD DEVIATION		**0.031**

GROUP 3	ANIMAL #	SPLEEN WT.
SN-1	15-1	0.637
120 ppm	15-2	0.986
	16-1	0.582
	16-2	0.600
	17-1	0.659
	17-2	0.714
	18-1	0.660
	18-2	0.670
MEAN (n=8)		**0.689**
STANDARD DEVIATION		**0.127**

GROUP 5	ANIMAL #	SPLEEN WT.
SN-1	23-1	0.606
470 ppm	23-2	0.809
	24-1	0.596
	24-2	0.736
	25-1	0.783
	25-2	0.711
	26-1	0.725
	26-2	0.732
MEAN (n=8)		**0.712**
STANDARD DEVIATION		**0.076**

GROUP 7	ANIMAL #	SPLEEN WT.
SN-1	31-2	0.582
1900 ppm	33-1	0.645
	33-2	0.525
	34-2	0.586
	35-2	0.665
	36-1	0.619
	36-2	0.664
	37-2	0.633
MEAN (n=8)		**0.615**
STANDARD DEVIATION		**0.048**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE SPLEEN WEIGHTS (g)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	SPLEEN WT.
Control -	8-1	0.365
No Treatment	10-1	0.414
	11-1	0.390
	11-2	0.444
	12-1	0.377
	12-2	0.394
	13-1	0.443
	14-1	0.471
MEAN (n=8)		**0.412**
STANDARD DEVIATION		**0.037**

GROUP 4	ANIMAL #	SPLEEN WT.
SN-1	19-1	0.435
120 ppm	19-2	0.490
	20-1	0.433
	20-2	0.352
	21-1	0.518
	21-2	0.400
	22-1	0.419
	22-2	0.554
MEAN (n=8)		**0.450**
STANDARD DEVIATION		**0.066**

GROUP 6	ANIMAL #	SPLEEN WT.
SN-1	27-1	0.397
470 ppm	27-2	0.423
	28-1	0.408
	28-2	0.421
	29-1	0.435
	29-2	0.496
	30-1	0.401
	30-2	0.495
MEAN (n=8)		**0.435**
STANDARD DEVIATION		**0.040**

GROUP 8	ANIMAL #	SPLEEN WT.
SN-1	39-2	0.333
1900 ppm	41-1	0.351
	41-2	0.361
	42-2	0.432
	43-1	0.400
	43-2	0.397
	44-1	0.431
	44-2	0.469
MEAN (n=8)		**0.397**
STANDARD DEVIATION		**0.046**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE ADRENAL GLAND WEIGHTS (g)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	ADRENAL WT.
Control -	1-1	0.057
No Treatment	1-2	0.068
	2-2	0.060
	3-2	0.040
	5-1	0.045
	5-2	0.070
	7-1	0.053
	7-2	0.063
MEAN (n=8)		**0.057**
STANDARD DEVIATION		**0.011**

GROUP 3	ANIMAL #	ADRENAL WT.
SN-1	15-1	0.048
120 ppm	15-2	0.039
	16-1	0.066
	16-2	0.047
	17-1	0.050
	17-2	0.047
	18-1	0.050
	18-2	0.059
MEAN (n=8)		**0.051**
STANDARD DEVIATION		**0.008**

GROUP 5	ANIMAL #	ADRENAL WT.
SN-1	23-1	0.048
470 ppm	23-2	0.085
	24-1	0.067
	24-2	0.080
	25-1	0.052
	25-2	0.052
	26-1	0.056
	26-2	0.074
MEAN (n=8)		**0.064**
STANDARD DEVIATION		**0.014**

GROUP 7	ANIMAL #	ADRENAL WT.
SN-1	31-2	0.055
1900 ppm	33-1	0.062
	33-2	0.056
	34-2	0.073
	35-2	0.074
	36-1	0.080
	36-2	0.074
	37-2	0.086
MEAN (n=8)		**0.070**
STANDARD DEVIATION		**0.011**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE ADRENAL GLAND WEIGHTS (g)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	ADRENAL WT.
Control -	8-1	0.058
No Treatment	10-1	0.047
	11-1	0.058
	11-2	0.087
	12-1	0.091
	12-2	0.058
	13-1	0.078
	14-1	0.064
MEAN (n=8)		**0.068**
STANDARD DEVIATION		**0.016**

GROUP 4	ANIMAL #	ADRENAL WT.
SN-1	19-1	0.052
120 ppm	19-2	0.059
	20-1	0.056
	20-2	0.075
	21-1	0.055
	21-2	0.053
	22-1	0.060
	22-2	0.059
MEAN (n=8)		**0.059**
STANDARD DEVIATION		**0.007**

GROUP 6	ANIMAL #	ADRENAL WT.
SN-1	27-1	0.053
470 ppm	27-2	0.054
	28-1	0.071
	28-2	0.059
	29-1	0.086
	29-2	0.071
	30-1	0.053
	30-2	0.078
MEAN (n=8)		**0.066**
STANDARD DEVIATION		**0.013**

GROUP 8	ANIMAL #	ADRENAL WT.
SN-1	39-2	0.065
1900 ppm	41-1	0.068
	41-2	0.045
	42-2	0.057
	43-1	0.067
	43-2	0.050
	44-1	0.073
	44-2	0.058
MEAN (n=8)		**0.060**
STANDARD DEVIATION		**0.010**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE BRAIN WEIGHTS (g)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	BRAIN WT.
Control -	1-1	1.947
No Treatment	1-2	2.176
	2-2	1.857
	3-2	1.874
	5-1	1.896
	5-2	1.868
	7-1	1.881
	7-2	2.004
MEAN (n=8)		**1.938**
STANDARD DEVIATION		**0.108**

GROUP 3	ANIMAL #	BRAIN WT.
SN-1	15-1	1.855
120 ppm	15-2	2.052
	16-1	2.021
	16-2	1.865
	17-1	1.894
	17-2	1.998
	18-1	1.889
	18-2	1.997
MEAN (n=8)		**1.940**
STANDARD DEVIATION		**0.078**

GROUP 5	ANIMAL #	BRAIN WT.
SN-1	23-1	2.076
470 ppm	23-2	1.917
	24-1	2.035
	24-2	1.743
	25-1	1.904
	25-2	1.936
	26-1	1.865
	26-2	1.995
MEAN (n=8)		**1.934**
STANDARD DEVIATION		**0.105**

GROUP 7	ANIMAL #	BRAIN WT.
SN-1	31-2	1.946
1900 ppm	33-1	2.070
	33-2	1.975
	34-2	2.031
	35-2	2.039
	36-1	1.959
	36-2	2.297
	37-2	1.912
MEAN (n=8)		**2.029**
STANDARD DEVIATION		**0.121**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE BRAIN WEIGHTS (g)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	BRAIN WT.
Control -	8-1	1.881
No Treatment	10-1	2.015
	11-1	1.693
	11-2	1.839
	12-1	1.933
	12-2	1.848
	13-1	1.870
	14-1	1.793
MEAN (n=8)		**1.859**
STANDARD DEVIATION		**0.095**

GROUP 4	ANIMAL #	BRAIN WT.
SN-1	19-1	1.877
120 ppm	19-2	1.924
	20-1	1.798
	20-2	1.864
	21-1	2.066
	21-2	1.799
	22-1	1.794
	22-2	1.947
MEAN (n=8)		**1.884**
STANDARD DEVIATION		**0.094**

GROUP 6	ANIMAL #	BRAIN WT.
SN-1	27-1	1.716
470 ppm	27-2	1.919
	28-1	1.925
	28-2	1.866
	29-1	1.879
	29-2	1.852
	30-1	1.811
	30-2	1.760
MEAN (n=8)		**1.841**
STANDARD DEVIATION		**0.074**

GROUP 8	ANIMAL #	BRAIN WT.
SN-1	39-2	1.743
1900 ppm	41-1	1.706
	41-2	1.811
	42-2	1.791
	43-1	1.846
	43-2	1.783
	44-1	1.908
	44-2	1.835
MEAN (n=8)		**1.803**
STANDARD DEVIATION		**0.063**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE TESTES (WITH EPIDIDYMIDES) WEIGHTS (g)

29-DAY SACRIFICE

GROUP 1	ANIMAL #	TESTES WT.
Control -	1-1	4.053
No Treatment	1-2	3.739
	2-2	3.902
	3-2	4.006
	5-1	3.875
	5-2	3.899
	7-1	3.744
	7-2	4.291
MEAN (n=8)		**3.939**
STANDARD DEVIATION		**0.180**

GROUP 3	ANIMAL #	TESTES WT.
SN-1	15-1	3.906
120 ppm	15-2	4.841
	16-1	3.794
	16-2	3.612
	17-1	3.911
	17-2	3.912
	18-1	4.688
	18-2	4.092
MEAN (n=8)		**4.095**
STANDARD DEVIATION		**0.437**

GROUP 5	ANIMAL #	TESTES WT.
SN-1	23-1	3.729
470 ppm	23-2	3.931
	24-1	3.903
	24-2	4.201
	25-1	4.190
	25-2	4.001
	26-1	3.671
	26-2	3.845
MEAN (n=8)		**3.934**
STANDARD DEVIATION		**0.193**

GROUP 7	ANIMAL #	TESTES WT.
SN-1	31-2	3.596
1900 ppm	33-1	4.642
	33-2	3.785
	34-2	3.861
	35-2	4.112
	36-1	4.074
	36-2	4.079
	37-2	4.092
MEAN (n=8)		**4.030**
STANDARD DEVIATION		**0.309**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE UTERUS WEIGHTS (g)

29-DAY SACRIFICE

GROUP 2	ANIMAL #	UTERUS WT.
Control -	8-1	0.321
No Treatment	10-1	0.461
	11-1	0.425
	11-2	0.955
	12-1	0.367
	12-2	0.592
	13-1	0.357
	14-1	0.491
MEAN (n=8)		**0.496**
STANDARD DEVIATION		**0.205**

GROUP 4	ANIMAL #	UTERUS WT.
SN-1	19-1	0.464
120 ppm	19-2	0.362
	20-1	0.403
	20-2	0.503
	21-1	0.386
	21-2	0.346
	22-1	0.386
	22-2	0.398
MEAN (n=8)		**0.406**
STANDARD DEVIATION		**0.052**

GROUP 6	ANIMAL #	UTERUS WT.
SN-1	27-1	0.289
470 ppm	27-2	0.573
	28-1	0.428
	28-2	0.376
	29-1	0.712
	29-2	0.342
	30-1	0.960
	30-2	0.651
MEAN (n=8)		**0.541**
STANDARD DEVIATION		**0.227**

GROUP 8	ANIMAL #	UTERUS WT.
SN-1	39-2	0.366
1900 ppm	41-1	0.268
	41-2	0.439
	42-2	0.328
	43-1	0.310
	43-2	0.903
	44-1	0.329
	44-2	0.885
MEAN (n=8)		**0.479**
STANDARD DEVIATION		**0.261**

APPENDIX 11 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE OVARY WEIGHTS (g)

29-DAY SACRIFICE

GROUP 2	ANIMAL #	OVARY WT.
Control -	8-1	0.111
No Treatment	10-1	0.147
	11-1	0.125
	11-2	0.105
	12-1	0.150
	12-2	0.128
	13-1	0.121
	14-1	0.151
MEAN (n=8)		**0.130**
STANDARD DEVIATION		**0.018**

GROUP 4	ANIMAL #	OVARY WT.
SN-1	19-1	0.087
120 ppm	19-2	0.128
	20-1	0.105
	20-2	0.109
	21-1	0.107
	21-2	0.082
	22-1	0.086
	22-2	0.087
MEAN (n=8)		**0.099**
STANDARD DEVIATION		**0.016**

GROUP 6	ANIMAL #	OVARY WT.
SN-1	27-1	0.110
470 ppm	27-2	0.117
	28-1	0.110
	28-2	0.090
	29-1	0.089
	29-2	0.098
	30-1	0.100
	30-2	0.091
MEAN (n=8)		**0.101**
STANDARD DEVIATION		**0.011**

GROUP 8	ANIMAL #	OVARY WT.
SN-1	39-2	0.129
1900 ppm	41-1	0.104
	41-2	0.075
	42-2	0.130
	43-1	0.074
	43-2	0.109
	44-1	0.098
	44-2	0.088
MEAN (n=8)		**0.101**
STANDARD DEVIATION		**0.022**

APPENDIX 12

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE LIVER WEIGHTS (g)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	LIVER WT.	GROUP 7	ANIMAL #	LIVER WT.
Control -	2-1	7.718	SN-1	31-1	8.952
No Treatment	3-1	9.096	1900 ppm	32-1	9.136
	4-1	9.495		32-2	8.622
	4-2	8.828		34-1	9.865
	6-1	9.743		35-1	9.708
	6-2	9.618		37-1	10.102
MEAN (n=6)		**9.083**	**MEAN (n=6)**		**9.398**
STANDARD DEVIATION		**0.751**	**STANDARD DEVIATION**		**0.580**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	LIVER WT.	GROUP 8	ANIMAL #	LIVER WT.
Control -	8-2	4.681	SN-1	38-1	4.821
No Treatment	9-1	4.868	1900 ppm	38-2	5.453
	9-2	4.248		39-1	5.316
	10-2	4.455		40-1	5.004
	13-2	4.922		40-2	5.390
	14-2	4.354		42-1	5.130
MEAN (n=6)		**4.588**	**MEAN (n=6)**		**5.186**
STANDARD DEVIATION		**0.278**	**STANDARD DEVIATION**		**0.246**

APPENDIX 12 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE KIDNEY WEIGHTS (g)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	KIDNEY WT.	GROUP 7	ANIMAL #	KIDNEY WT.
Control -	2-1	1.713	SN-1	31-1	2.062
No Treatment	3-1	2.198	1900 ppm	32-1	2.106
	4-1	2.176		32-2	2.005
	4-2	2.200		34-1	2.193
	6-1	2.294		35-1	2.224
	6-2	2.326		37-1	2.294
MEAN (n=6)		**2.151**	**MEAN (n=6)**		**2.147**
STANDARD DEVIATION		**0.223**	**STANDARD DEVIATION**		**0.108**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	KIDNEY WT.	GROUP 8	ANIMAL #	KIDNEY WT.
Control -	8-2	1.227	SN-1	38-1	1.308
No Treatment	9-1	1.293	1900 ppm	38-2	1.344
	9-2	1.138		39-1	1.282
	10-2	1.206		40-1	1.276
	13-2	1.315		40-2	1.311
	14-2	1.350		42-1	1.326
MEAN (n=6)		**1.255**	**MEAN (n=6)**		**1.308**
STANDARD DEVIATION		**0.079**	**STANDARD DEVIATION**		**0.026**

APPENDIX 12 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE PITUITARY GLAND WEIGHTS (g)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	PITUITARY WT.	GROUP 7	ANIMAL #	PITUITARY WT.
Control -	2-1	0.0067	SN-1	31-1	0.0109
No Treatment	3-1	0.0084	1900 ppm	32-1	0.0065
	4-1	0.0093		32-2	0.0081
	4-2	0.0105		34-1	0.0105
	6-1	0.0099		35-1	0.0112
	6-2	0.0105		37-1	0.0102
MEAN (n=6)		**0.0092**	**MEAN (n=6)**		**0.0096**
STANDARD DEVIATION		**0.0015**	**STANDARD DEVIATION**		**0.0019**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	PITUITARY WT.	GROUP 8	ANIMAL #	PITUITARY WT.
Control -	8-2	0.0132	SN-1	38-1	0.0115
No Treatment	9-1	0.0119	1900 ppm	38-2	0.0090
	9-2	0.0103		39-1	0.0114
	10-2	0.0144		40-1	0.0105
	13-2	0.0143		40-2	0.0116
	14-2	0.0100		42-1	0.0141
MEAN (n=6)		**0.0124**	**MEAN (n=6)**		**0.0114**
STANDARD DEVIATION		**0.0019**	**STANDARD DEVIATION**		**0.0017**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE THYROID GLAND WEIGHTS (g)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	THYROID WT.	GROUP 7	ANIMAL #	THYROID WT.
Control -	2-1	0.0158	SN-1	31-1	0.0153
No Treatment	3-1	0.0172	1900 ppm	32-1	0.0146
	4-1	0.0166		32-2	0.0148
	4-2	0.0162		34-1	0.0160
	6-1	0.0176		35-1	0.0147
	6-2	0.0201		37-1	0.0165
MEAN (n=6)		**0.0173**	**MEAN (n=6)**		**0.0153**
STANDARD DEVIATION		**0.0015**	**STANDARD DEVIATION**		**0.0008**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	THYROID WT.	GROUP 8	ANIMAL #	THYROID WT.
Control -	8-2	0.0142	SN-1	38-1	0.0118
No Treatment	9-1	0.0138	1900 ppm	38-2	0.0137
	9-2	0.0146		39-1	0.0100
	10-2	0.0137		40-1	0.0121
	13-2	0.0143		40-2	0.0123
	14-2	0.0115		42-1	0.0120
MEAN (n=6)		**0.0137**	**MEAN (n=6)**		**0.0120**
STANDARD DEVIATION		**0.0011**	**STANDARD DEVIATION**		**0.0012**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE HEART WEIGHTS (g)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	HEART WT.	GROUP 7	ANIMAL #	HEART WT.
Control -	2-1	0.915	SN-1	31-1	0.962
No Treatment	3-1	1.070	1900 ppm	32-1	1.011
	4-1	1.100		32-2	0.940
	4-2	0.972		34-1	0.966
	6-1	1.008		35-1	0.984
	6-2	1.337		37-1	0.997
MEAN (n=6)		**1.067**	**MEAN (n=6)**		**0.977**
STANDARD DEVIATION		**0.148**	**STANDARD DEVIATION**		**0.026**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	HEART WT.	GROUP 8	ANIMAL #	HEART WT.
Control -	8-2	0.609	SN-1	38-1	0.640
No Treatment	9-1	0.656	1900 ppm	38-2	0.619
	9-2	0.581		39-1	0.758
	10-2	0.566		40-1	0.606
	13-2	0.628		40-2	0.712
	14-2	0.625		42-1	0.616
MEAN (n=6)		**0.611**	**MEAN (n=6)**		**0.659**
STANDARD DEVIATION		**0.033**	**STANDARD DEVIATION**		**0.062**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE SPLEEN WEIGHTS (g)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	SPLEEN WT.	GROUP 7	ANIMAL #	SPLEEN WT.
Control -	2-1	0.673	SN-1	31-1	0.610
No Treatment	3-1	0.701	1900 ppm	32-1	0.644
	4-1	0.647		32-2	0.578
	4-2	0.685		34-1	0.644
	6-1	0.745		35-1	0.622
	6-2	0.680		37-1	0.634
MEAN (n=6)		**0.689**	**MEAN (n=6)**		**0.622**
STANDARD DEVIATION		**0.033**	**STANDARD DEVIATION**		**0.025**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	SPLEEN WT.	GROUP 8	ANIMAL #	SPLEEN WT.
Control -	8-2	0.448	SN-1	38-1	0.399
No Treatment	9-1	0.446	1900 ppm	38-2	0.396
	9-2	0.371		39-1	0.371
	10-2	0.432		40-1	0.408
	13-2	0.399		40-2	0.435
	14-2	0.429		42-1	0.428
MEAN (n=6)		**0.421**	**MEAN (n=6)**		**0.406**
STANDARD DEVIATION		**0.030**	**STANDARD DEVIATION**		**0.023**

APPENDIX 12 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE ADRENAL GLAND WEIGHTS (g)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	ADRENAL WT.	GROUP 7	ANIMAL #	ADRENAL WT.
Control -	2-1	0.0690	SN-1	31-1	0.0540
No Treatment	3-1	0.0650	1900 ppm	32-1	0.0550
	4-1	0.0470		32-2	0.0490
	4-2	0.0530		34-1	0.0760
	6-1	0.0510		35-1	0.0600
	6-2	0.0540		37-1	0.0810
MEAN (n=6)		**0.0565**	**MEAN (n=6)**		**0.0625**
STANDARD DEVIATION		**0.0086**	**STANDARD DEVIATION**		**0.0130**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	ADRENAL WT.	GROUP 8	ANIMAL #	ADRENAL WT.
Control -	8-2	0.0810	SN-1	38-1	0.0438
No Treatment	9-1	0.0560	1900 ppm	38-2	0.0574
	9-2	0.0490		39-1	0.0639
	10-2	0.0781		40-1	0.0554
	13-2	0.0590		40-2	0.0519
	14-2	0.0524		42-1	0.0842
MEAN (n=6)		**0.0626**	**MEAN (n=6)**		**0.0594**
STANDARD DEVIATION		**0.0136**	**STANDARD DEVIATION**		**0.0138**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE BRAIN WEIGHTS (g)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	BRAIN WT.	GROUP 7	ANIMAL #	BRAIN WT.
Control -	2-1	1.842	SN-1	31-1	1.981
No Treatment	3-1	1.943	1900 ppm	32-1	1.951
	4-1	1.994		32-2	1.910
	4-2	1.934		34-1	1.942
	6-1	1.941		35-1	2.001
	6-2	1.963		37-1	1.976
MEAN (n=6)		**1.936**	**MEAN (n=6)**		**1.960**
STANDARD DEVIATION		**0.051**	**STANDARD DEVIATION**		**0.033**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	BRAIN WT.	GROUP 8	ANIMAL #	BRAIN WT.
Control -	8-2	1.823	SN-1	38-1	1.786
No Treatment	9-1	1.712	1900 ppm	38-2	1.756
	9-2	1.766		39-1	1.796
	10-2	1.747		40-1	1.748
	13-2	1.773		40-2	1.799
	14-2	1.830		42-1	1.642
MEAN (n=6)		**1.775**	**MEAN (n=6)**		**1.755**
STANDARD DEVIATION		**0.045**	**STANDARD DEVIATION**		**0.059**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE TESTES (WITH EPIDIDYMIDES) WEIGHTS (g)

43-DAY SACRIFICE

GROUP 1	ANIMAL #	TESTES WT.	GROUP 7	ANIMAL #	TESTES WT.
Control -	2-1	3.956	SN-1	31-1	4.015
No Treatment	3-1	3.791	1900 ppm	32-1	3.848
	4-1	3.965		32-2	3.750
	4-2	4.023		34-1	3.872
	6-1	3.984		35-1	4.004
	6-2	3.799		37-1	3.981
MEAN (n=6)		**3.920**	**MEAN (n=6)**		**3.912**
STANDARD DEVIATION		**0.099**	**STANDARD DEVIATION**		**0.106**

APPENDIX 12 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE UTERUS WEIGHTS (g)

43-DAY SACRIFICE

GROUP 2	ANIMAL #	UTERUS WT.	GROUP 8	ANIMAL #	UTERUS WT.
Control -	8-2	0.425	SN-1	38-1	0.883
No Treatment	9-1	0.499	1900 ppm	38-2	0.346
	9-2	0.335		39-1	0.324
	10-2	0.504		40-1	0.477
	13-2	0.417		40-2	0.278
	14-2	0.263		42-1	0.472
MEAN (n=6)		**0.407**	**MEAN (n=6)**		**0.463**
STANDARD DEVIATION		**0.094**	**STANDARD DEVIATION**		**0.221**

APPENDIX 12 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL ABSOLUTE OVARY WEIGHTS (g)

43-DAY SACRIFICE

GROUP 2	ANIMAL #	OVARY WT.
Control -	8-2	0.1380
No Treatment	9-1	0.0850
	9-2	0.0770
	10-2	0.1050
	13-2	0.0702
	14-2	0.0779
MEAN (n=6)		**0.0922**
STANDARD DEVIATION		**0.0254**

GROUP 8	ANIMAL #	OVARY WT.
SN-1	38-1	0.0950
1900 ppm	38-2	0.0687
	39-1	0.0960
	40-1	0.0935
	40-2	0.0913
	42-1	0.1040
MEAN (n=6)		**0.0914**
STANDARD DEVIATION		**0.0119**

APPENDIX 13

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE LIVER WEIGHTS (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	LIVER/BW
Control -	1-1	3.085
No Treatment	1-2	3.219
	2-2	2.930
	3-2	2.827
	5-1	2.840
	5-2	2.963
	7-1	3.125
	7-2	2.890
MEAN (n=8)		**2.985**
STANDARD DEVIATION		**0.143**

GROUP 3	ANIMAL #	LIVER/BW
SN-1	15-1	2.982
120 ppm	15-2	2.981
	16-1	3.122
	16-2	2.830
	17-1	2.847
	17-2	2.800
	18-1	2.791
	18-2	3.302
MEAN (n=8)		**2.957**
STANDARD DEVIATION		**0.180**

GROUP 5	ANIMAL #	LIVER/BW
SN-1	23-1	2.993
470 ppm	23-2	3.025
	24-1	2.925
	24-2	3.225
	25-1	3.201
	25-2	3.046
	26-1	3.081
	26-2	3.260
MEAN (n=8)		**3.094**
STANDARD DEVIATION		**0.121**

GROUP 7	ANIMAL #	LIVER/BW
SN-1	31-2	3.536
1900 ppm	33-1	3.759
	33-2	3.905
	34-2	3.383
	35-2	3.423
	36-1	3.705
	36-2	3.622
	37-2	3.807
MEAN (n=8)		**3.643**
STANDARD DEVIATION		**0.186**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE LIVER WEIGHTS (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	LIVER/BW
Control -	8-1	2.685
No Treatment	10-1	2.866
	11-1	2.759
	11-2	2.873
	12-1	2.614
	12-2	2.635
	13-1	2.851
	14-1	2.920
MEAN (n=8)		**2.775**
STANDARD DEVIATION		**0.119**

GROUP 4	ANIMAL #	LIVER/BW
SN-1	19-1	2.875
120 ppm	19-2	2.904
	20-1	2.831
	20-2	2.698
	21-1	2.661
	21-2	2.454
	22-1	2.684
	22-2	2.836
MEAN (n=8)		**2.743**
STANDARD DEVIATION		**0.149**

GROUP 6	ANIMAL #	LIVER/BW
SN-1	27-1	2.757
470 ppm	27-2	2.772
	28-1	3.198
	28-2	2.821
	29-1	2.679
	29-2	2.966
	30-1	2.653
	30-2	2.779
MEAN (n=8)		**2.828**
STANDARD DEVIATION		**0.177**

GROUP 8	ANIMAL #	LIVER/BW
SN-1	39-2	3.506
1900 ppm	41-1	3.255
	41-2	3.622
	42-2	3.512
	43-1	3.214
	43-2	3.549
	44-1	3.375
	44-2	3.644
MEAN (n=8)		**3.460**
STANDARD DEVIATION		**0.161**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE KIDNEY WEIGHTS (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	KIDNEY/BW
Control -	1-1	0.714
No Treatment	1-2	0.778
	2-2	0.738
	3-2	0.703
	5-1	0.742
	5-2	0.692
	7-1	0.705
	7-2	0.787
MEAN (n=8)		**0.732**
STANDARD DEVIATION		**0.035**

GROUP 3	ANIMAL #	KIDNEY/BW
SN-1	15-1	0.711
120 ppm	15-2	0.712
	16-1	0.741
	16-2	0.669
	17-1	0.728
	17-2	0.733
	18-1	0.725
	18-2	0.767
MEAN (n=8)		**0.723**
STANDARD DEVIATION		**0.028**

GROUP 5	ANIMAL #	KIDNEY/BW
SN-1	23-1	0.735
470 ppm	23-2	0.702
	24-1	0.694
	24-2	0.739
	25-1	0.713
	25-2	0.702
	26-1	0.699
	26-2	0.717
MEAN (n=8)		**0.713**
STANDARD DEVIATION		**0.017**

GROUP 7	ANIMAL #	KIDNEY/BW
SN-1	31-2	0.733
1900 ppm	33-1	0.763
	33-2	0.798
	34-2	0.726
	35-2	0.769
	36-1	0.834
	36-2	0.796
	37-2	0.861
MEAN (n=8)		**0.785**
STANDARD DEVIATION		**0.047**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE KIDNEY WEIGHTS (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	KIDNEY/BW
Control -	8-1	0.779
No Treatment	10-1	0.748
	11-1	0.810
	11-2	0.857
	12-1	0.772
	12-2	0.739
	13-1	0.737
	14-1	0.839
MEAN (n=8)		**0.785**
STANDARD DEVIATION		**0.046**

GROUP 4	ANIMAL #	KIDNEY/BW
SN-1	19-1	0.782
120 ppm	19-2	0.795
	20-1	0.762
	20-2	0.757
	21-1	0.821
	21-2	0.725
	22-1	0.746
	22-2	0.836
MEAN (n=8)		**0.778**
STANDARD DEVIATION		**0.038**

GROUP 6	ANIMAL #	KIDNEY/BW
SN-1	27-1	0.701
470 ppm	27-2	0.681
	28-1	0.812
	28-2	0.741
	29-1	0.752
	29-2	0.719
	30-1	0.739
	30-2	0.792
MEAN (n=8)		**0.742**
STANDARD DEVIATION		**0.044**

GROUP 8	ANIMAL #	KIDNEY/BW
SN-1	39-2	0.791
1900 ppm	41-1	0.797
	41-2	0.717
	42-2	0.791
	43-1	0.794
	43-2	0.830
	44-1	0.808
	44-2	0.864
MEAN (n=8)		**0.799**
STANDARD DEVIATION		**0.042**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE PITUITARY GLAND WEIGHTS (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	PITUITARY/BW
Control -	1-1	0.0029
No Treatment	1-2	0.0033
	2-2	0.0032
	3-2	0.0043
	5-1	0.0039
	5-2	0.0037
	7-1	0.0028
	7-2	0.0037
MEAN (n=8)		**0.0035**
STANDARD DEVIATION		**0.0005**

GROUP 3	ANIMAL #	PITUITARY/BW
SN-1	15-1	0.0033
120 ppm	15-2	0.0030
	16-1	0.0030
	16-2	0.0031
	17-1	0.0035
	17-2	0.0038
	18-1	0.0029
	18-2	0.0032
MEAN (n=8)		**0.0032**
STANDARD DEVIATION		**0.0003**

GROUP 5	ANIMAL #	PITUITARY/BW
SN-1	23-1	0.0032
470 ppm	23-2	0.0035
	24-1	0.0032
	24-2	0.0029
	25-1	0.0034
	25-2	0.0033
	26-1	0.0032
	26-2	0.0033
MEAN (n=8)		**0.0032**
STANDARD DEVIATION		**0.0002**

GROUP 7	ANIMAL #	PITUITARY/BW
SN-1	31-2	0.0035
1900 ppm	33-1	0.0036
	33-2	0.0030
	34-2	0.0039
	35-2	0.0032
	36-1	0.0034
	36-2	0.0035
	37-2	0.0041
MEAN (n=8)		**0.0035**
STANDARD DEVIATION		**0.0004**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE PITUITARY GLAND WEIGHTS (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	PITUITARY/BW
Control -	8-1	0.0070
No Treatment	10-1	0.0108
	11-1	0.0058
	11-2	0.0070
	12-1	0.0057
	12-2	0.0061
	13-1	0.0083
	14-1	0.0080
MEAN (n=8)		**0.0073**
STANDARD DEVIATION		**0.0017**

GROUP 4	ANIMAL #	PITUITARY/BW
SN-1	19-1	0.0076
120 ppm	19-2	0.0062
	20-1	0.0056
	20-2	0.0062
	21-1	0.0058
	21-2	0.0062
	22-1	0.0066
	22-2	0.0061
MEAN (n=8)		**0.0063**
STANDARD DEVIATION		**0.0006**

GROUP 6	ANIMAL #	PITUITARY/BW
SN-1	27-1	0.0069
470 ppm	27-2	0.0061
	28-1	0.0082
	28-2	0.0057
	29-1	0.0060
	29-2	0.0069
	30-1	0.0056
	30-2	0.0058
MEAN (n=8)		**0.0064**
STANDARD DEVIATION		**0.0009**

GROUP 8	ANIMAL #	PITUITARY/BW
SN-1	39-2	0.0082
1900 ppm	41-1	0.0056
	41-2	0.0061
	42-2	0.0073
	43-1	0.0054
	43-2	0.0074
	44-1	0.0065
	44-2	0.0066
MEAN (n=8)		**0.0066**
STANDARD DEVIATION		**0.0010**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE THYROID GLAND WEIGHTS (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	THYROID/BW
Control -	1-1	0.0061
No Treatment	1-2	0.0074
	2-2	0.0060
	3-2	0.0070
	5-1	0.0058
	5-2	0.0070
	7-1	0.0058
	7-2	0.0065
MEAN (n=8)		**0.0064**
STANDARD DEVIATION		**0.0006**

GROUP 3	ANIMAL #	THYROID/BW
SN-1	15-1	0.0055
120 ppm	15-2[1]	0.0028
	16-1	0.0042
	16-2	0.0047
	17-1	0.0048
	17-2	0.0056
	18-1	0.0044
	18-2	0.0040
MEAN (n=8)		**0.0045**
STANDARD DEVIATION		**0.0009**

GROUP 5	ANIMAL #	THYROID/BW
SN-1	23-1	0.0051
470 ppm	23-2	0.0050
	24-1	0.0059
	24-2	0.0043
	25-1	0.0044
	25-2	0.0049
	26-1	0.0038
	26-2	0.0044
MEAN (n=8)		**0.0047**
STANDARD DEVIATION		**0.0007**

GROUP 7	ANIMAL #	THYROID/BW
SN-1	31-2	0.0051
1900 ppm	33-1	0.0059
	33-2	0.0055
	34-2	0.0068
	35-2	0.0050
	36-1	0.0054
	36-2	0.0048
	37-2	0.0049
MEAN (n=8)		**0.0054**
STANDARD DEVIATION		**0.0007**

[1] only one thyroid found when weighing

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE THYROID GLAND WEIGHTS (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	THYROID/BW
Control -	8-1	0.0081
No Treatment	10-1	0.0072
	11-1	0.0080
	11-2	0.0063
	12-1	0.0059
	12-2	0.0066
	13-1	0.0077
	14-1	0.0073
MEAN (n=8)		**0.0071**
STANDARD DEVIATION		**0.0008**

GROUP 4	ANIMAL #	THYROID/BW
SN-1	19-1	0.0070
120 ppm	19-2	0.0066
	20-1	0.0057
	20-2	0.0073
	21-1	0.0061
	21-2	0.0068
	22-1	0.0078
	22-2	0.0065
MEAN (n=8)		**0.0067**
STANDARD DEVIATION		**0.0007**

GROUP 6	ANIMAL #	THYROID/BW
SN-1	27-1	0.0074
470 ppm	27-2	0.0068
	28-1	0.0052
	28-2	0.0065
	29-1	0.0059
	29-2	0.0053
	30-1	0.0070
	30-2	0.0075
MEAN (n=8)		**0.0065**
STANDARD DEVIATION		**0.0009**

GROUP 8	ANIMAL #	THYROID/BW
SN-1	39-2	0.0073
1900 ppm	41-1	0.0070
	41-2	0.0072
	42-2	0.0071
	43-1	0.0087
	43-2	0.0066
	44-1	0.0071
	44-2	0.0069
MEAN (n=8)		**0.0072**
STANDARD DEVIATION		**0.0006**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE HEART WEIGHTS (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	HEART/BW
Control -	1-1	0.335
No Treatment	1-2	0.373
	2-2	0.350
	3-2	0.318
	5-1	0.320
	5-2	0.293
	7-1	0.324
	7-2	0.329
MEAN (n=8)		**0.330**
STANDARD DEVIATION		**0.024**

GROUP 3	ANIMAL #	HEART/BW
SN-1	15-1	0.348
120 ppm	15-2	0.375
	16-1	0.338
	16-2	0.325
	17-1	0.347
	17-2	0.344
	18-1	0.345
	18-2	0.340
MEAN (n=8)		**0.345**
STANDARD DEVIATION		**0.014**

GROUP 5	ANIMAL #	HEART/BW
SN-1	23-1	0.338
470 ppm	23-2	0.338
	24-1	0.363
	24-2	0.328
	25-1	0.306
	25-2	0.341
	26-1	0.327
	26-2	0.325
MEAN (n=8)		**0.333**
STANDARD DEVIATION		**0.016**

GROUP 7	ANIMAL #	HEART/BW
SN-1	31-2	0.408
1900 ppm	33-1	0.323
	33-2	0.383
	34-2	0.381
	35-2	0.382
	36-1	0.394
	36-2	0.343
	37-2	0.371
MEAN (n=8)		**0.373**
STANDARD DEVIATION		**0.028**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE HEART WEIGHTS (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	HEART/BW
Control -	8-1	0.384
No Treatment	10-1	0.376
	11-1	0.330
	11-2	0.381
	12-1	0.354
	12-2	0.365
	13-1	0.361
	14-1	0.470
MEAN (n=8)		**0.378**
STANDARD DEVIATION		**0.041**

GROUP 4	ANIMAL #	HEART/BW
SN-1	19-1	0.454
120 ppm	19-2	0.412
	20-1	0.377
	20-2	0.416
	21-1	0.440
	21-2	0.376
	22-1	0.341
	22-2	0.409
MEAN (n=8)		**0.403**
STANDARD DEVIATION		**0.037**

GROUP 6	ANIMAL #	HEART/BW
SN-1	27-1	0.369
470 ppm	27-2	0.396
	28-1	0.463
	28-2	0.400
	29-1	0.354
	29-2	0.393
	30-1	0.385
	30-2	0.410
MEAN (n=8)		**0.396**
STANDARD DEVIATION		**0.032**

GROUP 8	ANIMAL #	HEART/BW
SN-1	39-2	0.418
1900 ppm	41-1	0.376
	41-2	0.347
	42-2	0.467
	43-1	0.364
	43-2	0.399
	44-1	0.404
	44-2	0.347
MEAN (n=8)		**0.390**
STANDARD DEVIATION		**0.040**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE SPLEEN WEIGHTS (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	SPLEEN/BW
Control -	1-1	0.212
No Treatment	1-2	0.220
	2-2	0.228
	3-2	0.228
	5-1	0.234
	5-2	0.232
	7-1	0.212
	7-2	0.229
MEAN (n=8)		**0.224**
STANDARD DEVIATION		**0.009**

GROUP 3	ANIMAL #	SPLEEN/BW
SN-1	15-1	0.232
120 ppm	15-2	0.320
	16-1	0.199
	16-2	0.217
	17-1	0.237
	17-2	0.246
	18-1	0.213
	18-2	0.209
MEAN (n=8)		**0.234**
STANDARD DEVIATION		**0.038**

GROUP 5	ANIMAL #	SPLEEN/BW
SN-1	23-1	0.227
470 ppm	23-2	0.280
	24-1	0.218
	24-2	0.242
	25-1	0.265
	25-2	0.239
	26-1	0.245
	26-2	0.225
MEAN (n=8)		**0.243**
STANDARD DEVIATION		**0.021**

GROUP 7	ANIMAL #	SPLEEN/BW
SN-1	31-2	0.232
1900 ppm	33-1	0.235
	33-2	0.203
	34-2	0.221
	35-2	0.239
	36-1	0.234
	36-2	0.235
	37-2	0.221
MEAN (n=8)		**0.228**
STANDARD DEVIATION		**0.012**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE SPLEEN WEIGHTS (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	SPLEEN/BW
Control -	8-1	0.211
No Treatment	10-1	0.248
	11-1	0.234
	11-2	0.243
	12-1	0.219
	12-2	0.220
	13-1	0.242
	14-1	0.271
MEAN (n=8)		**0.236**
STANDARD DEVIATION		**0.019**

GROUP 4	ANIMAL #	SPLEEN/BW
SN-1	19-1	0.254
120 ppm	19-2	0.288
	20-1	0.259
	20-2	0.207
	21-1	0.293
	21-2	0.231
	22-1	0.235
	22-2	0.303
MEAN (n=8)		**0.259**
STANDARD DEVIATION		**0.034**

GROUP 6	ANIMAL #	SPLEEN/BW
SN-1	27-1	0.248
470 ppm	27-2	0.250
	28-1	0.247
	28-2	0.235
	29-1	0.242
	29-2	0.271
	30-1	0.228
	30-2	0.270
MEAN (n=8)		**0.249**
STANDARD DEVIATION		**0.015**

GROUP 8	ANIMAL #	SPLEEN/BW
SN-1	39-2	0.216
1900 ppm	41-1	0.218
	41-2	0.216
	42-2	0.253
	43-1	0.244
	43-2	0.248
	44-1	0.241
	44-2	0.262
MEAN (n=8)		**0.237**
STANDARD DEVIATION		**0.018**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE ADRENAL GLAND WEIGHTS (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	ADRENAL/BW
Control -	1-1	0.020
No Treatment	1-2	0.024
	2-2	0.021
	3-2	0.014
	5-1	0.016
	5-2	0.024
	7-1	0.018
	7-2	0.020
MEAN (n=8)		**0.020**
STANDARD DEVIATION		**0.004**

GROUP 3	ANIMAL #	ADRENAL/BW
SN-1	15-1	0.017
120 ppm	15-2	0.013
	16-1	0.023
	16-2	0.017
	17-1	0.018
	17-2	0.016
	18-1	0.016
	18-2	0.018
MEAN (n=8)		**0.017**
STANDARD DEVIATION		**0.003**

GROUP 5	ANIMAL #	ADRENAL/BW
SN-1	23-1	0.018
470 ppm	23-2	0.029
	24-1	0.024
	24-2	0.026
	25-1	0.018
	25-2	0.017
	26-1	0.019
	26-2	0.023
MEAN (n=8)		**0.022**
STANDARD DEVIATION		**0.005**

GROUP 7	ANIMAL #	ADRENAL/BW
SN-1	31-2	0.022
1900 ppm	33-1	0.023
	33-2	0.022
	34-2	0.028
	35-2	0.027
	36-1	0.030
	36-2	0.026
	37-2	0.030
MEAN (n=8)		**0.026**
STANDARD DEVIATION		**0.003**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE ADRENAL GLAND WEIGHTS (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	ADRENAL/BW
Control -	8-1	0.034
No Treatment	10-1	0.028
	11-1	0.035
	11-2	0.048
	12-1	0.053
	12-2	0.032
	13-1	0.043
	14-1	0.037
MEAN (n=8)		**0.039**
STANDARD DEVIATION		**0.008**

GROUP 4	ANIMAL #	ADRENAL/BW
SN-1	19-1	0.030
120 ppm	19-2	0.035
	20-1	0.034
	20-2	0.044
	21-1	0.031
	21-2	0.031
	22-1	0.034
	22-2	0.032
MEAN (n=8)		**0.034**
STANDARD DEVIATION		**0.004**

GROUP 6	ANIMAL #	ADRENAL/BW
SN-1	27-1	0.033
470 ppm	27-2	0.032
	28-1	0.043
	28-2	0.033
	29-1	0.048
	29-2	0.039
	30-1	0.030
	30-2	0.043
MEAN (n=8)		**0.038**
STANDARD DEVIATION		**0.006**

GROUP 8	ANIMAL #	ADRENAL/BW
SN-1	39-2	0.042
1900 ppm	41-1	0.042
	41-2	0.027
	42-2	0.033
	43-1	0.041
	43-2	0.031
	44-1	0.041
	44-2	0.032
MEAN (n=8)		**0.036**
STANDARD DEVIATION		**0.006**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE BRAIN WEIGHTS (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	BRAIN/BW
Control -	1-1	0.674
No Treatment	1-2	0.758
	2-2	0.663
	3-2	0.648
	5-1	0.658
	5-2	0.646
	7-1	0.635
	7-2	0.649
MEAN (n=8)		**0.667**
STANDARD DEVIATION		**0.039**

GROUP 3	ANIMAL #	BRAIN/BW
SN-1	15-1	0.675
120 ppm	15-2	0.666
	16-1	0.690
	16-2	0.676
	17-1	0.681
	17-2	0.689
	18-1	0.609
	18-2	0.622
MEAN (n=8)		**0.663**
STANDARD DEVIATION		**0.031**

GROUP 5	ANIMAL #	BRAIN/BW
SN-1	23-1	0.778
470 ppm	23-2	0.663
	24-1	0.743
	24-2	0.573
	25-1	0.645
	25-2	0.650
	26-1	0.630
	26-2	0.612
MEAN (n=8)		**0.662**
STANDARD DEVIATION		**0.067**

GROUP 7	ANIMAL #	BRAIN/BW
SN-1	31-2	0.775
1900 ppm	33-1	0.755
	33-2	0.766
	34-2	0.766
	35-2	0.733
	36-1	0.742
	36-2	0.815
	37-2	0.666
MEAN (n=8)		**0.752**
STANDARD DEVIATION		**0.043**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE BRAIN WEIGHTS (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	BRAIN/BW
Control -	8-1	1.087
No Treatment	10-1	1.207
	11-1	1.014
	11-2	1.005
	12-1	1.124
	12-2	1.032
	13-1	1.022
	14-1	1.030
MEAN (n=8)		**1.065**
STANDARD DEVIATION		**0.070**

GROUP 4	ANIMAL #	BRAIN/BW
SN-1	19-1	1.098
120 ppm	19-2	1.132
	20-1	1.077
	20-2	1.096
	21-1	1.167
	21-2	1.040
	22-1	1.008
	22-2	1.064
MEAN (n=8)		**1.085**
STANDARD DEVIATION		**0.050**

GROUP 6	ANIMAL #	BRAIN/BW
SN-1	27-1	1.073
470 ppm	27-2	1.136
	28-1	1.167
	28-2	1.042
	29-1	1.044
	29-2	1.012
	30-1	1.029
	30-2	0.962
MEAN (n=8)		**1.058**
STANDARD DEVIATION		**0.066**

GROUP 8	ANIMAL #	BRAIN/BW
SN-1	39-2	1.132
1900 ppm	41-1	1.060
	41-2	1.084
	42-2	1.047
	43-1	1.126
	43-2	1.114
	44-1	1.066
	44-2	1.025
MEAN (n=8)		**1.082**
STANDARD DEVIATION		**0.039**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE TESTES (WITH EPIDIDYMIDES) WEIGHTS (%)

29-DAY SACRIFICE

GROUP 1	ANIMAL #	TESTES/BW
Control -	1-1	1.402
No Treatment	1-2	1.303
	2-2	1.394
	3-2	1.386
	5-1	1.345
	5-2	1.349
	7-1	1.265
	7-2	1.389
MEAN (n=8)		**1.354**
STANDARD DEVIATION		**0.049**

GROUP 3	ANIMAL #	TESTES/BW
SN-1	15-1	1.420
120 ppm	15-2	1.572
	16-1	1.295
	16-2	1.309
	17-1	1.407
	17-2	1.349
	18-1	1.512
	18-2	1.275
MEAN (n=8)		**1.392**
STANDARD DEVIATION		**0.107**

GROUP 5	ANIMAL #	TESTES/BW
SN-1	23-1	1.397
470 ppm	23-2	1.360
	24-1	1.424
	24-2	1.382
	25-1	1.420
	25-2	1.343
	26-1	1.240
	26-2	1.179
MEAN (n=8)		**1.343**
STANDARD DEVIATION		**0.088**

GROUP 7	ANIMAL #	TESTES/BW
SN-1	31-2	1.433
1900 ppm	33-1	1.694
	33-2	1.467
	34-2	1.457
	35-2	1.479
	36-1	1.543
	36-2	1.446
	37-2	1.426
MEAN (n=8)		**1.493**
STANDARD DEVIATION		**0.089**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE UTERUS WEIGHTS (%)

29-DAY SACRIFICE

GROUP 2	ANIMAL #	UTERUS/BW
Control -	8-1	0.186
No Treatment	10-1	0.276
	11-1	0.254
	11-2	0.522
	12-1	0.213
	12-2	0.331
	13-1	0.195
	14-1	0.282
MEAN (n=8)		**0.282**
STANDARD DEVIATION		**0.108**

GROUP 4	ANIMAL #	UTERUS/BW
SN-1	19-1	0.271
120 ppm	19-2	0.213
	20-1	0.241
	20-2	0.296
	21-1	0.218
	21-2	0.200
	22-1	0.217
	22-2	0.217
MEAN (n=8)		**0.234**
STANDARD DEVIATION		**0.033**

GROUP 6	ANIMAL #	UTERUS/BW
SN-1	27-1	0.181
470 ppm	27-2	0.339
	28-1	0.259
	28-2	0.210
	29-1	0.396
	29-2	0.187
	30-1	0.545
	30-2	0.356
MEAN (n=8)		**0.309**
STANDARD DEVIATION		**0.125**

GROUP 8	ANIMAL #	UTERUS/BW
SN-1	39-2	0.238
1900 ppm	41-1	0.166
	41-2	0.263
	42-2	0.192
	43-1	0.189
	43-2	0.564
	44-1	0.184
	44-2	0.494
MEAN (n=8)		**0.286**
STANDARD DEVIATION		**0.154**

APPENDIX 13 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE OVARY WEIGHTS (%)

29-DAY SACRIFICE

GROUP 2 Control - No Treatment	ANIMAL #	OVARY/BW
	8-1	0.064
	10-1	0.088
	11-1	0.075
	11-2	0.057
	12-1	0.087
	12-2	0.072
	13-1	0.066
	14-1	0.087
MEAN (n=8)		**0.075**
STANDARD DEVIATION		**0.012**

GROUP 4 SN-1 120 ppm	ANIMAL #	OVARY/BW
	19-1	0.051
	19-2	0.075
	20-1	0.063
	20-2	0.064
	21-1	0.060
	21-2	0.047
	22-1	0.048
	22-2	0.048
MEAN (n=8)		**0.057**
STANDARD DEVIATION		**0.010**

GROUP 6 SN-1 470 ppm	ANIMAL #	OVARY/BW
	27-1	0.069
	27-2	0.069
	28-1	0.067
	28-2	0.050
	29-1	0.049
	29-2	0.054
	30-1	0.057
	30-2	0.050
MEAN (n=8)		**0.058**
STANDARD DEVIATION		**0.009**

GROUP 8 SN-1 1900 ppm	ANIMAL #	OVARY/BW
	39-2	0.084
	41-1	0.065
	41-2	0.045
	42-2	0.076
	43-1	0.045
	43-2	0.068
	44-1	0.055
	44-2	0.049
MEAN (n=8)		**0.061**
STANDARD DEVIATION		**0.015**

APPENDIX 14

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE LIVER WEIGHTS (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	LIVER/BW.	GROUP 7	ANIMAL #	LIVER/BW
Control -	2-1	3.039	SN-1	31-1	3.174
No Treatment	3-1	2.992	1900 ppm	32-1	3.086
	4-1	2.958		32-2	3.147
	4-2	2.848		34-1	3.224
	6-1	2.989		35-1	3.371
	6-2	2.969		37-1	3.334
MEAN (n=6)		**2.966**	**MEAN (n=6)**		**3.223**
STANDARD DEVIATION		**0.064**	**STANDARD DEVIATION**		**0.110**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	LIVER/BW	GROUP 8	ANIMAL #	LIVER/BW
Control -	8-2	2.675	SN-1	38-1	2.922
No Treatment	9-1	2.617	1900 ppm	38-2	3.046
	9-2	2.559		39-1	3.164
	10-2	2.621		40-1	2.843
	13-2	2.632		40-2	2.914
	14-2	2.446		42-1	3.128
MEAN (n=6)		**2.592**	**MEAN (n=6)**		**3.003**
STANDARD DEVIATION		**0.080**	**STANDARD DEVIATION**		**0.129**

APPENDIX 14 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE KIDNEY WEIGHTS (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	KIDNEY/BW	GROUP 7	ANIMAL #	KIDNEY/BW
Control -	2-1	0.674	SN-1	31-1	0.731
No Treatment	3-1	0.723	1900 ppm	32-1	0.711
	4-1	0.678		32-2	0.732
	4-2	0.710		34-1	0.717
	6-1	0.704		35-1	0.772
	6-2	0.718		37-1	0.757
MEAN (n=6)		**0.701**	**MEAN (n=6)**		**0.737**
STANDARD DEVIATION		**0.020**	**STANDARD DEVIATION**		**0.024**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	KIDNEY/BW	GROUP 8	ANIMAL #	KIDNEY/BW
Control -	8-2	0.701	SN-1	38-1	0.793
No Treatment	9-1	0.695	1900 ppm	38-2	0.751
	9-2	0.686		39-1	0.763
	10-2	0.709		40-1	0.725
	13-2	0.703		40-2	0.709
	14-2	0.758		42-1	0.809
MEAN (n=6)		**0.709**	**MEAN (n=6)**		**0.758**
STANDARD DEVIATION		**0.026**	**STANDARD DEVIATION**		**0.038**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE PITUITARY GLAND WEIGHTS (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	PITUITARY/BW	GROUP 7	ANIMAL #	PITUITARY/BW
Control -	2-1	0.0026	SN-1	31-1	0.0039
No Treatment	3-1	0.0028	1900 ppm	32-1	0.0022
	4-1	0.0029		32-2	0.0030
	4-2	0.0034		34-1	0.0034
	6-1	0.0030		35-1	0.0039
	6-2	0.0032		37-1	0.0034
MEAN (n=6)		**0.0030**	**MEAN (n=6)**		**0.0033**
STANDARD DEVIATION		**0.0003**	**STANDARD DEVIATION**		**0.0006**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	PITUITARY/BW	GROUP 8	ANIMAL #	PITUITARY/BW
Control -	8-2	0.0075	SN-1	38-1	0.0070
No Treatment	9-1	0.0064	1900 ppm	38-2	0.0050
	9-2	0.0062		39-1	0.0068
	10-2	0.0085		40-1	0.0060
	13-2	0.0076		40-2	0.0063
	14-2	0.0056		42-1	0.0086
MEAN (n=6)		**0.0070**	**MEAN (n=6)**		**0.0066**
STANDARD DEVIATION		**0.0011**	**STANDARD DEVIATION**		**0.0012**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE THYROID GLAND WEIGHTS (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	THYROID/BW	GROUP 7	ANIMAL #	THYROID/BW
Control -	2-1	0.0062	SN-1	31-1	0.0054
No Treatment	3-1	0.0057	1900 ppm	32-1	0.0049
	4-1	0.0052		32-2	0.0054
	4-2	0.0052		34-1	0.0052
	6-1	0.0054		35-1	0.0051
	6-2	0.0062		37-1	0.0054
MEAN (n=6)		**0.0056**	**MEAN (n=6)**		**0.0053**
STANDARD DEVIATION		**0.0005**	**STANDARD DEVIATION**		**0.0002**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	THYROID/BW	GROUP 8	ANIMAL #	THYROID/BW
Control -	8-2	0.0081	SN-1	38-1	0.0072
No Treatment	9-1	0.0074	1900 ppm	38-2	0.0077
	9-2	0.0088		39-1	0.0060
	10-2	0.0081		40-1	0.0069
	13-2	0.0076		40-2	0.0066
	14-2	0.0065		42-1	0.0073
MEAN (n=6)		**0.0077**	**MEAN (n=6)**		**0.0069**
STANDARD DEVIATION		**0.0008**	**STANDARD DEVIATION**		**0.0006**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE HEART WEIGHTS (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	HEART/BW	GROUP 7	ANIMAL #	HEART/BW
Control -	2-1	0.360	SN-1	31-1	0.341
No Treatment	3-1	0.352	1900 ppm	32-1	0.342
	4-1	0.343		32-2	0.343
	4-2	0.314		34-1	0.316
	6-1	0.309		35-1	0.342
	6-2	0.413		37-1	0.329
MEAN (n=6)		**0.348**	**MEAN (n=6)**		**0.335**
STANDARD DEVIATION		**0.038**	**STANDARD DEVIATION**		**0.011**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	HEART/BW	GROUP 8	ANIMAL #	HEART/BW
Control -	8-2	0.348	SN-1	38-1	0.388
No Treatment	9-1	0.353	1900 ppm	38-2	0.346
	9-2	0.350		39-1	0.451
	10-2	0.333		40-1	0.344
	13-2	0.336		40-2	0.385
	14-2	0.351		42-1	0.376
MEAN (n=6)		**0.345**	**MEAN (n=6)**		**0.382**
STANDARD DEVIATION		**0.008**	**STANDARD DEVIATION**		**0.039**

APPENDIX 14 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE SPLEEN WEIGHTS (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	SPLEEN/BW	GROUP 7	ANIMAL #	SPLEEN/BW
Control -	2-1	0.265	SN-1	31-1	0.216
No Treatment	3-1	0.231	1900 ppm	32-1	0.218
	4-1	0.202		32-2	0.211
	4-2	0.221		34-1	0.210
	6-1	0.229		35-1	0.216
	6-2	0.210		37-1	0.209
MEAN (n=6)		**0.226**	**MEAN (n=6)**		**0.213**
STANDARD DEVIATION		**0.022**	**STANDARD DEVIATION**		**0.004**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	SPLEEN/BW	GROUP 8	ANIMAL #	SPLEEN/BW
Control -	8-2	0.256	SN-1	38-1	0.242
No Treatment	9-1	0.240	1900 ppm	38-2	0.221
	9-2	0.223		39-1	0.221
	10-2	0.254		40-1	0.232
	13-2	0.213		40-2	0.235
	14-2	0.241		42-1	0.261
MEAN (n=6)		**0.238**	**MEAN (n=6)**		**0.235**
STANDARD DEVIATION		**0.017**	**STANDARD DEVIATION**		**0.015**

APPENDIX 14 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE ADRENAL GLAND WEIGHTS (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	ADRENAL/BW	GROUP 7	ANIMAL #	ADRENAL/BW
Control -	2-1	0.0272	SN-1	31-1	0.0191
No Treatment	3-1	0.0214	1900 ppm	32-1	0.0186
	4-1	0.0146		32-2	0.0179
	4-2	0.0171		34-1	0.0248
	6-1	0.0156		35-1	0.0208
	6-2	0.0167		37-1	0.0267
MEAN (n=6)		**0.0188**	**MEAN (n=6)**		**0.0213**
STANDARD DEVIATION		**0.0047**	**STANDARD DEVIATION**		**0.0036**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	ADRENAL/BW	GROUP 8	ANIMAL #	ADRENAL/BW
Control -	8-2	0.0463	SN-1	38-1	0.0265
No Treatment	9-1	0.0301	1900 ppm	38-2	0.0321
	9-2	0.0295		39-1	0.0380
	10-2	0.0459		40-1	0.0315
	13-2	0.0316		40-2	0.0281
	14-2	0.0294		42-1	0.0513
MEAN (n=6)		**0.0355**	**MEAN (n=6)**		**0.0346**
STANDARD DEVIATION		**0.0083**	**STANDARD DEVIATION**		**0.0091**

APPENDIX 14 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE BRAIN WEIGHTS (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	BRAIN/BW	GROUP 7	ANIMAL #	BRAIN/BW
Control -	2-1	0.725	SN-1	31-1	0.702
No Treatment	3-1	0.639	1900 ppm	32-1	0.659
	4-1	0.621		32-2	0.697
	4-2	0.624		34-1	0.635
	6-1	0.595		35-1	0.695
	6-2	0.606		37-1	0.652
MEAN (n=6)		**0.635**	**MEAN (n=6)**		**0.673**
STANDARD DEVIATION		**0.047**	**STANDARD DEVIATION**		**0.028**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	BRAIN/BW	GROUP 8	ANIMAL #	BRAIN/BW
Control -	8-2	1.042	SN-1	38-1	1.082
No Treatment	9-1	0.920	1900 ppm	38-2	0.981
	9-2	1.064		39-1	1.069
	10-2	1.028		40-1	0.993
	13-2	0.948		40-2	0.972
	14-2	1.028		42-1	1.001
MEAN (n=6)		**1.005**	**MEAN (n=6)**		**1.017**
STANDARD DEVIATION		**0.057**	**STANDARD DEVIATION**		**0.047**

APPENDIX 14 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE TESTES (WITH EPIDIDYMIDES) WEIGHTS (g)

43-DAY SACRIFICE

GROUP 1	ANIMAL #	TESTES/BW
Control -	2-1	1.557
No Treatment	3-1	1.247
	4-1	1.235
	4-2	1.298
	6-1	1.222
	6-2	1.173
MEAN (n=6)		**1.289**
STANDARD DEVIATION		**0.138**

GROUP 7	ANIMAL #	TESTES/BW
SN-1	31-1	1.424
1900 ppm	32-1	1.300
	32-2	1.369
	34-1	1.265
	35-1	1.390
	37-1	1.314
MEAN (n=6)		**1.344**
STANDARD DEVIATION		**0.060**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE UTERUS WEIGHTS (%)

43-DAY SACRIFICE

GROUP 2	ANIMAL #	UTERUS/BW	GROUP 8	ANIMAL #	UTERUS/BW
Control -	8-2	0.243	SN-1	38-1	0.535
No Treatment	9-1	0.268	1900 ppm	38-2	0.193
	9-2	0.202		39-1	0.193
	10-2	0.296		40-1	0.271
	13-2	0.223		40-2	0.150
	14-2	0.148		42-1	0.288
MEAN (n=6)		**0.230**	**MEAN (n=6)**		**0.272**
STANDARD DEVIATION		**0.052**	**STANDARD DEVIATION**		**0.139**

APPENDIX 14 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL RELATIVE OVARY WEIGHTS (g)

43-DAY SACRIFICE

GROUP 2	ANIMAL #	OVARY/BW	GROUP 8	ANIMAL #	OVARY/BW
Control -	8-2	0.0789	SN-1	38-1	0.0576
No Treatment	9-1	0.0457	1900 ppm	38-2	0.0384
	9-2	0.0464		39-1	0.0571
	10-2	0.0618		40-1	0.0531
	13-2	0.0375		40-2	0.0494
	14-2	0.0438		42-1	0.0634
MEAN (n=6)		**0.0523**	**MEAN (n=6)**		**0.0532**
STANDARD DEVIATION		**0.0153**	**STANDARD DEVIATION**		**0.0086**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL GROSS FINDINGS

29-DAY SACRIFICE (MALES)

Group #	Animal #	Liver	Urinary Bladder	Lung	Adrenal Gland
1	1-1				
	1-2				
	2-2				
	3-2				
	5-1		Concs		
	5-2				
	7-1				
	7-2				
3	15-1				
	15-2			Nods	Atl
	16-1				
	16-2				
	17-1				
	17-2				
	18-1				
	18-2				
5	23-1			Fps	
	23-2				
	24-1				
	24-2				
	25-1	Di	Conc	Fds	
	25-2			Rt	
	26-1				
	26-2				
7	31-2				
	33-1				
	33-2		Concs		
	34-2				
	35-2				
	36-1				
	36-2				
	37-2		Conc		

Group 1 = Control - No Treatment
Group 3 = SN-1 120 ppm
Group 5 = SN-1 470 ppm
Group 7 = SN-1 1900 ppm

Blank space denotes no necropsy findings.

Atl = Left atrophied
Conc = Concretion (white)
Concs = Concretion (soft and white)
Di = Discoloration (mottled appearance)
Fds = Pinpoint focal discolorations (white) - all lobes
Fps = Gray-colored raised patches on all lobes from <0.1 cm up to 0.2 cm approx. (focal patches)
Nods = Nodules on all lobes from pinpoint to 2mm
Rt = Rough in texture

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL GROSS FINDINGS

29-DAY SACRIFICE (FEMALES)

Group #	Animal #	Liver	Urinary Bladder	Lung	Uterus	Adrenal Gland
2	8-1					
	10-1		Concf			
	11-1					
	11-2					
	12-1					
	12-2					
	13-1					
	14-1					
4	19-1					
	19-2					
	20-1	Arf				
	20-2			Fdssr		
	21-1					
	21-2			Fdsrirl		
	22-1					
	22-2					
6	27-1					
	27-2					
	28-1					
	28-2			Fsrsal		
	29-1					
	29-2			Fdmral		
	30-1			Fdfsral		
	30-2					
8	39-2					
	41-1					
	41-2					
	42-2					
	43-1					
	43-2			Fdpral	Ff	Athemr
	44-1					
	44-2			Fdsal		

Group 2 = Control - No Treatment
Group 4 = SN-1 120 ppm
Group 6 = SN-1 470 ppm
Group 8 = SN-1 1900 ppm

Blank space denotes no necropsy findings.

Arf = Medial left lobe has a raised area 0.3 cm on cranial edge (focus)
Athemr = Right - atrophied and hemorrhagic
Concf = Concretion (white and fatty-looking)
Fdfsral = A few focal discolorations (grayish) - slightly raised - up to 0.1 cm - all lobes
Fdmral = Multiple raised focal discolorations (grayish) from <0.1 cm up to 0.1 cm - all lobes
Fdpral = Partially raised focal discolorations (gray) on all lobes
Fdsal = Small (approx. 0.1 cm) focal discolorations (grayish) - all lobes
Fdsrirl = Slightly raised focal discoloration (grayish) - inferior right lobe
Fdssr = Scattered focal discolorations (gray) - slightly raised, up to 0.1 cm
Ff = Fluid-filled
Fsrsal = Small, <0.1 up to 0.1 cm slightly raised foci - all lobes

AHF STUDY R-1777

APPENDIX 16

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL GROSS FINDINGS

43-DAY SACRIFICE (MALES)

Group #	Animal #	Liver	Urinary Bladder	Lung	Adrenal Gland
1	2-1				
	3-1				
	4-1				
	4-2				
	6-1				
	6-2				
7	31-1				
	32-1				
	32-2		Concs		
	34-1				
	35-1				
	37-1				

Group 1 = Control - No Treatment

Group 7 = SN-1 1900 ppm

Blank space denotes no necropsy findings.

Concs = Concretion (soft and white)

APPENDIX 16 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL GROSS FINDINGS

43-DAY SACRIFICE (FEMALES)

Group #	Animal #	Liver	Urinary Bladder	Lung	Uterus	Adrenal Gland
2	8-2					
	9-1					
	9-2	Fdmrl				
	10-2					
	13-2					
	14-2					
8	38-1					
	38-2					
	39-1					
	40-1					
	40-2					
	42-1					

Group 2 = Control - No Treatment

Group 8 = SN-1 1900 ppm

Blank space denotes no necropsy findings.

Fdmrl = Focal discoloration (pale) <0.1cm - median right lobe

APPENDIX 17

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL PCNA REPLICATING FRACTIONS (RF) FOR HEPATOCELLULAR NUCLEI (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	PCNA RF
Control -	1-1	4.61
No Treatment	1-2	4.17
	2-2	3.88
	3-2	3.44
	5-1	4.38
	5-2	4.50
	7-1	4.28
	7-2	3.75
MEAN (n=8)		**4.13**
STANDARD DEVIATION		**0.40**

GROUP 3	ANIMAL #	PCNA RF
SN-1	15-1	3.94
120 ppm	15-2	4.06
	16-1	4.95
	16-2	4.58
	17-1	4.55
	17-2	4.06
	18-1	4.00
	18-2	4.73
MEAN (n=8)		**4.36**
STANDARD DEVIATION		**0.39**

GROUP 5	ANIMAL #	PCNA RF
SN-1	23-1	4.61
470 ppm	23-2	4.16
	24-1	5.37
	24-2	4.75
	25-1	4.33
	25-2	4.05
	26-1	3.65
	26-2	5.08
MEAN (n=8)		**4.50**
STANDARD DEVIATION		**0.57**

GROUP 7	ANIMAL #	PCNA RF
SN-1	31-2	6.01
1900 ppm	33-1	5.68
	33-2	4.85
	34-2	---
	35-2	6.56
	36-1	5.45
	36-2	5.97
	37-2	5.29
MEAN (n=7)		**5.69**
STANDARD DEVIATION		**0.56**

--- = unsuccessful staining

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL PCNA REPLICATING FRACTIONS (RF) FOR HEPATOCELLULAR NUCLEI (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	PCNA RF
Control -	8-1	3.82
No Treatment	10-1	3.41
	11-1	4.13
	11-2	2.92
	12-1	3.18
	12-2	3.05
	13-1	4.91
	14-1	2.46
MEAN (n=8)		**3.49**
STANDARD DEVIATION		**0.78**

GROUP 4	ANIMAL #	PCNA RF
SN-1	19-1	4.48
120 ppm	19-2	3.43
	20-1	2.88
	20-2	3.72
	21-1	2.91
	21-2	4.81
	22-1	3.51
	22-2	3.75
MEAN (n=8)		**3.69**
STANDARD DEVIATION		**0.68**

GROUP 6	ANIMAL #	PCNA LI
SN-1	27-1	3.97
470 ppm	27-2	4.74
	28-1	3.45
	28-2	3.39
	29-1	3.79
	29-2	3.43
	30-1	3.44
	30-2	3.22
MEAN (n=8)		**3.68**
STANDARD DEVIATION		**0.49**

GROUP 8	ANIMAL #	PCNA LI
SN-1	39-2	6.01
1900 ppm	41-1	5.26
	41-2	5.38
	42-2	5.00
	43-1	7.05
	43-2	5.12
	44-1	5.63
	44-2	4.40
MEAN (n=8)		**5.48**
STANDARD DEVIATION		**0.79**

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL PCNA REPLICATING FRACTIONS (RF) OF UROTHELIAL CELL NUCLEI (%)

29-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	PCNA RF
Control -	1-1	11.88
No Treatment	1-2	16.67
	2-2	12.03
	3-2	12.69
	5-1	9.64
	5-2	10.73
	7-1	11.19
	7-2	18.07
MEAN (n=8)		**12.86**
STANDARD DEVIATION		**2.95**

GROUP 3	ANIMAL #	PCNA RF
SN-1	15-1	20.77
120 ppm	15-2	---
	16-1	---
	16-2	18.56
	17-1	21.55
	17-2	18.63
	18-1	14.06
	18-2	13.18
MEAN (n=6)		**17.79**
STANDARD DEVIATION		**3.45**

GROUP 5	ANIMAL #	PCNA RF
SN-1	23-1	18.18
470 ppm	23-2	13.39
	24-1	14.20
	24-2	17.09
	25-1	17.96
	25-2	17.16
	26-1	14.72
	26-2	13.90
MEAN (n=8)		**15.83**
STANDARD DEVIATION		**1.96**

GROUP 7	ANIMAL #	PCNA RF
SN-1	31-2	17.95
1900 ppm	33-1	21.55
	33-2	18.75
	34-2	18.06
	35-2	18.55
	36-1	14.55
	36-2	20.08
	37-2	---
MEAN (n=7)		**18.50**
STANDARD DEVIATION		**2.16**

--- = unsuccessful staining

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL PCNA REPLICATING FRACTIONS (RF) OF UROTHELIAL CELL NUCLEI (%)

29-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	PCNA RF
Control -	8-1	---
No Treatment	10-1	13.41
	11-1	12.66
	11-2	11.11
	12-1	16.67
	12-2	11.46
	13-1	10.95
	14-1	11.84
MEAN (n=7)		**12.59**
STANDARD DEVIATION		**2.00**

GROUP 4	ANIMAL #	PCNA RF
SN-1	19-1	11.38
120 ppm	19-2	13.23
	20-1	12.08
	20-2	10.08
	21-1	14.77
	21-2	15.30
	22-1	12.07
	22-2	14.22
MEAN (n=8)		**12.89**
STANDARD DEVIATION		**1.80**

GROUP 6	ANIMAL #	PCNA RF
SN-1	27-1	17.59
470 ppm	27-2	15.64
	28-1	18.90
	28-2	21.46
	29-1	20.52
	29-2	19.57
	30-1	14.59
	30-2	15.00
MEAN (n=8)		**17.91**
STANDARD DEVIATION		**2.62**

GROUP 8	ANIMAL #	PCNA RF
SN-1	39-2	14.90
1900 ppm	41-1	11.52
	41-2	20.56
	42-2	21.96
	43-1	21.25
	43-2	16.74
	44-1	19.73
	44-2	13.59
MEAN (n=8)		**17.53**
STANDARD DEVIATION		**3.90**

--- = No epithelium tissue available

APPENDIX 18

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL PCNA REPLICATING FRACTIONS (RF) FOR HEPATOCELLULAR NUCLEI (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	PCNA RF	GROUP 7	ANIMAL #	PCNA RF
Control -	2-1	3.81	SN-1	31-1	5.55
No Treatment	3-1	4.59	1900 ppm	32-1	3.17
	4-1	3.87		32-2	3.42
	4-2	3.70		34-1	4.41
	6-1	4.98		35-1	4.55
	6-2	4.91		37-1	5.23
MEAN (n=6)		**4.31**	**MEAN (n=6)**		**4.39**
STANDARD DEVIATION		**0.58**	**STANDARD DEVIATION**		**0.95**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	PCNA RF	GROUP 8	ANIMAL #	PCNA RF
Control -	8-2	4.61	SN-1	38-1	5.77
No Treatment	9-1	4.06	1900 ppm	38-2	5.37
	9-2	3.86		39-1	5.73
	10-2	3.91		40-1	4.71
	13-2	4.10		40-2	5.51
	14-2	4.92		42-1	5.22
MEAN (n=6)		**4.24**	**MEAN (n=6)**		**5.39**
STANDARD DEVIATION		**0.43**	**STANDARD DEVIATION**		**0.39**

APPENDIX 18 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL PCNA REPLICATING FRACTIONS (RF) OF UROTHELIAL CELL NUCLEI (%)

43-DAY SACRIFICE (MALES)

GROUP 1	ANIMAL #	PCNA RF	GROUP 7	ANIMAL #	PCNA RF
Control -	2-1	12.69	SN-1	31-1	13.92
No Treatment	3-1	14.69	1900 ppm	32-1	---
	4-1	12.75		32-2	11.52
	4-2	15.81		34-1	14.98
	6-1	11.72		35-1	13.33
	6-2	---		37-1	15.38
MEAN (n=5)		**13.53**	**MEAN (n=5)**		**13.83**
STANDARD DEVIATION		**1.67**	**STANDARD DEVIATION**		**1.53**

43-DAY SACRIFICE (FEMALES)

GROUP 2	ANIMAL #	PCNA RF	GROUP 8	ANIMAL #	PCNA RF
Control -	8-2	8.99	SN-1	38-1	16.54
No Treatment	9-1	15.02	1900 ppm	38-2	15.26
	9-2	9.40		39-1	17.49
	10-2	11.08		40-1	15.26
	13-2	9.97		40-2	10.41
	14-2	8.42		42-1	13.79
MEAN (n=6)		**10.48**	**MEAN (n=6)**		**14.79**
STANDARD DEVIATION		**2.40**	**STANDARD DEVIATION**		**2.49**

--- = unsuccessful staining

APPENDIX 19

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL HISTOPATHOLOGY FINDINGS

29-DAY SACRIFICE (MALES)

Group #	Animal #	Liver	Kidney	Lung	Pituitary Gland	Thyroid Gland	Heart	Pancreas	Spleen	Mesenteric Lymph Node	Harderian Gland	Other
1	1-1	Fm		Pli					Eh, Pt			
	1-2			Afh, Pli		Uc		Fa	Eh, Pt			
	2-2	Fm	Cpn1				Cm/Md		Eh, Pt			
	3-2	Fm	Cpn1				Cm/Md		Eh, Pt			
	5-1	Fha, Fm	Cpn1	Pli					Eh, Pt			
	5-2	Fm	Cpn1	Mir					Eh, Pt			
	7-1	Fm	Cpn1	Pli					Eh, Pt			
	7-2	Fm		Pli					Eh, Pt			
3[1]	15-1	Fm					Cm/Md		Cg, Eh, Pt			
	15-2	Fm					Cm/Md		Eh, Pt			
	16-1	Fm							Eh, Pt			
	16-2	Fm							Eh, Pt			
	17-1	Fm							Cg, Eh, Pt			
	17-2						Cm/Md		Eh, Pt			
	18-1	Fm							Cg, Eh, Pt			
	18-2						Cm/Md		Eh, Pt			

Group 1 = Control - No Treatment
Group 3 = SN-1 120 ppm
Group 5 = SN-1 470 ppm
Group 7 = SN-1 1900 ppm

[1] As per protocol, no histopathology was performed on group 3, except for liver, heart, spleen and exposure-related lesions.

Blank space denotes no microscopic findings. All other examined tissues were within normal limits.

Afh = Aggregates of foamy histiocytes
Cg = Congestion
Cm/Md = Cardiomyopathy/Myocytic degeneration
Cpn = Chronic progressive nephropathy
Eh = Extramedullary hematopoiesis
Fa = Focal atrophy
Fha = Foci of hepatocellular alteration
Fm = Foci of mononuclear cell infiltration
Mir = Minimal inflammatory response
Pli = Perivascular lymphoid infiltration
Pt = Pigmentation
Uc = Ultimobranchial cyst

1 = Minimal
2 = Mild
3 = Moderate
4 = Marked

APPENDIX 19 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL HISTOPATHOLOGY FINDINGS

29-DAY SACRIFICE (MALES)

Group #	Animal #	Liver	Kidney	Lung	Pituitary Gland	Thyroid Gland	Heart	Pancreas	Spleen	Mesenteric Lymph Node	Harderian Gland	Other
5[1]	23-1						Cm/Md		Cg, Eh, Pt			
	23-2	Fm					Cm/Md		Eh, Pt			
	24-1	Fm					Cm/Md		Eh, Pt			
	24-2	Fm					Cm/Md		Eh, Pt			
	25-1	Fm					Cm/Md		Eh, Pt			
	25-2	Fm					Cm/Md		Cg, Eh, Pt			
	26-1	Fm					Cm/Md		Cg, Eh, Pt			
	26-2	Fm					Cm/Md		Eh, Pt			
7	31-2	Fmhacd	Cpn1				Cm/Md		Cg, Eh, Pt			
	33-1	Fmha		Pli			Cm/Md		Cg, Eh, Pt			
	33-2	Fmha					Cm/Md		Cg, Eh, Pt			
	34-2	Fha	Cpn1	Pli			Cm/Md		Cg, Eh, Pt			
	35-2	Fmhacd	Cpn1	Pli					Cg, Eh, Pt			Hfs
	36-1	Fmha	Cpn1	Pli			Cm/Md		Cg, Eh, Pt			
	36-2	Fmha			C		Cm/Md		Cg, Eh, Pt			
	37-2	Fmha		Pli			Cm/Md		Cg, Eh, Pt			

Group 1 = Control - No Treatment
Group 3 = SN-1 120 ppm
Group 5 = SN-1 470 ppm
Group 7 = SN-1 1900 ppm

[1] As per protocol, no histopathology was performed on group 5, except for liver, heart, spleen and exposure-related lesions.

Blank space denotes no microscopic findings. All other examined tissues were within normal limits.

C = Cyst
Cg = Congestion
Cm/Md = Cardiomyopathy/Myocytic degeneration
Cpn = Chronic progressive nephropathy
Eh = Extramedullary hematopoiesis
Fha = Foci of hepatocellular alteration
Fm = Foci of mononuclear cell infiltration
Fmha = Foci of mononuclear cell infiltration, including hepatocellular apoptosis
Fmhacd = Foci of mononuclear cell infiltration, including hepatocellular apoptosis, with cell degeneration
Hfs = Forestomach hyperplasia
Pli = Perivascular lymphoid infiltration
Pt = Pigmentation

1 = Minimal
2 = Mild
3 = Moderate
4 = Marked

APPENDIX 19 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL HISTOPATHOLOGY FINDINGS

29-DAY SACRIFICE (FEMALES)

Group #	Animal #	Liver	Kidney	Lung	Pituitary Gland	Thyroid Gland	Heart	Pancreas	Uterus	Vagina	Spleen	Mesenteric Lymph Node	Harderian Gland	Other
2	8-1			Afh, Il							Eh, Pt			
	10-1			Afh, Il					EnHy		Eh, Pt			
	11-1	Fm	Cpn1	Afh, Il						Sec	Eh, Pt			
	11-2	Fm	Cpn1	Afh, Il			Fh				Eh, Pt			
	12-1			Il, Lh							Eh, Pt			
	12-2			Pli							Eh, Pt			
	13-1			Afh, Il							Eh, Pt		Lii	
	14-1		Min2	Il						Sec	Eh, Pt			
4[1]	19-1										Eh, Pt			
	19-2	Fm									Eh, Pt			
	20-1	Fm									Eh, Pt			
	20-2										Eh, Pt			
	21-1	Fm					Cm/Md				Cg, Eh, Pt			
	21-2	Fm									Cg, Eh, Pt			
	22-1	Fm									Eh, Pt			
	22-2										Cg, Eh, Pt			

Group 2 = Control - No Treatment
Group 4 = SN-1 120 ppm
Group 6 = SN-1 470 ppm
Group 8 = SN-1 1900 ppm

[1] As per protocol, no histopathology was performed on group 4, except for liver, heart, spleen and exposure-related lesions.

Blank space denotes no microscopic findings. All other examined tissues were within normal limits.

Afh = Aggregates of foamy histiocytes
Cg = Congestion
Cm/Md = Cardiomyopathy/Myocytic degeneration
Cpn = Chronic progressive nephropathy
Eh = Extramedullary hematopoiesis
EnHy = Endometrial hyperplasia
Fh = Focus of hemorrhage
Fm = Foci of mononuclear cell infiltration
Il = Inflammatory lesions
Lh = Local hemorrhage
Lii = Local inflammatory infiltrates
Min = Mineralization
Pli = Perivascular lymphoid infiltration
Pt = Pigmentation
Sec = Squamous epithelial cyst

1 = Minimal
2 = Mild
3 = Moderate
4 = Marked

APPENDIX 19 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL HISTOPATHOLOGY FINDINGS

29-DAY SACRIFICE (FEMALES)

Group #	Animal #	Liver	Kidney	Lung	Pituitary Gland	Thyroid Gland	Heart	Pancreas	Uterus	Vagina	Spleen	Mesenteric Lymph Node	Harderian Gland	Other
6[1]	27-1						Cm/Md				Eh, Pt			
	27-2						Cm/Md				Eh, Pt			
	28-1	Fm, Hcv					Cm/Md				Cg, Eh, Pt			
	28-2						Cm/Md				Cg, Eh, Pt			
	29-1	Fha, Fm					Cm/Md				Cg, Eh, Pt			
	29-2	Fm					Cm/Md				Cg, Eh, Pt			
	30-1	Fm					Cm/Md				Cg, Eh, Pt			
	30-2	Fm					Cm/Md				Cg, Eh, Pt			
8	39-2		Min2				Cm/Md				Cg, Eh, Pt			
	41-1		Min2	Pli			Cm/Md				Cg, Eh, Pt			
	41-2		Min2	Il							Cg, Eh, Pt			
	42-2			Afh, Pli			Cm/Md				Cg, Eh, Pt			
	43-1		Min2				Cm/Md	Faiic			Cg, Eh, Pt			
	43-2		Min2	Afh, Pli			Cm/Md				Cg, Eh, Pt			
	44-1	Fmha	Min2	Afh, Pli		Uc	Cm/Md				Cg, Eh, Pt			
	44-2			Il			Cm/Md				Cg, Eh, Pt			

Group 2 = Control - No Treatment
Group 4 = SN-1 120 ppm
Group 6 = SN-1 470 ppm
Group 8 = SN-1 1900 ppm

[1] As per protocol, no histopathology was performed on groups 6, except for liver, heart, spleen and exposure-related lesions.

Blank space denotes no microscopic findings. All other examined tissues were within normal limits.

Afh = Aggregates of foamy histiocytes
Cg = Congestion
Cm/Md = Cardiomyopathy/Myocytic degeneration
Eh = Extramedullary hematopoiesis
Faiic = Focal atrophy and increase of interstitial collagen
Fha = Foci of hepatocellular alteration
Fm = Foci of mononuclear cell infiltration
Fmha = Foci of mononuclear cell infiltration, including hepatocellular apoptosis
Hcv = Hepatocellular cytoplasmic vacuolation
Il = Inflammatory lesions
Min = Mineralization
Pli = Perivascular lymphoid infiltration
Pt = Pigmentation
Uc = Ultimobranchial cyst

1 = Minimal
2 = Mild
3 = Moderate
4 = Marked

APPENDIX 20

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL HISTOPATHOLOGY FINDINGS

43-DAY SACRIFICE (MALES)

Group #	Animal #	Liver	Kidney	Lung	Pituitary Gland	Thyroid Gland	Heart	Pancreas	Spleen	Mesenteric Lymph Node	Harderian Gland	Other
1	2-1		Cpn1	Afh, Pli					Eh, Pt			
	3-1	Fm	Cpn1	Afh, Pli			Cm/Md		Eh, Pt			
	4-1		Cpn1	Pli			Cm/Md		Eh, Pt			
	4-2	Fm							Eh, Pt			
	6-1		Cpn1						Eh, Pt			
	6-2		Cpn1				Cm/Md		Eh, Pt			
7	31-1	Fmha	Cpn1	Afh, Pli			Cm/Md		Cg, Eh, Pt			
	32-1	Fmha	Cpn1						Cg, Eh, Pt			
	32-2		Cpn1			Uc	Cm/Md		Cg, Eh, Pt			
	34-1	Fmha	Cpn1				Cm/Md		Cg, Eh, Pt	Gi		
	35-1		Cpn1	Pli			Cm/Md		Cg, Eh, Pt			
	37-1		Cpn1	Afh, Pli					Cg, Eh, Pt	Gi		Fcism

Group 1 = Control - No Treatment

Group 7 = SN-1 1900 ppm

Blank space denotes no microscopic findings. All other examined tissues were within normal limits.

Afh = Aggregates of foamy histiocytes
Cg = Congestion
Cm/Md = Cardiomyopathy/Myocytic degeneration
Cpn = Chronic progressive nephropathy
Eh = Extramedullary hematopoiesis
Fcism = Focal chronic inflammation in skeletal muscle (thigh)

Fm = Foci of mononuclear cell infiltration
Fmha = Foci of mononuclear cell infiltration, including hepatocellular apoptosis
Gi = Granulomatous inflammation
Pli = Perivascular lymphoid infiltration
Pt = Pigmentation
Uc = Ultimobranchial cyst

1 = Minimal
2 = Mild
3 = Moderate
4 = Marked

APPENDIX 20 (cont'd)

FOUR-WEEK DIETARY STUDY OF WINGSTAY SN-1 IN FISCHER 344 RATS

INDIVIDUAL HISTOPATHOLOGY FINDINGS

43-DAY SACRIFICE (FEMALES)

Group #	Animal #	Liver	Kidney	Lung	Pituitary Gland	Thyroid Gland	Heart	Pancreas	Uterus	Vagina	Spleen	Mesenteric Lymph Node	Harderian Gland	Other
2	8-2		Min2								Eh, Pt			
	9-1	Fm	Min2								Eh, Pt			
	9-2	Ffpt, Fha	Cpn1, Min1								Eh, Pt			
	10-2	Fm	Min2								Eh, Pt			
	13-2		Min2								Eh, Pt			
	14-2	Fm	Min2								Eh, Pt			
8	38-1	Fmha					Cm/Md, Fib				Cg, Eh, Pt			
	38-2	Fmha	Min2	Afh, Pli							Cg, Eh, Pt			
	39-1		Cc, Min1	Pli							Cg, Eh, Pt			
	40-1		Min1	Afh, Pli				Fa, Fce			Cg, Eh, Pt			
	40-2	Fmha	Min1	Afh, Pli							Cg, Eh, Pt			
	42-1		Min2	Afh, Pli							Cg, Eh, Pt			

Group 2 = Control - No Treatment

Group 8 = SN-1 1900 ppm

Blank space denotes no microscopic findings. All other examined tissues were within normal limits.

Afh = Aggregates of foamy histiocytes
Cc = Cortical cyst
Cg = Congestion
Cm/Md = Cardiomyopathy/Myocytic degeneration
Cpn = Chronic progressive nephropathy
Eh = Extramedullary hematopoiesis
Fa = Focal atrophy
Fce = Foci of cytoplasmic eosinophilia

Ffpt = Focal fibrosis of the portal tract
Fha = Foci of hepatocellular alteration
Fib = Fibrosis (myocardial)
Fm = Foci of mononuclear cell infiltration
Fmha = Foci of mononuclear cell infiltration, including hepatocellular apoptosis
Min = Mineralization
Pli = Perivascular lymphoid infiltration
Pt = Pigmentation

1 = Minimal
2 = Mild
3 = Moderate
4 = Marked

Appendix 21
Protocol and Deviations

Protocol for Non Clinical Laboratory Study
American Health Foundation
One Dana Road
Valhalla, NY 10595

AHF Study No. R-1777

IACUC No. I-95-077

1. TITLE

Four-Week Dietary Study of Wingstay SN-1 in Fischer 344 Rats.

2. ORIGIN AND PURPOSE

The purpose of this experimental study is to assess the toxicity of Wingstay (SN-1) to male and female F344 rats when administered in the diet for a period of four (4) weeks. The information on toxicity will be utilized to determine the doses of the test substance to be administered in the diet to rats of this strain in chronic toxicity and carcinogenicity studies.

3. TEST SUBSTANCE IDENTIFICATION

Test Substances

Name:	Wingstay SN-1, 1:11(3,6,9-trioxaudecyl)bis-(dodecylthio) proprionate
CAS No.:	64253-30-1
Source and Formulation Information:	Goodyear Tire & Rubber Company
Batch Identification No:	130893
Supplier:	Goodyear Tire & Rubber Company
Purity:	Provided on certificates of analysis sent with the test substance
Handling:	See Appendix I for MSDS
Storage:	Room temperature and protection from light
Other Characteristics:	Information on the methods of synthesis and stability as well as data on composition on other characteristics are on file with the Sponsor.

4. SPONSOR

The Goodyear Tire & Rubber Company
Research Division
142 Goodyear Blvd.
Akron, Ohio 44305-0001
Tel. 216-796-1046
Fax. 216-796-3304

5. EXPERIMENTAL DESIGN

SN-1 is mixed in the diet and given for up to 28 days to male and female Fischer 344 rats. At the end of day 28, the animals are sacrificed after being fasted overnight. Necropsies are staggered over a 4-day period. Six animals from the high dose group per sex and six per sex from the control group receive no test substance for 2 weeks and are sacrificed at 42 days. Randomization of animals for control of bias (SOP-192) and animal group assignments (SOP-090) is given in sections 6 and 7.

Group Identification and Doses	Experimental Design 28-Day Sacrifice	42-Day Sacrifice
1. Control males (M)	8	6
2. Control females (F)	8	6
3. SN-1 7.5 mg/kg bw/d (M)	8	-
4. SN-1 7.5 mg/kg bw/d(F)	8	-
5. SN-1 30 mg/kg bw/d (M)	8	-
6. SN-1 30 mg/kg bw/d (F)	8	-
7. SN-1 120 mg/kg bw/d (M	8	6
8. SN-1 120 mg/kg/bw/d (F)	8	6
	64	24

A. Reason for Selection of Doses, Frequency and Route of Administration

Doses of SN-1 were selected on the basis of a previous study (3-week gavage and 4-week diet) in F344 rats with W100. In the 3-week gavage study, 1000 mg/kg bw/d was lethal, 300 mg/kg caused substantial body weight reduction and liver weight increase and 100 mg/kg produced a significant increase in the proliferating cell nuclear antigen labeling index of hepatocytes.

B. Dosing Information

Test substance is mixed in powdered NIH-07 diet and given to rats for up to 28 day sacrifice. One concentration is used for both genders for each dose group. In groups 3 and 4 the concentration in olive oil is 0.012% set to deliver 7.5 mg/kg bw/d. In groups 5 and 6, it is 0.047% set to deliver 30 mg/kg bw/d and in groups 7 and 8, 0.19% set to deliver 120 mg/kg bw/d.

6. MEASUREMENTS AND OBSERVATIONS

A. During Life

Observation	Frequency, Time
1. General condition and clinical observation (SOP-182A)	Daily
2. Palpation	On body weight days
3. Body weight (SOP-155A)	Day -7 (for grouping), first day of dosing, day 3, 7 weekly thereafter, and at sacrifice.
4. Food consumption (SOP-160)	From day -5 to -1 days and weekly over a 5-day period for the duration of the study.
5. Blood samples: approximately 3-5 ml from 6 randomly selected rats/ gender/group (SOP-164)	During scheduled necropsies
6. Urinalysis: from 3 of the 6 randomly selected rats/gender/group for blood.	At scheduled sacrifices

B. 1. For hematology, whole blood is collected via cardiac puncture under CO_2 anesthesia prior to necropsy and following overnight fasting. The following parameters are examined: RBC, hemoglobin, hematocrit, MCV, MCH, MCHC, RDW (red cell distribution width), reticulocyte count, WBC, differential leukocyte count, platelet count, prothrombin time, activated partial thromboplastin time.

2. For clinical chemistry, blood is collected via cardiac puncture under CO_2 anesthesia prior to necropsy and following overnight fasting. Serum is obtained and the following parameters are examined: Total protein, A/G ratio, glucose, triglycerides, total cholesterol, urea nitrogen, creatinine, albumin, globulin, sodium, potassium, chloride, calcium inorganic phosphorus, iron, unsaturated (UIBC) and total iron binding capacity (TIBC), total bilirubin, SGOT/AST, SGPT/ALT, alkaline phosphatase, transferrin, erythropoietin and leucine aminopeptidase (LAP).

3. For serum test substance level monitoring, 0.5 ml serum/rat from 3 rats/group/gender is obtained during scheduled sacrifices and stored frozen (-20°C). Heparin is used as anti-coagulant and the tubes are centrifuged with the plasma drawn off prior to storage. The samples are stored for possible future analysis.

4. For urinalysis, 3 rats/gender/group will be placed overnight during the fasting prior to the time of sacrifice in individual metabolism cages for urine collection. The following parameters are analyzed: Urine appearance, volume, protein, glucose, specific gravity, occult blood, bilirubin, urobilinogen, pH and ketone bodies.

C. Postmortem

Necropsies are performed on the following days: Days 29 to 33 and 43. Euthanasia is achieved by CO_2 anesthesia with cardiac exsanguination. All animals found dead and those killed *in-extremis* and at scheduled sacrifices are submitted to a complete gross postmortem examination (SOP-050A). The livers, kidneys (pair), pituitary, uterus, heart, brain, spleen, thyroids, adrenals (pair), testes (pair with epididymides), ovaries (pair) are weighed (SOP-036A). Pituitary, thyroids (with parathyroids) are fixed prior to weighing. Organ weights are obtained only at 29 and 43 day sacrifices. The urinary bladder will be slightly distended with 10% NBF. The following tissues from each animal are preserved in NBF for histologic examination: Lesions, brain, pituitary, thyroids/parathyroids, thymus, kidneys, lung, trachea, heart with aorta, tail bone, salivary glands (mandibular), mammary glands with skin, thigh muscle with sciatic nerve, eyes with optic nerve and Harderian gland, uterus, adrenals, liver, spleen, pancreas, testes with epididymides, ovaries, vagina, esophagus, stomach, duodenum, jejunum, ileum, colon, urinary bladder, mesenteric lymph node. The testes and epididymides are preserved in Bouin's solution, eyes with optic nerve and Harderian gland are preserved in 6% Sorenson buffered (pH 7.2) glutaraldehyde solution for 24 hours, then trimmed and processed or placed in NBF until processing. The carcass is discarded.

After fixation in NBF for 24 hours or more, tissue samples from each of three liver lobes (median right, median left, and left lobes) kidneys, urinary bladder, and any gross lesions present are trimmed, processed embedded in paraffin, stained with H & E, and evaluated microscopically. Separate liver, and urinary bladder sections fixed in 10% NBF are also cut and stained for proliferating cell nuclear antigen (PCNA) according to SOP-075 (1). Quantitation of positive nuclei in the immunostained section will be done according to Appendix II. Histopathology will also be performed on all the tissues sampled in NBF from all control and high-dose animals. If a treatment-related lesion is found, the affected tissue is examined from all animals of the other dose groups.

7. ANIMALS (TEST SYSTEM)

A. Justification for Selection of Animal Species

An inbred strain of rat is utilized in this study to assure uniform results. The Fischer 344 strain is chosen because of its sensitivity to aromatic amines. This strain was used in all previous studies.

B. Identification

Species:	Rat
Strain:	Fischer 344 (F344)
Substrain:	F344/NTacfBr
Sex:	Male and Female
Age:	On arrival 8-12 weeks
Number to be used:	88 rats

C. Maintenance

Upon arrival at the American Health Foundation (AHF), the animals are approximately 8-12 weeks old, and are housed apart from all other animals. The quarantine period lasts for approximately 2 weeks during which 5 selected animals of each sex are screened for rodent pathogens according to AHF SOP-153A and SOP-180A and accepted for the study at the discretion of the veterinarian. The rats are assigned to groups according to AHF SOP-090, describing selection of animals by body weight. Animal disposition is recorded in tabular form in the study notebook. Animal identification is via an ear notch and toe clip.

The animals are housed on irradiated corn cob bedding in solid-floor cages, two per cage, in temperature and humidity controlled rooms. Twelve hours of continuous fluorescent lighting (25-30 ft candles, SOP152A) is provided daily. Powdered NIH-07 diet and tap water are available *ad libitum*. Diet, drinking water and bedding are analyzed for standard contaminants and the appropriate records placed in the study notebook.

8. STATISTICS

Statistical analysis is performed on body weights, food consumption data, absolute and relative organ weights, and on selected parameters of microscopic examination. The analysis utilizes the Student's t-test to test each treatment group mean against its control mean. Other statistical methods, such as Dunnett's test for comparison of several means versus control, trend analysis, and Fisher's exact test may also be used for analysis of treatment effects (2).

9. DIET PREPARATION OF TEST SUBSTANCES

A. Preparation and Storage

The test substance is dissolved in olive oil by heating the mixture up to 90°C added to powdered NIH-07 diet, and prepared weekly for each concentration by the Research Animal Facility (RAF). The concentration of olive oil in the diet is held constant at 2% for all groups. Batch/lot numbers for the NIH-07 diet are recorded in the Study Notebook. The mixtures are stored refrigerated in a closed container (protecting contents from light) until needed. The Hobart-mixers are used for the mixing of diets (SOP-361A).

B. Analysis and Sampling

As described below, all SN-1 analyses in the diet as test material received from Goodyear as well as determinations of concentrations in the diet are conducted at AHF's TSAL.

1. Dose Verification

After mixing, the feed is poured into a bucket and duplicate samples are taken from the top. This applies to each dose level of SN-1 and control diet. Approximately 5 g of diet samples are collected from each batch prepared. All samples are analyzed at the end of the one month dosing period. Individual results are expected to be within 15% of target concentrations. In the event that assayed results are outside of this range repeat assays are to be conducted as well as analyses of other batches.

2. Stability

After mixing, the feed is poured into a bucket and duplicate samples are taken from the top, and put into dry ice. This applies to the lowest and highest concentration diets.

3. Homogeneity

After mixing, the feed is poured into a bucket and duplicate samples are taken from the top, middle and bottom (for this purpose, the feed is scooped into another bucket to access the mid and bottom levels). This sampling applies to the lowest and the highest dose level of SN-1. The ability to produce homogeneous mixes shall be established prior to the preparation of the first mix for dosing the rats ("week 1").

4. Purity and Identity

The test material (SN-1) delivered to AHF is accompanied by a certificate of analysis. At the end of the dosing period duplicate samples of bulk SN-1 are taken and a sample of the test material is sent to Goodyear for verification of sample identity.

5. Diet Control

Samples of NIH-07 powdered diet is supplied for the above analytical methods as needed to provide blank controls. AHF will retain one set of the duplicate samples as a back-up and store it at -20°.

10. REGULATORY COMPLIANCE AND QUALITY ASSURANCE

This study is conducted in compliance with USEPA regulations, Part 160,40CFR, Final Rule, August 17, 1989, pp. 34052-34074 and in accordance with AHF standard operating procedures.

The study is inspected by the Quality Assurance Compliance Group while in progress, and upon completion, by an auditing of the Final Report to ensure that it completely and accurately describes the test procedures and the results obtained.

The study design is in accordance with specific OECD and Chemical Products Safety Division Ministry of International Trade & Industry of Japan guidelines for 28-day multiple dose toxicity studies (issued 1993).

11. SAFETY AND IACUC

A. Safety Equipment:

Standard disposable outerwear with double gloves including sleeves, safety glasses and respirator (SOP-144).

B. Precautions:

Adequate precautions to insure the safety of personnel involved in preparation and administration of the test substance are observed.

Wingstay SN-1 suspected toxicant. Avoid contact, inhalation, or ingestion. Wash immediately upon skin contact with copious amounts of soap and water. Flush eyes with cold running water for 15 minutes if contact occurs. Induce vomiting if swallowed. Clean up spills with soap and water.

C. Institutional Animal Care and Use Committee (IACUC)

The study is subject to IACUC approval in accordance with AHF policy. The protocol is reviewed by the IACUC through an IACUC Application Form. An IACUC number is issued.

12. CRITICAL PHASES

Animal randomization; diet mixing; sampling of diet preparation; dosing; urine/blood collections; necropsy; histological slide preparation.

13. SCHEDULES

A. Study initiation:	Date of Study Director's signature
B. Final sacrifice:	
C. Final draft report:	
D. Final report:	One month after Sponsor's review

14. RECORDS TO BE MAINTAINED

A. Raw Data and Specimens

All original data, specimens, and reports from this study are the property of the Sponsor. These materials are available at the testing laboratory to facilitate auditing for the study during its progress and prior to acceptance of the Final Report. Gross tissue specimens are kept at AHF for a minimum of 3 years, at which time the Sponsor is consulted relative to the disposition of these materials. Any remaining test substance is returned to the Sponsor. All original paper and/or magnetically encoded records, as well as a copy of the final report, are retained in the AHF archives.

B. Data Reporting and Evaluation

A copy of the final draft report is submitted to the Sponsor. It includes all information necessary to provide complete and accurate description and evaluation of the experimental procedures and results.

15. FINAL REPORT

A final report which includes at minimum the following information is prepared and submitted to the sponsor:

Summary text and summary table
Introduction
Experimental design and methods
Results, with tables of data summaries and individual data as appendices
Discussion and conclusions
References

16. LITERATURE

(1) Galand, P., and Degraef, C. (1989). Cyclin/PCNA immunostaining as an alternative to tritiated thymidine pulse labelling for marking S Phase Cells in paraffin sections from animal and human tissues. Cell Tissue Kinet., 22:383-392.

(2) Gad, S.C., and Weil, C.S. (1989). Statistics for toxicologists. Chapter 15 in: Principles and Methods of Toxicology, Second Edition. A. W. Hayes, Ed. New York: Raven Press, Ltd. pp. 435-484.

17. STUDY PERSONNEL AND APPROVALS

A. Facility

American Health Foundation (AHF)
One Dana Road
Valhalla, NY 10595
Tel. 914-592-2600
Fax. 914-592-6317

B. Study Personnel

Study Director:
Michael J. Iatropoulos, M.D., Ph.D.

Histopathologist:
C.-X. Wang, MD

Test Substance Analytical Lab (TSAL):
Klaus Brunnemann, M.S.

C. Quality Assurance/Compliance Group:

Henry E. Prescott, Ph.D.

D. Approvals

Michael J. Iatropoulos, M.D., Ph.D.
Study Director

Nov. 11, 1996
Date

Richard Serva, PhD
Project Coordinator and Study Monitor
The Goodyear Tire & Rubber Company
Tel. 216-796-2963, Fax. 216-796-3304

11-25-96
Date

Chairman, Protocol Review Team
M.J. Iatropoulos, M.D., Ph.D.

Nov. 25, 96
Date

Appendix I

AHF STUDY R-1777

GOODYEAR

MATERIAL SAFETY DATA SHEET

WINGSTAY SN-1

MSDS No. :G0101 **Effective Date:** 07/03/95
Revision: LN2

1. IDENTIFICATION of the SUBSTANCE and COMPANY

Trade Name	:WINGSTAY SN-1
Chemical name	:Diester of 3-(dodecylthio) propionic acid and tetraethylene glycol
Synonyms	:Alkylthiopropionate-glycol ester
CAS Number	:64253-30-1
Company identification	:The Goodyear Tire & Rubber Company Akron, Ohio 44316-0001 U.S.A. Goodyear Canada, Inc. Etobicoke, Ontario M9B 6G2 Canada
Emergency phone numbers	:Goodyear USA / 24 hours 216-796-5111 Goodyear Canada / daytime only 416-626-4611 Chemical Transportation Emergency Assistance Chemtrec (USA) 800-424-9300 Canutec (Canada) 613-996-6666
MSDS Information	Technical Assistance 216-796-1906 ISSUED BY - Goodyear Chemical Material Safety Department - Akron, Ohio 44316-0001

2. COMPOSITION / INFORMATION on the COMPONENTS

G0101 LN2

Hazardous Components	Percentage by wt.	CAS No.	ACGIH * (TLV-TWA)	OSHA * (PEL-TWA)
Non - hazardous		...	.	.

* C=Ceiling D=Dust F=Fumes M=Mist m=Max N=NIOSH R=Respirable Dust S=Skin ST/STEL=Short Term Exposure Limit T= Total Dust t=Typical TS=Trade Secret V=Vapor

Appendix I (cont'd)

AHF STUDY R-1777

3. HAZARDS IDENTIFICATION

G0101 LN2 *WINGSTAY SN-1*

Emergency Overview

If ignited by excessive heat or open flame, this product will burn.
APPEARANCE :Beige, waxy, crystalline semi-solid
ODOR :Garlic

Potential health effects

--- PRIMARY ROUTES OF ENTRY ---
Dermal (skin) contact
--- SHORT-TERM EXPOSURE (ACUTE) ---
May cause mild eye or skin irritation.
--- LONG-TERM EXPOSURE (CHRONIC) ---
None known

4. FIRST AID MEASURES

G0101 LN2 *WINGSTAY SN-1*

--- EYE CONTACT ---
EYES - For irritation, flush eyes with copious amounts of water.
--- INGESTION ---
Seek medical attention.

5. FIRE-FIGHTING MEASURES

G0101 LN2 *WINGSTAY SN-1*

--- FLASH POINT AND METHOD ---
>395 F
--- FLAMMABLE LIMITS ---
LEL :NE
UEL :NE

--- EXTINGUISHING MEDIA ---
Water, all purpose (ABC) dry chemical, CO_2, foam
--- SPECIAL FIRE-FIGHTING PROCEDURES ---
During emergency conditions, overexposure to thermal decomposition products may cause a health hazard. An approved, self-contained breathing apparatus should be worn.
--- UNUSUAL FIRE AND EXPLOSION HAZARD ---
When exposed to flame, emits acrid fumes.

	Health	Fire	Reactivity	Specific
NFPA Rating	1	1	0	

Hazard Rating: 0=Insignificant, 1=Slight, 2=Moderate, 3=High, 4=Extreme

6. ACCIDENTAL RELEASE MEASURES

G0101 LN2 *WINGSTAY SN-1*

--- AFTER SPILLAGE / LEAKAGE ---
Sweep, shovel or vacuum into container for disposal or reuse.

7. HANDLING and STORAGE

G0101 LN2 *WINGSTAY SN-1*

--- PRECAUTIONS ---
Keep away from heat, flame and any sources of ignition. Avoid any prolonged or repeated contact with the skin. If skin gets splashed,

wash immediately with soap and water. If clothing is contaminated, remove and wash before wearing again. Avoid inhalation. Use with adequate ventilation.
Empty containers should not be reused unless thoroughly cleaned of product residues.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION G0101 LN2 *WINGSTAY SN-1*

--- GENERAL ---
Practice good personal hygiene
--- VENTILATION PROTECTION ---
Use with adequate ventilation.
--- RESPIRATION PROTECTION ---
Under normal conditions of use, respiratory protection should not be required.
--- EYE PROTECTION ---
Safety glasses or goggles
--- PROTECTIVE GLOVES ---
Impermeable, if contact is expected.

9. PHYSICAL and CHEMICAL PROPERTIES G0101 LN2 *WINGSTAY SN-1*

APPEARANCE	:Beige, waxy, crystalline semi-solid
ODOR	:Garlic
DENSITY	:NA
SOLUBILITY in WATER	:Negligible
MELT POINT	:NA
SPECIFIC GRAVITY	:0.973-0.978
VAPOR DENSITY	:NA
% VOLATILE by VOLUME	:NIL
INITIAL BOILING POINT	:NE
VAPOR PRESSURE	:NA
OTHER	:Crystallization point is 27C minimum.

10. STABILITY and REACTIVITY G0101 LN2 *WINGSTAY SN-1*

--- MATERIALS TO AVOID ---
Strong alkalies
Strong oxidizers
--- CONDITIONS TO AVOID ---
Material is stable
--- HAZARDOUS DECOMPOSITION PRODUCTS ---
Oxides of sulfur
Carbon monoxide and carbon dioxide.
--- SPECIAL SENSITIVITY ---
NA

11. TOXICOLOGY INFORMATION G0101 LN2 *WINGSTAY SN-1*

ORAL LD50	: 3359 mg/Kg (rat)
DERMAL LD50	: NE
INHALATION LC50	: NE

12. ECOLOGICAL INFORMATION G0101 LN2 *WINGSTAY SN-1*

--- OTHER ---
This product has not been tested for ecological (physical and/or biological) hazards or the data is not available or not known.

Appendix I (cont'd)

AHF STUDY R-1777

13. DISPOSAL CONSIDERATIONS

G0101 LN2 *WINGSTAY SN-1*

--- DISPOSAL ---
Treat in accordance with applicable environmental control regulations. Recycle if possible.

14. TRANSPORTATION INFORMATION

G 0101 LN2 *WINGSTAY SN-1*

United States

--- BASIC DESCRIPTION ---
NA
--- FREIGHT DESCRIPTION ---
Rubber Preservatives, NOI, NMFC 172160
PRIMARY HAZARD CLASS :None
SUBSIDIARY HAZARD CLASS :None
LABELS REQUIRED :None
--- REPORTABLE QUANTITY ---
NA

STCC Number:	UN Number:	Packing Group:
2821215AA	NA	

15. REGULATORY INFORMATION

G0101 LN2 *WINGSTAY SN-1*

This material is included in the US EPA Toxic Substances Control Act (TSCA) "Chemical Substances Inventory" and the Canadian "Domestic Substances List"
This product does not contain a SARA S 313 Toxic Chemical above the de minimis thresholds
This material is not considered hazardous under the OSHA Hazard Communication Standard CFR Title 29, Part 1910.1200 or the WHMIS Canadian legislation.

16. OTHER INFORMATION / ADDITIONAL COMMENTS

G0101 LN2 *WINGSTAY SN-1*

NA

Goodyear Provides the information herein in compliance with Federal hazard communication standard, 29 CFR 1910.1200 to give warning of actual and assumed hazards, and to inform of generally applicable precautions and control measures which are known to Goodyear. Hazard information is based on available scientific evidence, but is not always obtained from sources under the direction or control of Goodyear. Goodyear makes no warranty or representation that the information is accurate, reliable, complete or representative and Buyer may rely thereon only at Buyer's own risk. Goodyear warrants only that it has made no effort to conceal other than trade secret information or to conceal hazards of its products. The data shown on these pages in no way modifies, amends or enlarges any specification or warranties.

--- END of DOCUMENT ---

Appendix II

QUANTITATION OF LIVER AND URINARY BLADDER PCNA LABELLED CELLS

A square graticule (Olympus Instruments, Inc.) with 25 equal subdivisions is used for quantitating labelled cells at 200X magnification for liver and at 400X magnification for urinary bladder. Each side of the graticule is confirmed by measurement with a second micrometer (Graticules, Ltd, Tonbridge, UK) as 0.125 mm, providing a square counting area that usually contains between 50 and 100 hepatocytes in the liver. All PCNA labelled nuclei in this graticule area are counted. Counts are obtained for each animal from 25 graticule squares taken along the length of 1 to 3 liver lobe sections on the single glass slide. From the 25 graticule areas enumerated for each animal, between 1200 and 1500 nuclei per liver slide are counted. From the urinary bladder, counts are obtained for each animal from 20 longitudinal consecutive graticule squares having placed the bottom side of the graticule along the base of the urothelium of 1 to 2 urinary bladder sections on the single glass slide. From the 20 graticule areas enumerated for each animal, between 600 to 1100 nuclei per urinary bladder slide are counted. Based on the above, the labelling index for the liver and urinary bladder of each animal is calculated, indicating the percentage of positive nuclei out of the total number of hepatocellular or urothelial nuclei counted. The results will be subjected to appropriate statistical analysis.

Appendix 21 (cont'd)
Protocol and Deviations

AMERICAN HEALTH FOUNDATION
One Dana Road
Valhalla, NY 10595

AHF Study No. R-1777

Protocol Deviation No. 1

The following is a deviation from the protocol fo AHF Study No. R-1777 entitled: Four-week Dietary Study of Wingstay SN-1 in Fisher 344 Rats.

In part 6.B.3. (page 4), it states that heparin was used. Instead, serum was obtained without the use of heparin.

Justification: Inadvertent error. This deviation does not interfere with the integrity of the study.

Signatures:

M. J. Iatropoulos Study Director	1/21/97 Date	Richard Serva Sponsor's Monitor
		Date 2/13/97

AMERICAN HEALTH FOUNDATION
One Dana Road
Valhalla, NY 10595

AHF Study No. R-1777

Protocol Deviation No. 2

The following is a deviation from the protocol of AHF Study No. R-1777 entitled: Four-week Dietary Study of Wingstay SN-1 in Fischer 344 Rats.

In part 9.B. 1 to 5 (pages 6 and 7), it states that samples of diet mixtures will be analyzed for dose verification, stability and homogeneity. Instead no analyses were performed.

Justification: To date no suitable and specific analytical method is available for the analysis of Wingstay SN-1 in diet mixtures. The high exposure animals of both genders showed functional and morphologic changes, which were exposure dependent. Therefore, the animals were exposed to Wingstay SN-1 and consequently this deviation does not interfere with the integrity of the study.

Signatures:

M.J. Iatropoulos Study Director	9/9/98 Date	Richard Serva Sponsor's Monitor	10/30/98 Date