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Re: Pyridine Chronic Study

In compliance with the National Toxicology Program's (NTP) mission to keep our colleagues informed of the current NTP findings during on-going studies, a copy of the Pathology Working Group (PWG) report and the Summary Tables for the chronic dosed water studies on Pyridine (CAS No. 110-86-1) in male and female F344 rats and male Wistar rats are enclosed for your review.

The NTP assembles a Pathology Working Group to review every study and to resolve any differences between the study laboratory and quality assessment pathology evaluations. Please note that the PWG conclusion of the study results is based solely on the pathology for this study and may not reflect final NTP conclusions. In determining final conclusions, the NTP assesses a broad array of information that includes other results from this study and historical control data.

The Summary Tables contain the Incidence Rates of Neoplastic and Non-neoplastic Lesion data and the Statistical Analysis of Primary Tumors data pertaining to the laboratory animals. All study data are subject to an NTP retrospective audit and the interpretation may be modified based on the findings.

A wide variety of NTP information is also available in electronic format on the world-wide web, for example, the NTP Annual Plan, abstracts of NTP Reports, study data, and the status of all NTP studies. To view this information requires access to the internet and a Web browser such as Netscape Navigator or Internet Explorer. To access the NTP home page, use the URL http://ntp-server.niehs.nih.gov/. Comments on the usefulness of this site and suggestions for improvement are encouraged.

Please contact Central Data Management (CDM) at (919)541-3419 if you have any questions. You may also fax your requests for information to CDM at (919)541-3687 or send them via e-mail to cdm@niehs.nih.gov.

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Hard copies of documents such as NTP Technical Reports, short-term Toxicity Reports, and the Report on Carcinogens are available from the Environmental Health Information Service (EHIS). You can contact EHIS by phone at (919) 541-3841, by fax at (919)541-0273, or by e-mail at ehis@niehs.nih.gov.

Sincerely,

William Eastin

William Eastin, Ph.D.
Head, Information Systems & Central Files
Environmental Toxicology Program

Encls: Rats, PWG, Pathology Summary Tables
cc: Dr. J. Bucher
Dr. J. Dunnick
Central Data Management

PATHOLOGY WORKING GROUP CHAIRPERSON'S REPORT

2-Year Chronic Dosed Water Study of **Pyridine (C55301B)** in male and female F344 Rats and male Wistar rats

PWG Participants: Drs. M. Jokinen (PAI-Chairperson), S. Botts (EPL), S. Ching, E. Gaillard (EPL-QAP), R. Herbert (NIEHS), P. Little (PAI-Observer), S. Platz (Boehringer Ingleheim-Observer), A. Radovsky (NIEHS), A. Yoshida (NIEHS-Observer)

Date: July 22, 1997
Site: NIEHS, Research Triangle Park

The PWG convened to review selected slides from male and female F344 rats and male Wistar rats administered pyridine by dosed water for two years. The doses and numbers of animals examined microscopically per group were as follows:

	F344		Wistar
Dose	M	F	M
0 ppm	50	50	50
100 ppm	50	50	50
200 ppm	50	50	50
400 ppm	50	50	50

The study was conducted at TSI Mason Laboratories. The Study Pathologist (SP) for the F344 rats was Dr. P. Hildebrandt and the SP for the Wistar rats was Dr. D. Goodman, both of PATHCO, Inc. The Quality Assessment Pathologist (QAP) for both the F344 and Wistar rats was Dr. E. Gaillard of EPL.

A number of organs contained potential treatment-related effects; the QAP reviewed these organs in all animals for all diagnoses, both neoplastic and nonneoplastic. In addition, the QAP reviewed all tumor diagnoses in all animals (except for diagnoses of Interstitial Cell Adenoma in the testes of male F344 rats). Organs reviewed for all diagnoses were as follows:

Male F344 Rats	Female F344 Rats	Male Wistar Rats
Liver	Liver	Liver
Kidney		Kidney
		Testes

In addition, spleens from all male and female F344 rats were reviewed for mononuclear cell leukemia, lungs from all male F344 rats were reviewed for Lung, Bronchiole, Alveolus - Hyperplasia, and lungs of all Wistar rats were reviewed for Lung, Alveolar Epithelium - Hyperplasia or Hypertrophy.

SUMMARY OF THE PWG FINDINGS

Kidney

Incidences of **Renal Tubule - Hyperplasia** and combined incidences of **Renal Tubule-Adenoma; Adenoma, multiple; and Carcinoma** were greater in 200 and 400 ppm male F344 rats than in the 0 and 100 ppm groups. The average severity of

Nephropathy was marginally greater in the 400 ppm group of male F344 rats than in the other male F344 rat groups.

The incidence of **Renal Tubule - Hyperplasia** was considerably increased in the 100 ppm dose group of male Wistar rats as compared with the control and other treated groups. The average severity of **Nephropathy** in male Wistar rats in all dose groups was considerably greater than in male F344 rats. Combined incidences of **Renal Tubule - Adenoma**; **Adenoma, multiple**; and **Carcinoma** were greater in the 100 and 400 ppm dose groups of Wistar rats as compared with the 0 and 200 ppm dose groups.

Mononuclear Cell Leukemia

Incidences of Mononuclear Cell Leukemia were somewhat increased in treated groups of female F344 rats as compared with controls.

Testes

The combined incidence of **Interstitial Cell - Adenoma** and **Interstitial Cell, Bilateral - Adenoma** was greater in the 400 ppm group of Wistar males than in the control Wistar males. Incidences of **Interstitial Cell - Hyperplasia** were slightly increased in the 200 and 400 ppm dose groups of Wistar males as compared with controls. The incidence of **Atrophy** was lower in the 400 ppm male Wistar group than in the other male Wistar groups, and the incidences of **Artery - Inflammation** were lower the 200 and 400 ppm male Wistar groups as compared with the control Wistar group.

Liver

A number of nonneoplastic lesions were seen in the livers of treated male and female F344 rats and treated male Wistar rats. These included **Liver, Centrilobular - Degeneration** and **Necrosis**; **Liver, Periportal - Fibrosis**; **Liver - Fibrosis** (male F344 and Wistar rats); **Liver, Centrilobular - Cytomegaly** (female F344 rats); **Vacuolization, Cytoplasmic**; and increased incidence and/or severity of **Pigment** and **Bile Duct - Hyperplasia**.

CONDUCT OF THE PWG

Prior to the PWG, the PWG chairperson reviewed the pathology tables, the SP's narrative, the Pathology Data Review, the Quality Assessment Report, and microslides of tissues selected for QA review. The PWG chair then selected slides for review by the PWG, including representative examples of lesions, and lesions for which there was a difference in diagnosis among the SP, QAP, and PWG chair.

RESULTS OF THE PWG REVIEW

Kidney

Male F344 Rats

The SP had diagnosed greater incidences of renal tubular neoplasms and hyperplasia in 200 and 400 ppm males than in controls. The PWG reviewed all diagnosed renal tubular neoplasms and hyperplasias in the male F344 rats and confirmed these findings. Microscopically, renal tubular hyperplasia, adenoma, and carcinoma formed a

morphologic continuum, and were differentiated on the basis of size and complexity. Tubular hyperplasias consisted of tubules that were dilated from two up to five times normal size and partially to completely filled by increased numbers of normal appearing epithelial cells. Adenomas were five or more tubular diameters in size and consisted of relatively normal appearing epithelial cells that formed tubular structures or solid clusters or masses. One carcinoma was present; it was approximately 3mm in diameter and composed of densely packed, slightly to highly pleomorphic tubular epithelial cells which slightly infiltrated the adjacent normal parenchyma.

The SP had diagnosed **Hyperplasia, Cystic** in two kidneys. These lesions consisted of mildly dilated tubules lined by large, hypertrophic appearing tubular epithelial cells with abundant brightly eosinophilic cytoplasm. The epithelial cells formed multiple small clusters that protruded into the tubular lumen. The PWG recommended these lesions be diagnosed simply as **Hyperplasia** without using the qualifier of "cystic".

Male Wistar Rats

The SP had diagnosed renal tubular hyperplasia and neoplasia in the control group and in each of the treated groups of male Wistar rats. The QAP added some additional diagnoses of hyperplasia in the control and each of the treated groups; as a result the incidence of hyperplasia was greater in the 100 ppm group than in the other groups. The PWG reviewed all diagnosed neoplasms as well as a number of representative examples of hyperplasia and confirmed the diagnoses.

Microscopically, hyperplasias typically were cystic lesions similar in appearance to the cystic hyperplastic lesions described above for the F344 rats. Solid hyperplasias, which are the type typically seen in the F344 rats, were seen but were uncommon. The SP had diagnosed the cystic and the solid lesions simply as **Hyperplasia**; the QAP. PWG Chair, [illegible] the PWG concurred with this. The cystic type of hyperplasias varied in size from approximately 5 tubular diameters up to 1 to 2 mm in diameter. The lining epithelium consisted of large cells with abundant eosinophilic cytoplasm, except in the case of a few of the hyperplasias in which the epithelium consisted of multiple layers of small cells, similar to that seen in the solid type of hyperplasias. The epithelium lining the cystic hyperplasias formed multiple clusters or variably sized papillary projections which protruded into the lumen. In some cases, generally with the smaller lesions, the projections filled much of the lumen. The PWG noted that size was not an appropriate criterion to use in grading the severity of the lesions since some lesions were large and lined by epithelium which formed fairly simple clusters while others were small and lined by epithelium that formed more complex papillary structures. Therefore, the PWG recommended that the severity of the hyperplasia be graded according to the complexity of the hyperplasia, including the number of cell layers and the size and number of papillary projections.

Microscopically, adenomas in the Wistar rats resembled those in the F344 rats. However, some of the adenomas were composed of large cells with abundant eosinophilic cytoplasm which resembled those seen in the cystic hyperplastic lesions. A single carcinoma was present and this was a very large lesion, approximately 5 cm in diameter, consisting of multiple, large, solid, irregular masses of densely packed epithelial cells surrounding a large central core of necrotic debris and inflammatory cells. The epithelial cells comprising the neoplasm were large with abundant eosinophilic cytoplasm and resembled those seen in the cystic hyperplastic lesions.

Mononuclear Cell Leukemia

The SP had diagnosed somewhat greater incidences of mononuclear cell leukemia in the 200 and 400 ppm female groups of F344 rats as compared with controls. This finding was confirmed by the QA/PWG review. The PWG reviewed representative examples of mononuclear cell leukemia in the spleen, including some cases of advanced leukemia and some very early cases, and confirmed its presence.

Testes

The SP had diagnosed a greater combined incidence of **Interstitial Cell - Adenoma** and **Adenoma, Bilateral** in the 400 ppm Wistar rat group as compared with the control and the other treated groups of Wistar rats. This was confirmed by the QA/PWG review. In addition, the SP had diagnosed slightly greater incidences of **Interstitial Cell - Hyperplasia** in the 200 and 400 ppm dose groups as compared with and control and 100 ppm groups; the QAP added a few diagnoses of hyperplasia in each of the groups but confirmed the slightly greater incidences in the 200 and 400 ppm groups. The PWG Chair concurred with the QAP's findings. The PWG examined typical examples of interstitial cell adenoma and interstitial cell hyperplasia and confirmed the diagnoses. Microscopically, the proliferative interstitial cell lesions had the same morphological appearance as do these lesions in F344 rats. Clusters of interstitial cells smaller than or equal to the size of a seminiferous tubule were diagnosed as Hyperplasia while clusters larger than the size of a seminiferous tubule were diagnosed as Adenoma. The significance of the greater incidences of interstitial cell adenoma and hyperplasia in treated males was uncertain. Historical control incidences for Wistar rats were not available so it was not possible to determine if the incidences in this study exceed historical control ranges for Wistar rats.

Liver

A number of potentially treatment related nonneoplastic lesions were seen in the livers of treated male and female F344 rats and of the male Wistar rats. The two study pathologists had used slightly different terminology to diagnose the liver changes and so the QAP adopted common terminology, based on the terminology already used by the two study pathologists, and applied it to livers from both rat strains in order to obtain consistent terminology between the studies from the two strains. The PWG Chair concurred with the QAP's findings. The PWG examined a number of livers containing representative examples of the various lesions and also concurred with the QAP's findings. Lesions seen in the livers included **Liver, Centrilobular - Degeneration; Liver, Centrilobular - Necrosis; Liver, Centrilobular - Cytomegaly; Liver, Periportal - Fibrosis; Liver - Fibrosis; Liver - Vacuolization, Cytoplasmic;** and increased incidences and/or severity of **Liver, Bile Duct - Hyperplasia** and **Liver - Pigmentation.**

Microscopically, centrilobular degeneration was a minimal to marked change characterized by cytoplasmic vacuolization of centrilobular hepatocytes. Centrilobular necrosis, a minimal to marked change characterized by necrosis of centrilobular hepatocytes, sometimes occurred in conjunction with centrilobular degeneration. The PWG members noted that centrilobular degeneration and necrosis appeared to be more severe in the Wistar rats than in the F344 rats. Centrilobular degeneration and necrosis were not diagnosed in F344 rats with severe mononuclear cell leukemia in the liver as these changes were considered to be secondary to the leukemia.

Centrilobular cytomegaly, a minimal to mild change, was seen most commonly in the female F344 rats and occurred with high incidence in the 400 ppm female group. Cytomegaly was seen in a few animals in each of the groups of male F344 rats and was seen rarely in the male Wistar rats. Cytomegaly was characterized by varying degrees of enlargement of centrilobular hepatocytes due an increase in the amount of cytoplasm. The cytoplasm of affected hepatocytes contained varying amounts of homogeneous eosinophilic material. The significance of this cytomegaly was unclear. The QAP noted in his narrative that a similar change had been described in the literature and was attributed to anoxia and the inflow of plasma proteins into centrilobular hepatocytes when rats are not exsanguinated immediately after death.

Periportal fibrosis, a minimal to moderate change, was characterized by fibrosis of portal areas with bands of fibrous tissue extending between adjacent portal areas. Fibrosis, a minimal to moderate change, referred to multifocal fibrosis along the capsule which extended downward along veins and bile ducts directly beneath the capsule. Periportal fibrosis was seen commonly in treated male F344 rats, occasionally in the treated male Wistar rats, and was not diagnosed in the treated female F344 rats. Fibrosis was seen commonly in the treated male Wistar rats, less commonly in treated male F344 rats, and rarely in female F344 rats.

Cytoplasmic vacuolization, a minimal to moderate change, was characterized by vacuolization of the cytoplasm of hepatocytes other than those in the centrilobular areas. Incidences of cytoplasmic vacuolization were somewhat greater in treated male F344 rats than in respective controls, while incidences in treated female F344 rats and in male Wistar rats were similar among control and treated groups.

Bile duct hyperplasia, a minimal to moderate change, was diagnosed whenever clusters containing six or more bile ducts were present. Incidences in treated male F344 rats and in the male Wistar rats were similar in treated and control groups but the average severity was somewhat greater in treated groups than in controls. Incidences in treated female F344 rats were slightly greater than in the control females.

Pigmentation was a minimal to moderate change consisting of varying numbers of macrophages filled with yellow brown pigment. The pigment containing macrophages often were located within fibrotic areas. The nature of the pigment was not definitely determined but it had the appearance of bile pigment. Pigmentation was seen in a few control animals in the male and female F344 rats and in the male Wistar rats. However, the incidences of pigmentation were moderately greater in treated male F344 rats and markedly greater in treated male Wistar rats than in the respective controls. Incidences of Pigmentation in treated F344 females were similar to that in controls but the average severity in treated F344 females was slightly greater than that in controls.

The SP and QAP had diagnosed **Liver - Necrosis** in one or more animals in each of the groups of control and treated male and female F344 rats and male Wistar rats, except for the 400 ppm female F344 group. This diagnosis referred to necrosis of hepatocytes that occurred in any location other than in the centrilobular areas. There did not appear to be any relationship between this change and treatment, except that the incidences were lower in treated female F344 rats as compared with control females.

A number of additional trends were seen in male and female F344 rats and in the Wistar rats. The significance of these, if any, was unclear. These trends were as follows:

Wistar Rats -- lower incidences of clear cell focus and eosinophilic focus in treated groups; greater incidence of cystic degeneration in the 100 ppm group as compared with the control and other treated groups; lower incidences of angiectasis in the 200 and 400 ppm groups as compared with the control and 100 ppm groups. Some of the lower incidences seen in treated groups may have been related to the low survival.

Male F344 Rats -- lower incidences of basophilic focus in treated groups; greater incidences of cystic degeneration in the 100 and 200 ppm groups.

Female F344 Rats -- lower incidences of basophilic focus and greater incidences of clear cell focus in treated groups.

Lung

As part of the QA/PWG review all lungs from male F344 rats were reviewed for Bronchiole, Alveolus - Hyperplasia, and all lungs from male Wistar rats were reviewed for Alveolar Epithelium -- Hyperplasia or Hypertrophy. The SP for the F344 rat study had diagnosed Bronchiole, Alveolus - Hyperplasia in three 100 ppm and four 400 ppm males. The QAP confirmed the presence of hyperplasia in these lungs but recommended use of the site Alveolar Epithelium rather than Bronchiole, Alveolus. The PWG Chair concurred with the QAP. The SP for the Wistar rat study had diagnosed Alveolar Epithelium - Hyperplasia in two 200 ppm males and Alveolar Epithelium - Hypertrophy in one 100 ppm male. These findings were confirmed by the QAP and PWG Chair. Since the incidences of these lesions were low with no apparent relationship to treatment, and since there was agreement between the QAP and PWG Chair concerning these lesions, no slides were shown to the PWG.

POST-PWG ACTION ITEMS

Results of earlier (unfinished) studies with pyridine in F344 rats had suggested that administration of pyridine led to an increase in mononuclear cell leukemia (MCL). Accordingly, this study was conducted in Wistar rats, in addition to F344 rats, since the Wistar rat has a low spontaneous rate of MCL and it was thought that this could make it easier to detect a treatment related increase in MCL The SP's findings had not indicated any treatment related effect on the incidence of MCL in the Wistar rats, thus the spleens and livers of the Wistar rats were not examined by the QAP for the presence of MCL. However, all livers had been examined during the QA/PWG review and no MCL was seen. Since all spleens had not been examined, the PWG suggested the PWG Chair examine them all for MCL, using the slides of MCL examined by the PWG as a reference. The PWG Chair examined all spleens and noted MCL, which had not been diagnosed previously, in the following animals: 0 ppm male number 017, 100 ppm male number 098, and 200 ppm male number 118; all of these were early cases. In addition, the spleen of 100 ppm male number 062 contained malignant lymphoma; the SP had diagnosed lymphoma in the thymus and mesenteric lymph node of this animal but had not diagnosed it in the spleen.

Micheal P. Jokinen, DVM
PWG Chairperson

8/19/97
Date

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
PYRIDINE

Facility: TSI Mason Research

Chemical CAS #: 110-86-1

Lock Date: 12/15/94

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Natural Death	15	5	14	22
Moribund Sacrifice	3	8	7	2
Survivors				
Terminal Sacrifice	32	37	29	26
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Colon	(50)	(50)	(50)	(50)
Hyperplasia, Lymphoid			1 (2%)	
Parasite Metazoan	3 (6%)	3 (6%)	3 (6%)	1 (2%)
Intestine Large, Rectum	(50)	(50)	(50)	(50)
Parasite Metazoan	1 (2%)	2 (4%)	1 (2%)	2 (4%)
Intestine Large, Cecum	(50)	(50)	(50)	(50)
Inflammation, Chronic				1 (2%)
Inflammation, Chronic Active			1 (2%)	
Parasite Metazoan			1 (2%)	
Ulcer		1 (2%)		
Intestine Small, Duodenum	(50)	(50)	(50)	(50)
Eptopic Pancreas	1 (2%)			
Inflammation, Chronic Active			1 (2%)	
Intestine Small, Ileum	(50)	(49)	(50)	(50)
Hyperplasia, Lymphoid	3 (6%)	2 (4%)	2 (4%)	5 (10%)
Inflammation, Chronic Active				1 (2%)
Liver	(50)	(50)	(50)	(50)
Angiectasis	2 (4%)	2 (4%)	3 (6%)	2 (4%)
Basophilic Focus	38 (76%)	28 (56%)	11 (22%)	
Clear Cell Focus	4 (8%)	9 (18%)	11 (22%)	16 (32%)
Congestion	4 (8%)	1 (2%)	3 (6%)	2 (4%)
Developmental Malformation	1 (2%)	2 (4%)	1 (2%)	
Eosinophilic Focus	19 (38%)	24 (48%)	22 (44%)	15 (30%)
Fibrosis	1 (2%)	1 (2%)		
Hematopoietic Cell Proliferation		1 (2%)	1 (2%)	2 (4%)
Hemorrhage		1 (2%)	1 (2%)	
Hepatodiaphragmatic Nodule	9 (18%)	8 (16%)	3 (6%)	3 (6%)
Inflammation, Chronic Active	9 (18%)	1 (2%)	2 (4%)	4 (8%)
Mitotic Alteration	1 (2%)			1 (2%)
Mixed Cell Focus	2 (4%)	4 (8%)	1 (2%)	5 (10%)
Necrosis	6 (12%)	1 (2%)	1 (2%)	
Pigmentation	6 (12%)	2 (4%)	6 (12%)	17 (34%)
Tension Lipidosis	3 (6%)	1 (2%)		
Vacuolization Cytoplasmic	10 (20%)	7 (14%)	9 (18%)	18 (36%)

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
ALIMENTARY SYSTEM - CONT				
Bile Duct, Hyperplasia	20 (40%)	29 (58%)	34 (68%)	29 (58%)
Capsule, Inflammation, Chronic				2 (4%)
Centrilobular, Cytomegaly		1 (2%)	4 (8%)	20 (40%)
Centrilobular, Degeneration	1 (2%)	2 (4%)	2 (4%)	7 (14%)
Centrilobular, Necrosis	1 (2%)	2 (4%)	1 (2%)	
Mesentery	(9)	(11)	(7)	(12)
Ectopic Spleen			1 (14%)	
Inflammation				1 (8%)
Fat, Necrosis	8 (89%)	9 (82%)	6 (86%)	11 (92%)
Oral Mucosa	(2)	(1)		(2)
Pharyngeal, Hyperplasia				1 (50%)
Pharyngeal, Inflammation, Acute		1 (100%)		
Pancreas	(49)	(50)	(50)	(50)
Atrophy	22 (45%)	14 (28%)	13 (26%)	14 (28%)
Cytoplasmic Alteration	1 (2%)			
Ectopic Liver		2 (4%)	2 (4%)	3 (6%)
Hyperplasia		3 (6%)	2 (4%)	
Inflammation, Chronic			1 (2%)	2 (4%)
Salivary Glands	(50)	(50)	(50)	(50)
Atrophy		2 (4%)	3 (6%)	1 (2%)
Cytoplasmic Alteration		1 (2%)		1 (2%)
Inflammation, Chronic		2 (4%)		
Stomach, Forestomach	(50)	(50)	(50)	(50)
Fibrosis			1 (2%)	
Hyperkeratosis	1 (2%)			
Inflammation, Acute	1 (2%)		1 (2%)	
Inflammation, Chronic			1 (2%)	1 (2%)
Inflammation, Chronic Active	2 (4%)	1 (2%)	2 (4%)	1 (2%)
Ulcer	3 (6%)	3 (6%)	4 (8%)	4 (8%)
Epithelium, Hyperplasia, Squamous	2 (4%)	2 (4%)	2 (4%)	1 (2%)
Stomach, Glandular	(50)	(50)	(50)	(50)
Erosion	6 (12%)	9 (18%)	9 (18%)	7 (14%)
Inflammation, Chronic				1 (2%)
Inflammation, Chronic Active	1 (2%)			
Mineralization			2 (4%)	
Ulcer	1 (2%)	1 (2%)	3 (6%)	
Tongue			(1)	(2)
Epithelium, Hyperplasia			1 (100%)	1 (50%)
CARDIOVASCULAR SYSTEM				
Heart	(49)	(50)	(50)	(50)
Cardiomyopathy	42 (86%)	43 (86%)	43 (86%)	36 (72%)
Inflammation, Chronic Active	1 (2%)			
Mineralization	1 (2%)			
Thrombosis			2 (4%)	1 (2%)

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(50)
Accessory Adrenal Cortical Nodule	1 (2%)			
Atrophy			1 (2%)	
Congestion		1 (2%)		1 (2%)
Cyst		1 (2%)		1 (2%)
Hematopoietic Cell Proliferation	1 (2%)			
Hemorrhage	1 (2%)			
Hyperplasia	11 (22%)	12 (24%)	9 (18%)	6 (12%)
Vacuolization Cytoplasmic	6 (12%)	8 (16%)	6 (12%)	3 (6%)
Adrenal Medulla	(50)	(50)	(50)	(49)
Hyperplasia	5 (10%)	7 (14%)	8 (16%)	2 (4%)
Necrosis		1 (2%)		
Islets, Pancreatic	(49)	(50)	(50)	(50)
Hyperplasia			1 (2%)	1 (2%)
Parathyroid Gland	(48)	(50)	(48)	(50)
Hyperplasia	1 (2%)			
Pituitary Gland	(49)	(50)	(50)	(50)
Pigmentation			1 (%)	
Pars Distalis, Angiectasis	11 (22%)	9 (18%)	12 (%)	4 (8%)
Pars Distalis, Cyst	16 (33%)	18 (36%)	20 (%)	8 (16%)
Pars Distalis, Ectasia		1 (2%)		
Pars Distalis, Hemorrhage	1 (2%)			
Pars Distalis, Hyperplasia	22 (45%)	29 (58%)	21 (42%)	18 (36%)
Pars Intermedia, Hyperplasia	1 (2%)			
Thyroid Gland	(50)	(50)	(50)	(50)
Ultimobranchial Cyst		3 (6%)		1 (2%)
C-Cell, Hyperplasia	16 (32%)	17 (34%)	13 (26%)	10 (20%)
Follicular Cell, Hyperplasia	1 (2%)			
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Clitoral Gland	(47)	(48)	( )	(49)
Hyperplasia	1 (2%)	2 (4%)	1 (%)	2 (4%)
Inflammation, Acute	1 (2%)	2 (4%)		
Inflammation, Chronic	3 (6%)	1 (2%)	(%)	2 (4%)
Inflammation, Chronic Active	1 (2%)	1 (2%)	(%)	1 (2%)
Vacuolization Cytoplasmic				1 (2%)
Bilateral, Inflammation, Acute			1 (2%)	
Duct, Ectasia	3 (6%)	5 (10%)	4 (8%)	2 (4%)

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
GENITAL SYSTEM - CONT				
Ovary	(50)	(50)	(50)	(50)
Congestion	1 (2%)			
Cyst	3 (6%)	7 (14%)	4 (8%)	2 (4%)
Hyperplasia		1 (2%)		
Inflammation, Chronic	1 (2%)			1 (2%)
Pigmentation			1 (2%)	
Bilateral, Cyst		1 (2%)		2 (4%)
Uterus	(50)	(50)	(50)	(50)
Angiectasis		1 (2%)		
Cyst		1 (2%)		1 (2%)
Developmental Malformation			1 (2%)	
Dilatation		1 (2%)	1 (2%)	2 (4%)
Hemorrhage		1 (2%)		1 (2%)
Hyperplasia				1 (2%)
Hyperplasia, Cystic	6 (12%)		5 (10%)	7 (14%)
Inflammation, Acute				1 (2%)
Inflammation, Chronic		1 (2%)		1 (2%)
Inflammation, Chronic Active		1 (2%)		
Metaplasia, Squamous			1 (2%)	
Necrosis	1 (2%)			1 (2%)
Cervix, Hypertrophy			1 (2%)	
Cervix, Inflammation, Chronic				1 (2%)
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Depletion Cellular	1 (2%)		2 (4%)	2 (4%)
Fibrosis	1 (2%)	1 (2%)		
Hyperplasia	3 (6%)	4 (8%)		1 (2%)
Hyperplasia, Reticulum Cell		1 (2%)		
Necrosis			1 (2%)	
Erythroid Cell, Hyperplasia			1 (2%)	
Myeloid Cell, Hyperplasia		1 (2%)		
Lymph Node	(7)	(9)	(15)	(19)
Iliac, Congestion	2 (29%)			
Iliac, Ectasia				2 (11%)
Mediastinal, Congestion	3 (43%)	1 (11%)	4 (27%)	1 (5%)
Mediastinal, Hyperplasia, Lymphoid			1 (7%)	
Mediastinal, Pigmentation	1 (14%)			1 (5%)
Pancreatic, Congestion			1 (7%)	
Pancreatic, Pigmentation		1 (11%)		
Renal, Congestion	1 (14%)	1 (11%)	1 (7%)	
Renal, Ectasia		1 (11%)		1 (5%)
Renal, Hyperplasia, Lymphoid				1 (5%)
Lymph Node, Mandibular	(49)	(50)	(50)	(50)
Atrophy	1 (2%)			

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
HEMATOPOIETIC SYSTEM - CONT				
Congestion		1 (2%)	1 (2%)	
Ectasia	3 (6%)	4 (8%)	9 (18%)	2 (4%)
Edema				1 (2%)
Hyperplasia, Lymphoid	1 (2%)	1 (2%)		1 (2%)
Hyperplasia, Plasma Cell	1 (2%)			
Infiltration Cellular, Plasma Cell		1 (2%)		
Necrosis			1 (2%)	
Lymph Node, Mesenteric	(49)	(50)	(50)	(50)
Congestion	2 (4%)		3 (6%)	
Ectasia			4 (8%)	
Hemorrhage	1 (2%)			
Hyperplasia, Lymphoid		2 (4%)		2 (4%)
Inflammation, Acute				1 (2%)
Inflammation, Chronic				1 (2%)
Spleen	(50)	(50)	(50)	(50)
Atrophy				1 (2%)
Congestion	1 (2%)		2 (4%)	
Fibrosis	2 (4%)	3 (6%)	3 (6%)	4 (8%)
Hematopoietic Cell Proliferation	2 (4%)	4 (8%)		2 (4%)
Hemorrhage		2 (4%)		
Metaplasia, Osseous		1 (2%)		
Necrosis		1 (2%)	2 (4%)	1 (2%)
Pigmentation				1 (2%)
Capsule, Inflammation, Chronic				1 (2%)
Thymus	(50)	(50)	(50)	(50)
Congestion			1 (2%)	
Cyst			1 (2%)	
Ectopic Parathyroid Gland	2 (4%)	1 (2%)	1 (2%)	2 (4%)
Fibrosis		1 (2%)		
Inflammation, Acute	1 (2%)			
Inflammation, Chronic				1 (2%)
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(50)
Galactocele	3 (6%)	5 (10%)	1 (2%)	
Hyperplasia	5 (10%)	2 (4%)	6 (12%)	5 (10%)
Inflammation, Chronic Active			1 (2%)	
Duct, Dilatation	13 (26%)	9 (18%)	13 (26%)	13 (26%)
Skin	(50)	(50)	(50)	(50)
Hyperkeratosis			2 (4%)	
Hyperplasia, Squamous	2 (4%)	1 (2%)	1 (2%)	1 (2%)
Inflammation, Acute	1 (2%)			1 (2%)
Inflammation, Chronic	1 (2%)			
Inflammation, Chronic Active	2 (4%)	1 (2%)		1 (2%)
Subcutaneous Tissue, Fibrosis		1 (2%)		

a Number of animals examined microscopically at site and number of animals with lesion

F 344/N RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Osteopetrosis	9 (18%)	12 (24%)	10 (20%)	5 (10%)
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Hemorrhage	1 (2%)	1 (2%)		2 (4%)
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Congestion	1 (2%)			
Hemorrhage				1 (2%)
Infiltration Cellular, Histiocyte	13 (26%)	10 (20%)	9 (18%)	11 (22%)
Inflammation, Chronic	9 (18%)	8 (16%)	6 (12%)	8 (16%)
Bronchiole, Alveolus, Hyperplasia			1 (2%)	
Nose	(50)	(50)	(50)	(50)
Congestion			1 (2%)	
Cyst	1 (2%)	1 (2%)		
Hemorrhage				1 (2%)
Inflammation, Chronic	2 (4%)		3 (6%)	
Inflammation, Chronic Active	15 (30%)	15 (30%)	16 (32%)	19 (38%)
Nasolacrimal Duct, Cyst		2 (4%)		
Nasolacrimal Duct, Inflammation, Chronic Active	1 (2%)		1 (2%)	
Respiratory Epithelium, Hyperplasia				1 (2%)
SPECIAL SENSES SYSTEM				
Eye			(1)	(2)
Hemorrhage			1 (100%)	2 (100%)
Harderian Gland	(1)			
Inflammation, Chronic	1 (100%)			
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Accumulation, Hyaline Droplet				1 (2%)
Congestion	2 (4%)		1 (2%)	
Cyst			1 (2%)	
Hydronephrosis		2 (4%)		

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
URINARY SYSTEM - CONT				
Inflammation, Acute				1 (2%)
Mineralization	3 (6%)		4 (8%)	6 (12%)
Nephropathy	41 (82%)	42 (84%)	35 (70%)	37 (74%)
Pigmentation			2 (4%)	1 (2%)
Renal Tubule, Hyperplasia				1 (2%)
Urinary Bladder	(50)	(50)	(50)	(50)
Hemorrhage		1 (2%)		
Inflammation, Chronic		3 (6%)	1 (2%)	2 (4%)

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	11	13	15	10
Natural Death	14	17	10	24
Survivors				
Terminal Sacrifice	25	20	25	16
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Colon	(50)	(48)	(50)	(49)
Hyperplasia, Lymphoid			1 (2%)	
Inflammation, Acute			1 (2%)	
Inflammation, Chronic			1 (2%)	
Parasite Metazoan	4 (8%)	4 (8%)	3 (6%)	2 (4%)
Intestine Large, Rectum	(50)	(48)	(50)	(49)
Edema		1 (2%)		
Parasite Metazoan	4 (8%)	2 (4%)		1 (2%)
Intestine Large, Cecum	(49)	(47)	(50)	(49)
Edema		1 (2%)		
Hyperplasia, Lymphoid		1 (2%)		
Inflammation, Acute	1 (2%)		1 (2%)	1 (2%)
Inflammation, Chronic Active		1 (2%)		
Parasite Metazoan			1 (2%)	1 (2%)
Ulcer	1 (2%)			
Intestine Small, Duodenum	(50)	(47)	(50)	(48)
Eptopic Pancreas			1 (2%)	
Intestine Small, Jejunum	(50)	(47)	(50)	(47)
Congestion		1 (2%)		
Intestine Small, Ileum	(50)	(47)	(50)	(47)
Fibrosis	1 (2%)			
Hyperplasia, Lymphoid	6 (12%)	9 (19%)	3 (6%)	4 (9%)
Liver	(50)	(49)	(50)	(50)
Angiectasis		1 (2%)	1 (2%)	1 (2%)
Basophilic Focus	12 (24%)	5 (10%)		1 (2%)
Clear Cell Focus	7 (14%)	1 (2%)	7 (14%)	4 (8%)
Congestion	1 (2%)			
Degeneration, Cystic	4 (8%)	12 (24%)	11 (22%)	3 (6%)
Developmental Malformation			1 (2%)	1 (2%)
Eosinophilic Focus	14 (28%)	23 (47%)	23 (46%)	13 (26%)
Fibrosis	1 (2%)	1 (2%)	1 (2%)	10 (20%)
Hematopoietic Cell Proliferation	2 (4%)	1 (2%)		
Hepatodiaphragmatic Nodule	3 (6%)	1 (2%)		
Mitotic Alteration				2 (4%)

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
ALIMENTARY SYSTEM - CONT				
Mixed Cell Focus	2 (4%)	1 (2%)	3 (6%)	1 (2%)
Necrosis	2 (4%)	1 (2%)	1 (2%)	2 (4%)
Pigmentation	4 (8%)	11 (22%)	20 (40%)	25 (50%)
Thrombosis			1 (2%)	
Vacuolization Cytoplasmic	4 (8%)	6 (12%)	13 (26%)	17 (34%)
Bile Duct, Hyperplasia	46 (92%)	43 (88%)	44 (88%)	49 (98%)
Centrilobular, Cytomegaly		4 (8%)	8 (16%)	6 (12%)
Centrilobular, Degeneration	1 (2%)	3 (6%)	2 (4%)	8 (16%)
Centrilobular, Necrosis		3 (6%)		5 (10%)
Periportal, Fibrosis			2 (4%)	29 (58%)
Mesentery	(11)	(14)	(7)	(8)
Cyst	1 (9%)			
Hemorrhage			1 (14%)	
Inflammation, Acute		1 (7%)		
Fat, Necrosis	10 (91%)	13 (93%)	6 (86%)	8 (100%)
Oral Mucosa	(1)		(2)	
Pharyngeal, Hyperplasia			1 (50%)	
Pancreas	(50)	(48)	(50)	(49)
Atrophy	18 (36%)	15 (31%)	17 (34%)	12 (24%)
Cytoplasmic Alteration	2 (4%)			
Hyperplasia	2 (4%)	4 (8%)	2 (4%)	3 (6%)
Inflammation, Chronic	1 (2%)		3 (6%)	
Acinus, Hyperplasia		1 (2%)		
Artery, Inflammation, Acute	1 (2%)			
Salivary Glands	(50)	(50)	(50)	(50)
Cellular Alteration				1 (2%)
Inflammation, Chronic Active		1 (2%)		
Stomach, Forestomach	(50)	(49)	(50)	(49)
Hyperkeratosis				2 (4%)
Inflammation, Acute		1 (2%)		1 (2%)
Inflammation, Chronic Active	2 (4%)			8 (16%)
Ulcer	2 (4%)	10 (20%)	3 (6%)	4 (8%)
Epithelium, Hyperplasia, Squamous	1 (2%)	7 (14%)	7 (14%)	11 (22%)
Stomach, Glandular	(50)	(49)	(50)	(49)
Erosion	15 (30%)	17 (35%)	12 (24%)	12 (24%)
Inflammation, Acute				1 (2%)
Inflammation, Chronic	1 (2%)	1 (2%)		
Inflammation, Chronic Active			1 (2%)	1 (2%)
Mineralization		2 (4%)	2 (4%)	8 (16%)
Necrosis				1 (2%)
Ulcer	2 (4%)	5 (10%)	1 (2%)	1 (2%)
Tooth	(2)	(1)	(1)	
Dysplasia		1 (100%)		
Inflammation, Acute	1 (50%)			
Inflammation, Chronic Active	1 (50%)		1 (100%)	

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	45 (90%)	43 (86%)	43 (86%)	46 (92%)
Mineralization	1 (2%)		3 (6%)	2 (4%)
Thrombosis	2 (4%)	6 (12%)	3 (6%)	4 (8%)
Coronary Artery, Inflammation, Chronic Active		1 (2%)		
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(49)	(50)	(50)
Accessory Adrenal Cortical Nodule	1 (2%)			1 (2%)
Congestion			1 (2%)	
Hyperplasia	8 (16%)	7 (14%)	7 (14%)	2 (4%)
Hypertrophy	1 (2%)			2 (4%)
Vacuolization Cytoplasmic	9 (18%)	5 (10%)	9 (18%)	7 (14%)
Adrenal Medulla	(50)	(49)	(50)	(49)
Hyperplasia	17 (34%)	22 (45%)	19 (38%)	15 (31%)
Bilateral, Hyperplasia	1 (2%)	1 (2%)		1 (2%)
Islets, Pancreatic	(50)	(48)	(50)	(49)
Hyperplasia	5 (10%)	2 (4%)	1 (2%)	1 (2%)
Parathyroid Gland	(50)	(50)	(50)	(48)
Hyperplasia		1 (2%)	3 (6%)	3 (6%)
Pituitary Gland	(50)	(50)	(50)	(50)
Pars Distalis, Angiectasis		2 (4%)	2 (4%)	2 (4%)
Pars Distalis, Cyst	2 (4%)	8 (16%)	3 (6%)	1 (2%)
Pars Distalis, Degeneration				1 (2%)
Pars Distalis, Ectasia		1 (2%)		
Pars Distalis, Hemorrhage	1 (2%)			
Pars Distalis, Hyperplasia	22 (44%)	16 (32%)	18 (36%)	12 (24%)
Pars Distalis, Thrombosis		1 (2%)		
Thyroid Gland	(50)	(50)	(50)	(49)
Pigmentation		1 (2%)		
Ultimobranchial Cyst	1 (2%)	1 (2%)		1 (2%)
C-Cell, Hyperplasia	7 (14%)	5 (10%)	3 (6%)	3 (6%)
Follicle, Dilatation	1 (2%)	1 (2%)	1 (2%)	2 (4%)
Follicular Cell, Hyperplasia	1 (2%)	5 (10%)	1 (2%)	2 (4%)
GENERAL BODY SYSTEM				
None				

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
GENITAL SYSTEM				
Epididymis	(49)	(49)	(49)	(48)
Fibrosis			1 (2%)	
Inflammation, Chronic			2 (4%)	
Penis	(1)			
Inflammation, Chronic Active	1 (100%)			
Preputial Gland	(50)	(47)	(49)	(48)
Atrophy	1 (2%)			
Hyperplasia	4 (8%)	3 (6%)	5 (10%)	4 (8%)
Inflammation, Acute	2 (4%)			2 (4%)
Inflammation, Chronic	17 (34%)	25 (53%)	17 (35%)	23 (48%)
Inflammation, Chronic Active	5 (10%)	14 (30%)	14 (29%)	5 (10%)
Duct, Dilatation		2 (4%)		2 (4%)
Prostate	(50)	(48)	(50)	(49)
Hemorrhage, Chronic		1 (2%)		
Hyperplasia, Focal	1 (2%)	1 (2%)	4 (8%)	2 (4%)
Inflammation, Acute	2 (4%)	2 (4%)		1 (2%)
Inflammation, Chronic	2 (4%)	1 (2%)	4 (8%)	3 (6%)
Inflammation, Chronic Active	31 (62%)	29 (60%)	24 (48%)	22 (45%)
Seminal Vesicle	(50)	(47)	(50)	(48)
Dilatation			1 (2%)	
Fibrosis				1 (2%)
Inflammation, Acute		1 (2%)	1 (2%)	
Inflammation, Chronic	1 (2%)			1 (2%)
Inflammation, Chronic Active	1 (2%)	1 (2%)	2 (4%)	1 (2%)
Mineralization				1 (2%)
Testes	(49)	(49)	(49)	(48)
Atrophy	2 (4%)			
Necrosis	1 (2%)			
Thrombosis			1 (2%)	
Bilateral, Interstitial Cell, Hyperplasia	3 (6%)	2 (4%)	3 (6%)	1 (2%)
Interstitial Cell, Hyperplasia	9 (18%)	6 (12%)	6 (12%)	4 (8%)
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Depletion Cellular	2 (4%)	4 (8%)	3 (6%)	1 (2%)
Fibrosis			1 (2%)	1 (2%)
Hemorrhage		1 (2%)		
Lymph Node	(20)	(25)	(20)	(23)
Iliac, Hyperplasia, Lymphoid	1 (5%)	1 (4%)		
Iliac, Infiltration Cellular, Plasma Cell	1 (5%)			
Mediastinal, Congestion		5 (20%)		4 (17%)
Mediastinal, Ectasia			1 (5%)	
Mediastinal, Hemorrhage	1 (5%)	1 (4%)	2 (10%)	
Mediastinal, Hyperplasia, Lymphoid				1 (4%)

a Number of animals examined microscopically at site and number of animals with lesion.

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
HEMATOPOIETIC SYSTEM - CONT				
Mediastinal, Pigmentation			1 (5%)	
Pancreatic, Congestion			1 (5%)	2 (9%)
Pancreatic, Edema				1 (4%)
Pancreatic, Hyperplasia, Lymphoid			1 (5%)	
Pancreatic, Inflammation, Chronic Active				1 (4%)
Pancreatic, Necrosis			1 (5%)	
Pancreatic, Pigmentation			1 (5%)	
Renal, Congestion	1 (5%)		1 (5%)	3 (13%)
Renal, Edema			1 (5%)	
Renal, Fibrosis		1 (4%)		
Renal, Hyperplasia, Lymphoid			2 (10%)	
Renal, Pigmentation			1 (5%)	4 (17%)
Lymph Node, Mandibular	(50)	(50)	(50)	(50)
Congestion		1 (2%)	1 (2%)	
Ectasia	4 (8%)	3 (6%)	2 (4%)	3 (6%)
Hyperplasia, Lymphoid			1 (2%)	
Inflammation, Chronic Active		1 (2%)		
Lymph Node, Mesenteric	(50)	(47)	(50)	(48)
Congestion		2 (4%)		1 (2%)
Ectasia	2 (4%)	3 (6%)	2 (4%)	1 (2%)
Fibrosis			2 (4%)	
Hemorrhage		1 (2%)		1 (2%)
Inflammation, Acute	1 (2%)			
Necrosis		3 (6%)		
Spleen	(49)	(48)	(50)	(49)
Atrophy			1 (2%)	
Congestion		1 (2%)		1 (2%)
Fibrosis	14 (29%)	11 (23%)	9 (18%)	12 (24%)
Hematopoietic Cell Proliferation	1 (2%)	1 (2%)		1 (2%)
Hyperplasia, Focal			1 (2%)	
Necrosis	4 (8%)	2 (4%)	1 (2%)	
Pigmentation				2 (4%)
Thrombosis		1 (2%)		
Thymus	(50)	(49)	(48)	(50)
Cyst	1 (2%)			
Ectopic Parathyroid Gland				1 (2%)
Fibrosis		1 (2%)		
Hemorrhage		1 (2%)		1 (2%)
INTEGUMENTARY SYSTEM				
Mammary Gland	(49)	(48)	(50)	(49)
Concretion		1 (2%)		
Galactocele			1 (2%)	
Hyperplasia	1 (2%)	3 (6%)	2 (4%)	3 (6%)
Duct, Dilatation	14 (29%)	16 (33%)	12 (24%)	15 (31%)

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
INTEGUMENTARY SYSTEM - CONT				
Skin	(50)	(50)	(50)	(50)
Cyst Epithelial Inclusion			2 (4%)	
Hyperkeratosis			1 (2%)	
Hyperplasia, Squamous		1 (2%)	1 (2%)	
Inflammation, Acute		1 (2%)		
Necrosis			1 (2%)	
Epidermis, Degeneration				1 (2%)
Subcutaneous Tissue, Inflammation, Chronic Active			1 (2%)	
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Fibrous Osteodystrophy	2 (4%)	1 (2%)	4 (8%)	6 (12%)
Hyperostosis		1 (2%)		
Osteomalacia				1 (2%)
Osteopetrosis	1 (2%)		2 (4%)	
NERVOUS SYSTEM				
Brain	(50)	(50)	(48)	(50)
Hemorrhage			1 (2%)	
Hydrocephalus	1 (2%)			
Inflammation, Acute				1 (2%)
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Congestion		1 (2%)		2 (4%)
Hemorrhage			2 (4%)	2 (4%)
Hyperplasia, Lymphoid	1 (2%)	1 (2%)		
Infiltration Cellular, Histiocyte	6 (12%)	4 (8%)	9 (18%)	9 (18%)
Inflammation, Chronic	8 (16%)	10 (20%)	12 (24%)	9 (18%)
Metaplasia, Osseous				1 (2%)
Alveolar Epithelium, Hyperplasia		3 (6%)		3 (6%)
Nose	(50)	(50)	(49)	(50)
Cyst		1 (2%)	1 (2%)	
Cyst Epithelial Inclusion				1 (2%)
Inflammation, Chronic			1 (2%)	
Inflammation, Chronic Active	26 (52%)	18 (36%)	21 (43%)	25 (50%)
Polyp Inflammatory				1 (2%)
Nasolacrimal Duct, Cyst			1 (2%)	1 (2%)
Nasolacrimal Duct, Inflammation, Acute	1 (2%)			1 (2%)
Squamous Epithelium, Nasolacrimal Duct,				

a Number of animals examined microscopically at site and number of animals with lesion

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
PYRIDINE

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
RESPIRATORY SYSTEM - CONT				
Hyperplasia		1 (2%)		
SPECIAL SENSES SYSTEM				
Eye		(1)		
Atrophy		1 (100%)		
URINARY SYSTEM				
Kidney	(50)	(48)	(50)	(49)
Atrophy			1 (2%)	
Cyst	3 (6%)	3 (6%)	13 (26%)	10 (20%)
Developmental Malformation	2 (4%)			
Hydronephrosis	3 (6%)	1 (2%)		2 (4%)
Inflammation, Acute				1 (2%)
Nephropathy	47 (94%)	47 (98%)	49 (98%)	49 (100%)
Pigmentation				1 (2%)
Artery, Inflammation, Acute	1 (2%)			
Artery, Inflammation, Chronic Active	1 (2%)			
Capsule, Hemorrhage, Chronic		1 (2%)		
Pelvis, Inflammation, Acute				1 (2%)
Renal Tubule, Hyperplasia	1 (2%)		4 (8%)	7 (14%)
Urinary Bladder	(50)	(47)	(50)	(49)
Hemorrhage		1 (2%)	1 (2%)	1 (2%)
Inflammation, Chronic	4 (8%)		1 (2%)	1 (2%)

a Number of animals examined microscopically at site and number of animals with lesion

END OF REPORT

Facility: TSI Mason Research

Chemical CAS #: 110-86-1

Lock Date: 12/15/94

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

a Number of animals examined microscopically at site and number of animals with lesion

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Natural Death	15	5	14	22
Moribund Sacrifice	3	8	7	2
Survivors				
Terminal Sacrifice	32	37	29	26
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Esophagus	(50)	(50)	(50)	(50)
Schwannoma Malignant, Metastatic, Uterus		1 (2%)		
Intestine Large, Colon	(50)	(50)	(50)	(50)
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Intestine Large, Cecum	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney		1 (2%)		
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Intestine Small, Duodenum	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Pancreas		1 (2%)		
Carcinoma, Metastatic, Uterus		1 (2%)		
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Intestine Small, Jejunum	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Pancreas		1 (2%)		
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Intestine Small, Ileum	(50)	(49)	(50)	(50)
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Liver	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney		1 (2%)		
Carcinoma, Metastatic, Pancreas		1 (2%)		
Carcinoma, Metastatic, Uterus		1 (2%)		
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Hepatocellular Adenoma	1 (2%)		1 (2%)	
Mesentery	(9)	(11)	(7)	(12)
Carcinoma, Metastatic, Uterus		1 (9%)		
Fibrous Histiocytoma	1 (11%)			
Schwannoma Malignant, Metastatic, Uterus		1 (9%)		
Oral Mucosa	(2)	(1)		(2)
Pharyngeal, Squamous Cell Carcinoma	2 (100%)			
Pharyngeal, Squamous Cell Papilloma				1 (50%)
Pancreas	(49)	(50)	(50)	(50)
Carcinoma		2 (4%)		
Carcinoma, Metastatic, Uterus		1 (2%)		
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
ALIMENTARY SYSTEM - cont				
Acinus, Adenoma		1 (2%)		1 (2%)
Salivary Glands	(50)	(50)	(50)	(50)
Stomach, Forestomach	(50)	(50)	(50)	(50)
Stomach, Glandular	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Uterus		1 (2%)		
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Tongue			(1)	(2)
Squamous Cell Papilloma				1 (50%)
CARDIOVASCULAR SYSTEM				
Heart	(49)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney		1 (2%)		
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney		1 (2%)		
Adrenal Medulla	(50)	(50)	(50)	(49)
Pheochromocytoma Benign	2 (4%)		1 (2%)	
Bilateral, Pheochromocytoma Benign	1 (2%)			
Islets, Pancreatic	(49)	(50)	(50)	(50)
Adenoma	1 (2%)		1 (2%)	
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Parathyroid Gland	(48)	(50)	(48)	(50)
Pituitary Gland	(49)	(50)	(50)	(50)
Pars Distalis, Adenoma	17 (35%)	12 (24%)	18 (36%)	15 (30%)
Pars Distalis, Adenoma, Multiple	1 (2%)			
Thyroid Gland	(50)	(50)	(50)	(50)
Bilateral, C-Cell, Adenoma		1 (2%)		
C-Cell, Adenoma	3 (6%)	2 (4%)	2 (4%)	
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Clitoral Gland	(47)	(48)	(50)	(49)
Adenoma	2 (4%)	3 (6%)		1 (2%)
Carcinoma		1 (2%)	1 (2%)	2 (4%)
Bilateral, Adenoma			1 (2%)	
Ovary	(50)	(50)	(50)	(50)

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
GENITAL SYSTEM - cont				
Carcinoma, Metastatic, Kidney		1 (2%)		
Carcinoma, Metastatic, Pancreas		1 (2%)		
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Granulosa-Theca Tumor Malignant			1 (2%)	
Uterus	(50)	(50)	(50)	(50)
Carcinoma		1 (2%)		
Carcinoma, Metastatic, Pancreas		1 (2%)		
Polyp Stromal	4 (8%)	7 (14%)	9 (18%)	7 (14%)
Polyp Stromal, Multiple				1 (2%)
Sarcoma Stromal	1 (2%)			
Schwannoma Malignant, Metastatic, Uterus		1 (2%)		
Vagina				(1)
Lipoma				1 (100%)
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney		1 (2%)		
Lymph Node	(7)	(9)	(15)	(19)
Mediastinal, Carcinoma, Metastatic, Kidney		1 (11%)		
Mediastinal, Carcinoma, Metastatic, Pancreas		1 (11%)		
Mediastinal, Fibrous Histiocytoma, Metastatic, Mesentery	1 (14%)			
Lymph Node, Mandibular	(49)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney		1 (2%)		
Lymph Node, Mesenteric	(49)	(50)	(50)	(50)
Carcinoma, Metastatic, Pancreas		1 (2%)		
Carcinoma, Metastatic, Uterus		1 (2%)		
Fibrous Histiocytoma, Metastatic, Mesentery	1 (2%)			
Spleen	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney		1 (2%)		
Carcinoma, Metastatic, Pancreas		1 (2%)		
Carcinoma, Metastatic, Uterus		1 (2%)		
Thymus	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney		1 (2%)		
Carcinoma, Metastatic, Pancreas		1 (2%)		
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(50)
Adenoma	2 (4%)	1 (2%)	1 (2%)	
Carcinoma	1 (2%)	2 (4%)	1 (2%)	1 (2%)
Fibroadenoma	19 (38%)	15 (30%)	14 (28%)	18 (36%)
Fibroadenoma, Multiple	8 (16%)	10 (20%)	6 (12%)	2 (4%)
Sarcoma	1 (2%)			

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
INTEGUMENTARY SYSTEM - cont				
Skin	(50)	(50)	(50)	(50)
Basal Cell Adenoma		1 (2%)		
Keratoacanthoma				1 (2%)
Trichoepithelioma				1 (2%)
MUSCULOSKELETAL SYSTEM				
Skeletal Muscle	(2)	(1)		
Carcinoma, Metastatic, Uterus		1 (100%)		
Abdominal, Fibrous Histiocytoma, Metastatic, Mesentery	1 (50%)			
Abdominal, Lipoma	1 (50%)			
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Astrocytoma Malignant	2 (4%)			
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Adenoma	1 (2%)	1 (2%)	1 (2%)	2 (4%)
Carcinoma, Metastatic, Clitoral Gland				1 (2%)
Carcinoma, Metastatic, Kidney		1 (2%)		
Carcinoma, Metastatic, Mammary Gland			1 (2%)	
Carcinoma, Metastatic, Pancreas		2 (4%)		
Carcinoma, Metastatic, Uterus		1 (2%)		
Nose	(50)	(50)	(50)	(50)
Pleura		(1)		
Carcinoma, Metastatic, Kidney		1 (100%)		
Trachea	(50)	(50)	(50)	(50)
SPECIAL SENSES SYSTEM				
Zymbal's Gland		(1)		(1)
Carcinoma		1 (100%)		1 (100%)

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Pancreas		1 (2%)		
Transitional Epithelium, Carcinoma		1 (2%)		
Urinary Bladder	(50)	(50)	(50)	(50)
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Leukemia Mononuclear	12 (24%)	16 (32%)	22 (44%)	23 (46%)
Lymphoma Malignant	1 (2%)			1 (2%)

* Number of animals with any tissue examined microscopically

NTP Experiment-Test: 55301-05 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRPT05
Study Type: CHRONIC PYRIDINE Date: 10/08/97
Route: DOSED WATER Time: 11:55:09

FISCHER 344 RATS FEMALE	0 PPM	100 PPM	200 PPM	400 PPM
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	45	42	45	44
Total Primary Neoplasms	84	78	80	80
Total Animals with Benign Neoplasms	39	34	35	35
Total Benign Neoplasms	63	54	55	52
Total Animals with Malignant Neoplasms	21	22	23	28
Total Malignant Neoplasms	21	24	25	28
Total Animals with Metastatic Neoplasms	1	5	1	1
Total Metastatic Neoplasm	13	36	1	1
Total Animals with Malignant Neoplasms Uncertain Primary Site				
Total Animals with Neoplasms Uncertain-Benign or Malignant				
Total Uncertain Neoplasms				

a Number of animals examined microscopically at site and number of animals with lesion
b Primary tumors: all tumors except metastatic tumors

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	11	13	15	10
Natural Death	14	17	10	24
Survivors				
Terminal Sacrifice	25	20	25	16
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Colon	(50)	(48)	(50)	(49)
Lipoma			1 (2%)	
Intestine Large, Cecum	(49)	(47)	(50)	(49)
Lipoma			1 (2%)	
Intestine Small, Duodenum	(50)	(47)	(50)	(48)
Intestine Small, Jejunum	(50)	(47)	(50)	(47)
Carcinoma	1 (2%)			
Intestine Small, Ileum	(50)	(47)	(50)	(47)
Liver	(50)	(49)	(50)	(50)
Cholangiocarcinoma				1 (2%)
Hepatocellular Carcinoma			1 (2%)	
Hepatocellular Adenoma	1 (2%)	1 (2%)		2 (4%)
Hepatocellular Adenoma, Multiple				1 (2%)
Histiocytic Sarcoma	1 (2%)			
Mesentery	(11)	(14)	(7)	(8)
Schwannoma Benign	1 (9%)			
Oral Mucosa	(1)		(2)	
Pharyngeal, Squamous Cell Papilloma	1 (100%)		1 (50%)	
Pancreas	(50)	(48)	(50)	(49)
Acinus, Adenoma	2 (4%)	1 (2%)	1 (2%)	1 (2%)
Salivary Glands	(50)	(50)	(50)	(50)
Stomach, Forestomach	(50)	(49)	(50)	(49)
Squamous Cell Papilloma			1 (2%)	
Stomach, Glandular	(50)	(49)	(50)	(49)
Tongue				(1)
Squamous Cell Papilloma				1 (100%)

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(49)	(50)	(50)
Carcinoma		1 (2%)		
Adrenal Medulla	(50)	(49)	(50)	(49)
Pheochromocytoma Complex				1 (2%)
Pheochromocytoma Benign	11 (22%)	2 (4%)	14 (28%)	4 (8%)
Bilateral, Pheochromocytoma Benign	6 (12%)	1 (2%)		
Islets, Pancreatic	(50)	(48)	(50)	(49)
Adenoma	4 (8%)	2 (4%)	1 (2%)	
Parathyroid Gland	(50)	(50)	(50)	(48)
Pituitary Gland	(50)	(50)	(50)	(50)
Pars Distalis, Adenoma	16 (32%)	13 (26%)	12 (24%)	11 (22%)
Pars Intermedia, Adenoma	1 (2%)			
Thyroid Gland	(50)	(50)	(50)	(49)
Bilateral, C-Cell, Adenoma		1 (2%)		
C-Cell, Adenoma	2 (4%)		3 (6%)	2 (4%)
C-Cell, Carcinoma		1 (2%)		
Follicular Cell, Adenoma		2 (4%)		
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Epididymis	(49)	(49)	(49)	(48)
Preputial Gland	(50)	(47)	(49)	(48)
Adenoma	3 (6%)		7 (14%)	2 (4%)
Carcinoma	5 (10%)	2 (4%)		1 (2%)
Prostate	(50)	(48)	(50)	(49)
Seminal Vesicle	(50)	(47)	(50)	(48)
Testes	(49)	(49)	(49)	(48)
Bilateral, Interstitial Cell, Adenoma	33 (67%)	35 (71%)	37 (76%)	40 (83%)
Interstitial Cell, Adenoma	9 (18%)	8 (16%)	6 (12%)	3 (6%)

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Histiocytic Sarcoma	1 (2%)			
Melanoma Malignant, Metastatic, Skin			1 (2%)	
Lymph Node	(20)	(25)	(20)	(23)
Lymph Node, Mandibular	(50)	(50)	(50)	(50)
Lymph Node, Mesenteric	(50)	(47)	(50)	(48)
Spleen	(49)	(48)	(50)	(49)
Thymus	(50)	(49)	(48)	(50)
Thymoma Benign				1 (2%)
INTEGUMENTARY SYSTEM				
Mammary Gland	(49)	(48)	(50)	(49)
Carcinoma		1 (2%)		
Fibroadenoma	4 (8%)	3 (6%)	6 (12%)	4 (8%)
Skin	(50)	(50)	(50)	(50)
Basal Cell Adenoma				1 (2%)
Keratoacanthoma	6 (12%)	4 (8%)	1 (2%)	5 (10%)
Keratoacanthoma, Multiple			1 (2%)	
Squamous Cell Papilloma	4 (8%)	1 (2%)	1 (2%)	
Trichoepithelioma		1 (2%)		1 (2%)
Pinna, Melanoma Malignant			1 (2%)	2 (4%)
Subcutaneous Tissue, Fibroma	4 (8%)	2 (4%)	4 (8%)	
Subcutaneous Tissue, Lipoma	1 (2%)		1 (2%)	
MUSCULOSKELETAL SYSTEM				
Skeletal Muscle		(1)		
NERVOUS SYSTEM				
Brain	(50)	(50)	(48)	(50)
Oligodendroglioma Malignant		1 (2%)		
Spinal Cord	(1)			
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Adenoma	1 (2%)			4 (8%)
Alveolar/Bronchiolar Carcinoma			2 (4%)	
Carcinoma, Metastatic, Mammary Gland		1 (2%)		
Carcinoma, Metastatic, Zymbal's Gland		1 (2%)		

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
RESPIRATORY SYSTEM - cont				
Melanoma Malignant, Metastatic, Skin			1 (2%)	
Osteosarcoma, Metastatic, Nose	1 (2%)			
Nose	(50)	(50)	(49)	(50)
Osteosarcoma	1 (2%)			
Respiratory Epithelium, Squamous Cell Carcinoma		1 (2%)		
Trachea	(50)	(50)	(50)	(50)
SPECIAL SENSES SYSTEM				
Zymbal's Gland	(1)	(1)	(1)	(1)
Carcinoma	1 (100%)	1 (100%)	1 (100%)	1 (100%)
URINARY SYSTEM				
Kidney	(50)	(48)	(50)	(49)
Mesenchymal Tumor Malignant		1 (2%)		
Renal Tubule, Adenoma	1 (2%)		1 (2%)	4 (8%)
Renal Tubule, Adenoma, Multiple			1 (2%)	2 (4%)
Renal Tubule, Carcinoma		1 (2%)		
Urinary Bladder	(50)	(47)	(50)	(49)
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma	1 (2%)			
Leukemia Mononuclear	29 (58%)	32 (64%)	26 (52%)	27 (54%)
Lymphoma Malignant				1 (2%)
Mesothelioma Benign	1 (2%)		1 (2%)	
Mesothelioma Malignant	1 (2%)	1 (2%)		

* Number of animals with any tissue examined microscopically

FISCHER 344 RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	49	49	49	49
Total Primary Neoplasms	151	120	133	123
Total Animals with Benign Neoplasms	47	46	48	49
Total Benign Neoplasms	112	77	102	89
Total Animals with Malignant Neoplasms	34	40	29	29
Total Malignant Neoplasms	39	43	31	34
Total Animals with Metastatic Neoplasms	1	2	1	
Total Metastatic Neoplasm	1	2	2	
Total Animals with Malignant Neoplasms Uncertain Primary Site				
Total Animals with Neoplasms Uncertain-Benign or Malignant				
Total Uncertain Neoplasms				

a Number of animals examined microscopically at site and number of animals with lesion
b Primary tumors: all tumors except metastatic tumors

END OF REPORT

REASONS FOR REMOVAL: ALL

REMOVAL DATE RANGE: ALL

TREATMENT GROUPS: INCLUDE ALL

NTP
LAB: TSI Mason Research
EXPERIMENT: 55301 TEST: 05
TEST TYPE: CHRONIC
CONT: N01ES95268
PATHOLOGIST: P. HILDEBRANDT

STATISTICAL ANALYSIS OF PRIMARY TUMORS
PYRIDINE

CAGES FROM 0000 TO LAST CAGE
ROUTE: DOSED WATER

REPORT: PEIRPT08
DATE: 10/08/97
TIME: 10:50:59

NTP C#: 55301B
CAS: 110-86-1

RATS(FISCHER344)

FOR ALL DOSES THE TUMOR RATES IN THE FOLLOWING TISSUES/ORGANS ARE BASED ON NUMBER OF TISSUES EXAMINED.
IN OTHER TISSUES/ORGANS, RATES ARE BASED ON NUMBER OF ANIMALS NECROPSIED.

Adrenal Cortex
Adrenal Medulla
Bone Marrow
Brain
Clitoral Gland
Clitoral/Preputial Gland
Epididymis
Heart
Islets, Pancreatic
Kidney
Liver
Lung
Nose
Ovary
Pancreas
Parathyroid Gland
Pituitary Gland
Preputial Gland
Prostate
Salivary Glands
Spleen
Testes
Thymus
Thyroid Gland
Urinary Bladder

NTP
LAB: TSI Mason Research
EXPERIMENT: 55301 TEST: 05
TEST TYPE: CHRONIC
CONT: N01ES95268
PATFOLOGIST: P. HILDEBRANDT

STATISTICAL ANALYSIS OF PRIMARY TUMORS
PYRIDINE

CAGES FROM 0000 TO LAST CAGE
ROUTE: DOSED WATER

REPORT: PEIRPT08
DATE: 10/08/97
TIME: 10:50:59

NTP C#: 55301B
CAS: 110-86-1

SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS
IN THE ANALYSIS OF THE STUDY OF PYRIDINE

MALE RATS

ORGAN	MORPHOLOGY
Adrenal Medulla	Pheochromocytoma Benign
	Pheochromocytoma: Benign, Complex, Malignant, NOS
Clitoral/Preputial Gland	Carcinoma
Islets, Pancreatic	Adenoma
Kidney: Renal Tubule	Adenoma
	Carcinoma or Adenoma
Lung	Alveolar/Bronchiolar Adenoma
	Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma
Skin	Squamous Cell Papilloma
Testes	Adenoma
All Organs	Benign Tumors
	Malignant Tumors
	Malignant and Benign Tumors

FEMALE RATS

ORGAN	MORPHOLOGY
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva)	
	Papilloma Squamous or Papilloma
All Organs	Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated
	Malignant Tumors

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Adrenal Medulla Pheochromocytoma Benign								
TUMOR RATES								
OVERALL (a)	17/50 (34%)	3/49 (6%)	14/50 (28%)	4/49 (8%)	3/50 (6%)	0/50 (0%)	1/50 (2%)	0/49 (0%)
ADJUSTED (b)	53.6%	11.7%	41.8%	21.7%	8.5%	0.0%	3.4%	0.0%
TERMINAL (d)	11/25 (44%)	1/20 (5%)	7/25 (28%)	3/16 (19%)	2/32 (6%)	0/37 (0%)	1/29 (3%)	0/25 (0%)
FIRST INCIDENCE (DAYS)	571	628	585	675	667	---	729 (T)	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.061N	P=0.004N**	P=0.373N	P=0.024N*	P=0.115N	P=0.106N	P=0.335N	P=0.170N
INCIDENTAL TUMOR	P=0.020N*	P<0.001N**	P=0.366N	P=0.004N**	P=0.115N	P=0.130N	P=0.325N	P=0.184N
LOGISTIC REGRESSION	P=0.022N*	P<0.001N**	P=0.348N	P=0.005N**	P=0.100N	P=0.116N	P=0.311N	P=0.145N
COCHRAN-ARMITAGE	P=0.013N*				P=0.088N			
FISHER EXACT		P<0.001N**	P=0.333N	P=0.002N**		P=0.121N	P=0.309N	P=0.125N
Adrenal Medulla Pheochromocytoma: Benign, Complex, Malignant, NOS								
TUMOR RATES								
OVERALL (a)	17/50 (34%)	3/49 (6%)	14/50 (28%)	5/49 (10%)	3/50 (6%)	0/50 (0%)	1/50 (2%)	0/49 (0%)
ADJUSTED (b)	53.6%	11.7%	41.8%	27.7%	8.5%	0.0%	3.4%	0.0%
TERMINAL (d)	11/25 (44%)	1/20 (5%)	7/25 (28%)	4/16 (25%)	2/32 (6%)	0/37 (0%)	1/29 (3%)	0/25 (0%)
FIRST INCIDENCE (DAYS)	571	628	585	675	667	---	729 (T)	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.109N	P=0.004N**	P=0.373N	P=0.049N*	P=0.115N	P=0.106N	P=0.335N	P=0.170N
INCIDENTAL TUMOR	P=0.042N*	P<0.001N**	P=0.366N	P=0.011N*	P=0.115N	P=0.130N	P=0.325N	P=0.184N
LOGISTIC REGRESSION	P=0.045N*	P<0.001N**	P=0.348N	P=0.012N*	P=0.100N	P=0.116N	P=0.311N	P=0.145N
COCHRAN-ARMITAGE	P=0.027N*				P=0.088N			
FISHER EXACT		P<0.001N**	P=0.333N	P=0.004N**		P=0.121N	P=0.309N	P=0.125N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Brain Astrocytoma Malignant								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/48 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	5.2%	0.0%	0.0%	0.0%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	0/23 (0%)	0/16 (0%)	1/32 (3%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	---	---	---	---	596	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.129N	P=0.224N	P=0.258N	P=0.270N
INCIDENTAL TUMOR	(e)	(e)	(e)	(e)	P=0.065N	P=0.254N	P=0.189N	P=0.138N
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.104N	P=0.255N	P=0.239N	P=0.220N
COCHRAN-ARMITAGE	(e)				P=0.115N			
FISHER EXACT		(e)	(e)	(e)		P=0.247N	P=0.247N	P=0.247N
Brain Oligodendroglioma, Glioma, or Astrocytoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/48 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	0.0%	2.0%	0.0%	0.0%	5.2%	0.0%	0.0%	0.0%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	0/23 (0%)	0/16 (0%)	1/32 (3%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	---	455	---	---	596	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.567N	P=0.513	(e)	(e)	P=0.129N	P=0.224N	P=0.258N	P=0.270N
INCIDENTAL TUMOR	P=0.474N	P=0.500	(e)	(e)	P=0.065N	P=0.254N	P=0.189N	P=0.138N
LOGISTIC REGRESSION	P=0.486N	P=0.308	(e)	(e)	P=0.104N	P=0.255N	P=0.239N	P=0.220N
COCHRAN-ARMITAGE	P=0.568N				P=0.115N			
FISHER EXACT		P=0.500	(e)	(e)		P=0.247N	P=0.247N	P=0.247N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Clitoral/Preputial Gland Adenoma								
TUMOR RATES								
OVERALL (a)	3/50 (6%)	0/47 (0%)	7/49 (14%)	2/48 (4%)	2/47 (4%)	3/48 (6%)	1/50 (2%)	1/49 (2%)
ADJUSTED (b)	10.3%	0.0%	21.5%	12.5%	5.3%	8.3%	3.4%	4.0%
TERMINAL (d)	2/25 (8%)	0/19 (0%)	4/25 (16%)	2/16 (13%)	1/32 (3%)	3/36 (8%)	1/29 (3%)	1/25 (4%)
FIRST INCIDENCE (DAYS)	604	---	529	722 (T)	622	729 (T)	729 (T)	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.367	P=0.149N	P=0.166	P=0.665N	P=0.372N	P=0.543	P=0.531N	P=0.573N
INCIDENTAL TUMOR	P=0.420	P=0.149N	P=0.167	P=0.670N	P=0.281N	P=0.482	P=0.459N	P=0.431N
LOGISTIC REGRESSION	P=0.477	P=0.133N	P=0.150	P=0.577N	P=0.316N	P=0.519	P=0.478N	P=0.503N
COCHRAN-ARMITAGE	P=0.488				P=0.264N			
FISHER EXACT		P=0.133N	P=0.151	P=0.520N		P=0.510	P=0.477N	P=0.484N
Clitoral/Preputial Gland Carcinoma								
TUMOR RATES								
OVERALL (a)	5/50 (10%)	2/47 (4%)	0/49 (0%)	1/48 (2%)	0/47 (0%)	1/48 (2%)	1/50 (2%)	2/49 (4%)
ADJUSTED (b)	17.7%	10.5%	0.0%	6.3%	0.0%	2.6%	2.9%	8.0%
TERMINAL (d)	4/25 (16%)	2/19 (11%)	0/25 (0%)	1/16 (6%)	0/32 (0%)	0/36 (0%)	0/29 (0%)	2/25 (8%)
FIRST INCIDENCE (DAYS)	388	722 (T)	---	722 (T)	---	728	707	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.070N	P=0.316N	P=0.033N*	P=0.204N	P=0.099	P=0.534	P=0.494	P=0.185
INCIDENTAL TUMOR	P=0.060N	P=0.318N	P=0.030N*	P=0.170N	P=0.113	P=0.473	P=0.581	P=0.185
LOGISTIC REGRESSION	P=0.050N*	P=0.242N	P=0.035N*	P=0.117N	P=0.103	P=0.521	P=0.510	P=0.185
COCHRAN-ARMITAGE	P=0.046N*				P=0.160			
FISHER EXACT		P=0.244N	P=0.030N*	P=0.112N		P=0.505	P=0.515	P=0.258

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Clitoral/Preputial Gland Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	8/50 (16%)	2/47 (4%)	7/49 (14%)	3/48 (6%)	2/47 (4%)	4/48 (8%)	2/50 (4%)	3/49 (6%)
ADJUSTED (b)	27.4%	10.5%	21.5%	18.8%	5.3%	10.7%	6.3%	12.0%
TERMINAL (d)	6/25 (24%)	2/19 (11%)	4/25 (16%)	3/16 (19%)	1/32 (3%)	3/36 (8%)	1/29 (3%)	3/25 (12%)
FIRST INCIDENCE (DAYS)	388	722 (T)	529	722 (T)	622	728	707	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.303N	P=0.088N	P=0.496N	P=0.251N	P=0.379	P=0.389	P=0.666	P=0.398
INCIDENTAL TUMOR	P=0.245N	P=0.088N	P=0.475N	P=0.225N	P=0.483	P=0.313	P=0.625N	P=0.507
LOGISTIC REGRESSION	P=0.193N	P=0.059N	P=0.519N	P=0.131N	P=0.438	P=0.359	P=0.674N	P=0.459
COCHRAN-ARMITAGE	P=0.180N				P=0.542			
FISHER EXACT		P=0.056N	P=0.517N	P=0.113N		P=0.349	P=0.668N	P=0.520
Islets, Pancreatic Adenoma								
TUMOR RATES								
OVERALL (a)	4/50 (8%)	2/48 (4%)	1/50 (2%)	0/49 (0%)	1/49 (2%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	12.3%	10.0%	4.0%	0.0%	3.1%	0.0%	3.4%	0.0%
TERMINAL (d)	1/25 (4%)	2/20 (10%)	1/25 (4%)	0/16 (0%)	1/32 (3%)	0/37 (0%)	1/29 (3%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	625	722 (T)	722 (T)	---	729 (T)	---	729 (T)	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.049N*	P=0.432N	P=0.197N	P=0.109N	P=0.458N	P=0.471N	P=0.740	P=0.541N
INCIDENTAL TUMOR	P=0.036N*	P=0.344N	P=0.194N	P=0.053N	P=0.458N	P=0.471N	P=0.740	P=0.541N
LOGISTIC REGRESSION	P=0.037N*	P=0.369N	P=0.181N	P=0.073N	P=0.458N	P=0.471N	P=0.740	P=0.541N
COCHRAN-ARMITAGE	P=0.030N*				P=0.402N			
FISHER EXACT		P=0.359N	P=0.181N	P=0.061N		P=0.495N	P=0.747N	P=0.495N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Kidney: Renal Tubule Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	0/48 (0%)	2/50 (4%)	6/49 (12%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	4.0%	0.0%	7.6%	26.6%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/25 (4%)	0/20 (0%)	1/25 (4%)	2/16 (13%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	---	708	644	---	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.001 **	P=0.545N	P=0.488	P=0.022 *	(e)	(e)	(e)	(e)
INCIDENTAL TUMOR	P=0.004 **	P=0.545N	P=0.489	P=0.052	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.002 **	P=0.545N	P=0.471	P=0.031 *	(e)	(e)	(e)	(e)
COCHRAN-ARMITAGE	P=0.005 **				(e)			
FISHER EXACT		P=0.510N	P=0.500	P=0.053		(e)	(e)	(e)
Kidney: Renal Tubule Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	1/48 (2%)	2/50 (4%)	6/49 (12%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	4.0%	5.0%	7.6%	26.6%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/25 (4%)	1/20 (5%)	1/25 (4%)	2/16 (13%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	722 (T)	708	644	---	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.003 **	P=0.712	P=0.488	P=0.022 *	(e)	(e)	(e)	(e)
INCIDENTAL TUMOR	P=0.008 **	P=0.712	P=0.489	P=0.052	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.005 **	P=0.712	P=0.471	P=0.031 *	(e)	(e)	(e)	(e)
COCHRAN-ARMITAGE	P=0.010 *				(e)			
FISHER EXACT		P=0.742	P=0.500	P=0.053		(e)	(e)	(e)

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Liver Hepatocellular Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	1/49 (2%)	0/50 (0%)	3/50 (6%)	1/50 (2%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	3.4%	5.0%	0.0%	13.3%	3.1%	0.0%	3.4%	0.0%
TERMINAL (d)	0/25 (0%)	1/20 (5%)	0/25 (0%)	1/16 (6%)	1/32 (3%)	0/37 (0%)	1/29 (3%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	718	722 (T)	---	622	729 (T)	---	729 (T)	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.099	P=0.699	P=0.522N	P=0.194	P=0.458N	P=0.471N	P=0.740	P=0.541N
INCIDENTAL TUMOR	P=0.160	P=0.760N	P=0.519N	P=0.342	P=0.458N	P=0.471N	P=0.740	P=0.541N
LOGISTIC REGRESSION	P=0.135	P=0.702	P=0.517N	P=0.270	P=0.458N	P=0.471N	P=0.740	P=0.541N
COCHRAN-ARMITAGE	P=0.162				P=0.405N			
FISHER EXACT		P=0.747	P=0.500N	P=0.309		P=0.500N	P=0.753N	P=0.500N
Liver Hepatocellular Carcinoma or Hepatocellular Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	1/49 (2%)	1/50 (2%)	3/50 (6%)	1/50 (2%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	3.4%	5.0%	4.0%	13.3%	3.1%	0.0%	3.4%	0.0%
TERMINAL (d)	0/25 (0%)	1/20 (5%)	1/25 (4%)	1/16 (6%)	1/32 (3%)	0/37 (0%)	1/29 (3%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	718	722 (T)	722 (T)	622	729 (T)	---	729 (T)	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.095	P=0.699	P=0.748	P=0.194	P=0.458N	P=0.471N	P=0.740	P=0.541N
INCIDENTAL TUMOR	P=0.149	P=0.760N	P=0.750	P=0.342	P=0.458N	P=0.471N	P=0.740	P=0.541N
LOGISTIC REGRESSION	P=0.131	P=0.702	P=0.743	P=0.270	P=0.458N	P=0.471N	P=0.740	P=0.541N
COCHRAN-ARMITAGE	P=0.165				P=0.405N			
FISHER EXACT		P=0.747	P=0.753N	P=0.309		P=0.500N	P=0.753N	P=0.500N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Liver Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	1/49 (2%)	1/50 (2%)	3/50 (6%)	1/50 (2%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	3.4%	5.0%	4.0%	13.3%	3.1%	0.0%	3.4%	0.0%
TERMINAL (d)	0/25 (0%)	1/20 (5%)	1/25 (4%)	1/16 (6%)	1/32 (3%)	0/37 (0%)	1/29 (3%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	718	722 (T)	722 (T)	622	729 (T)	---	729 (T)	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.095	P=0.699	P=0.748	P=0.194	P=0.458N	P=0.471N	P=0.740	P=0.541N
INCIDENTAL TUMOR	P=0.149	P=0.760N	P=0.750	P=0.342	P=0.458N	P=0.471N	P=0.740	P=0.541N
LOGISTIC REGRESSION	P=0.131	P=0.702	P=0.743	P=0.270	P=0.458N	P=0.471N	P=0.740	P=0.541N
COCHRAN-ARMITAGE	P=0.165				P=0.405N			
FISHER EXACT		P=0.747	P=0.753N	P=0.309		P=0.500N	P=0.753N	P=0.500N
Lung Alveolar/Bronchiolar Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	0/50 (0%)	0/50 (0%)	4/50 (8%)	1/50 (2%)	1/50 (2%)	1/50 (2%)	2/50 (4%)
ADJUSTED (b)	4.0%	0.0%	0.0%	22.4%	3.1%	2.7%	2.8%	6.3%
TERMINAL (d)	1/25 (4%)	0/20 (0%)	0/25 (0%)	3/16 (19%)	1/32 (3%)	1/37 (3%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	722 (T)	---	---	697	729 (T)	729 (T)	700	625
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.010 *	P=0.545N	P=0.500N	P=0.075	P=0.275	P=0.729N	P=0.753	P=0.488
INCIDENTAL TUMOR	P=0.015 *	P=0.545N	P=0.500N	P=0.104	P=0.373	P=0.729N	P=0.759	P=0.578
LOGISTIC REGRESSION	P=0.013 *	P=0.545N	P=0.500N	P=0.090	P=0.326	P=0.729N	P=0.753	P=0.483
COCHRAN-ARMITAGE	P=0.028 *				P=0.351			
FISHER EXACT		P=0.500N	P=0.500N	P=0.181		P=0.753N	P=0.753N	P=0.500

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Lung Alveolar/Bronchiolar Carcinoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	0.0%	0.0%	8.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	2/25 (8%)	0/16 (0%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	---	---	722 (T)	---	---	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.524	(e)	P=0.237	(e)	(e)	(e)	(e)	(e)
INCIDENTAL TUMOR	P=0.524	(e)	P=0.237	(e)	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.524	(e)	P=0.237	(e)	(e)	(e)	(e)	(e)
COCHRAN-ARMITAGE	P=0.595				(e)			
FISHER EXACT		(e)	P=0.247	(e)		(e)	(e)	(e)
Lung Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	0/50 (0%)	2/50 (4%)	4/50 (8%)	1/50 (2%)	1/50 (2%)	1/50 (2%)	2/50 (4%)
ADJUSTED (b)	4.0%	0.0%	8.0%	22.4%	3.1%	2.7%	2.8%	6.3%
TERMINAL (d)	1/25 (4%)	0/20 (0%)	2/25 (8%)	3/16 (19%)	1/32 (3%)	1/37 (3%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	722 (T)	---	722 (T)	697	729 (T)	729 (T)	700	625
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.013 *	P=0.545N	P=0.500	P=0.075	P=0.275	P=0.729N	P=0.753	P=0.438
INCIDENTAL TUMOR	P=0.018 *	P=0.545N	P=0.500	P=0.104	P=0.373	P=0.729N	P=0.759	P=0.573
LOGISTIC REGRESSION	P=0.016 *	P=0.545N	P=0.500	P=0.090	P=0.326	P=0.729N	P=0.758	P=0.483
COCHRAN-ARMITAGE	P=0.040 *				P=0.351			
FISHER EXACT		P=0.500N	P=0.500	P=0.181		P=0.753N	P=0.753N	P=0.500

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Mammary Gland Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	1/50 (2%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	5.9%	2.6%	2.9%	0.0%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	0/25 (0%)	0/16 (0%)	1/32 (3%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	---	---	---	---	717	728	707	---
STATISTICAL TESTS (f)								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.201N	P=0.451N	P=0.529N	P=0.297N
INCIDENTAL TUMOR	(e)	(e)	(e)	(e)	P=0.193N	P=0.588N	P=0.491N	P=0.314N
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.144N	P=0.471N	P=0.509N	P=0.285N
COCHRAN-ARMITAGE	(e)				P=0.153N			
FISHER EXACT		(e)	(e)	(e)		P=0.500N	P=0.500N	P=0.247N
Mammary Gland Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	2/50 (4%)	1/50 (2%)	1/50 (2%)
ADJUSTED (b)	0.0%	5.0%	0.0%	0.0%	3.1%	4.9%	2.7%	3.8%
TERMINAL (d)	0/25 (0%)	1/20 (5%)	0/25 (0%)	0/16 (0%)	1/32 (3%)	1/37 (3%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	---	722 (T)	---	---	729 (T)	650	699	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.624N	P=0.455	(e)	(e)	P=0.621N	P=0.539	P=0.756	P=0.715
INCIDENTAL TUMOR	P=0.624N	P=0.455	(e)	(e)	P=0.625N	P=0.482	P=0.759	P=0.715
LOGISTIC REGRESSION	P=0.624N	P=0.455	(e)	(e)	P=0.567N	P=0.503	P=0.759	P=0.715
COCHRAN-ARMITAGE	P=0.567N				P=0.531N			
FISHER EXACT		P=0.500	(e)	(e)		P=0.500	P=0.753N	P=0.753N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Mammary Gland Carcinoma or Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	3/50 (6%)	3/50 (6%)	2/50 (4%)	1/50 (2%)
ADJUSTED (b)	0.0%	5.0%	0.0%	0.0%	8.9%	7.4%	5.6%	3.8%
TERMINAL (d)	0/25 (0%)	1/20 (5%)	0/25 (0%)	0/16 (0%)	2/32 (6%)	1/37 (3%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	---	722 (T)	---	---	717	650	699	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.624N	P=0.455	(e)	(e)	P=0.285N	P=0.601N	P=0.526N	P=0.391N
INCIDENTAL TUMOR	P=0.624N	P=0.455	(e)	(e)	P=0.279N	P=0.594	P=0.494N	P=0.405N
LOGISTIC REGRESSION	P=0.624N	P=0.455	(e)	(e)	P=0.235N	P=0.647N	P=0.510N	P=0.390N
COCHRAN-ARMITAGE	P=0.567N				P=0.194N			
FISHER EXACT		P=0.500	(e)	(e)		P=0.661N	P=0.500N	P=0.309N
Mammary Gland Fibroadenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	3/50 (6%)	6/50 (12%)	4/50 (8%)	27/50 (54%)	25/50 (50%)	20/50 (40%)	20/50 (40%)
ADJUSTED (b)	15.0%	14.3%	19.5%	17.9%	65.4%	58.1%	57.9%	63.2%
TERMINAL (d)	3/25 (12%)	2/20 (10%)	3/25 (12%)	1/16 (6%)	18/32 (56%)	19/37 (51%)	15/29 (52%)	15/26 (58%)
FIRST INCIDENCE (DAYS)	718	708	538	681	596	666	580	589
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.295	P=0.634N	P=0.361	P=0.412	P=0.416N	P=0.228N	P=0.220N	P=0.405N
INCIDENTAL TUMOR	P=0.465	P=0.539N	P=0.373	P=0.645	P=0.228N	P=0.458N	P=0.121N	P=0.243N
LOGISTIC REGRESSION	P=0.401	P=0.645N	P=0.360	P=0.519	P=0.211N	P=0.344N	P=0.121N	P=0.246N
COCHRAN-ARMITAGE	P=0.483				P=0.075N			
FISHER EXACT		P=0.500N	P=0.370	P=0.643N		P=0.421N	P=0.115N	P=0.115N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

DOSE	MALES 0 PPM	MALES 100 PPM	MALES 200 PPM	MALES 400 PPM	FEMALES 0 PPM	FEMALES 100 PPM	FEMALES 200 PPM	FEMALES 400 PPM
Mammary Gland Fibroma, Fibroadenoma or Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	3/50 (6%)	6/50 (12%)	4/50 (8%)	27/50 (54%)	25/50 (50%)	20/50 (40%)	20/50 (40%)
ADJUSTED (b)	15.0%	14.1%	19.5%	17.9%	65.4%	58.1%	57.9%	63.2%
TERMINAL (d)	3/25 (12%)	2/20 (10%)	3/25 (12%)	1/16 (6%)	18/32 (56%)	19/37 (51%)	15/29 (52%)	15/26 (58%)
FIRST INCIDENCE (DAYS)	718	708	538	681	596	666	580	589
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.295	P=0.634N	P=0.361	P=0.412	P=0.416N	P=0.228N	P=0.220N	P=0.405N
INCIDENTAL TUMOR	P=0.465	P=0.539N	P=0.373	P=0.645	P=0.228N	P=0.458N	P=0.121N	P=0.243N
LOGISTIC REGRESSION	P=0.401	P=0.645N	P=0.360	P=0.519	P=0.211N	P=0.344N	P=0.121N	P=0.246N
COCHRAN-ARMITAGE	P=0.483				P=0.075N			
FISHER EXACT		P=0.500N	P=0.370	P=0.643N		P=0.421N	P=0.115N	P=0.115N
Mammary Gland Fibroma, Fibroadenoma, Carcinoma, or Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	4/50 (8%)	6/50 (12%)	4/50 (8%)	27/50 (54%)	26/50 (52%)	21/50 (42%)	21/50 (42%)
ADJUSTED (b)	15.0%	18.9%	19.5%	17.9%	65.4%	59.1%	59.0%	66.6%
TERMINAL (d)	3/25 (12%)	3/20 (15%)	3/25 (12%)	1/16 (6%)	18/32 (56%)	19/37 (51%)	15/29 (52%)	16/26 (62%)
FIRST INCIDENCE (DAYS)	718	708	538	681	596	650	580	589
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.333	P=0.503	P=0.361	P=0.412	P=0.498N	P=0.286N	P=0.280N	P=0.487N
INCIDENTAL TUMOR	P=0.504	P=0.595	P=0.373	P=0.645	P=0.303N	P=0.561N	P=0.166N	P=0.323N
LOGISTIC REGRESSION	P=0.445	P=0.490	P=0.360	P=0.519	P=0.266N	P=0.429N	P=0.169N	P=0.327N
COCHRAN-ARMITAGE	P=0.533				P=0.102N			
FISHER EXACT		P=0.643N	P=0.370	P=0.643N		P=0.500N	P=0.158N	P=0.158N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva) Papilloma Squamous or Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/50 (4%)
ADJUSTED (b)	2.4%	0.0%	4.0%	4.0%	0.0%	0.0%	0.0%	6.1%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	1/25 (4%)	0/16 (0%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	602	---	722 (T)	685	---	---	---	603
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.482	P=0.486N	P=0.758	P=0.721	P=0.036 *	(e)	(e)	P=0.212
INCIDENTAL TUMOR	P=0.533	P=0.460N	P=0.760	P=0.713N	P=0.086	(e)	(e)	P=0.330
LOGISTIC REGRESSION	P=0.534	P=0.525N	P=0.762	P=0.760N	P=0.054	(e)	(e)	P=0.248
COCHRAN-ARMITAGE	P=0.539				P=0.045 *			
FISHER EXACT		P=0.500N	P=0.753N	P=0.753N		(e)	(e)	P=0.247
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva) Squamous Cell Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	5.1%	0.0%	0.0%	0.0%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	0/25 (0%)	0/16 (0%)	1/32 (3%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	---	---	---	---	399	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.126N	P=0.224N	P=0.251N	P=0.265N
INCIDENTAL TUMOR	(e)	(e)	(e)	(e)	P=0.120N	P=0.224N	P=0.296N	P=0.229N
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.082N	P=0.324N	P=0.282N	P=0.166N
COCHRAN-ARMITAGE	(e)				P=0.115N			
FISHER EXACT		(e)	(e)	(e)		P=0.247N	P=0.247N	P=0.247N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva) Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	2/50 (4%)
ADJUSTED (b)	2.4%	0.0%	4.0%	4.0%	5.1%	0.0%	0.0%	6.1%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	1/25 (4%)	0/16 (0%)	1/32 (3%)	0/37 (0%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	602	---	722 (T)	685	399	---	---	603
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.482	P=0.486N	P=0.758	P=0.721	P=0.454	P=0.224N	P=0.251N	P=0.649
INCIDENTAL TUMOR	P=0.533	P=0.460N	P=0.760	P=0.713N	P=0.590	P=0.224N	P=0.296N	P=0.610N
LOGISTIC REGRESSION	P=0.534	P=0.525N	P=0.762	P=0.760N	P=0.595	P=0.324N	P=0.282N	P=0.626N
COCHRAN-ARMITAGE	P=0.539				P=0.500			
FISHER EXACT		P=0.500N	P=0.753N	P=0.753N		P=0.247N	P=0.247N	P=0.691N
Oral Mucosa Squamous Cell Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	5.1%	0.0%	0.0%	0.0%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	0/25 (0%)	0/16 (0%)	1/32 (3%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	---	---	---	---	399	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.126N	P=0.224N	P=0.251N	P=0.265N
INCIDENTAL TUMOR	(e)	(e)	(e)	(e)	P=0.120N	P=0.224N	P=0.296N	P=0.229N
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.082N	P=0.324N	P=0.282N	P=0.168N
COCHRAN-ARMITAGE	(e)				P=0.115N			
FISHER EXACT		(e)	(e)	(e)		P=0.247N	P=0.247N	P=0.247N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Pancreas Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	1/48 (2%)	1/50 (2%)	1/49 (2%)	0/49 (0%)	1/50 (2%)	0/50 (0%)	1/50 (2%)
ADJUSTED (b)	8.0%	5.0%	4.0%	6.3%	0.0%	2.7%	0.0%	3.8%
TERMINAL (d)	2/25 (8%)	1/20 (5%)	1/25 (4%)	1/16 (6%)	0/32 (0%)	1/37 (3%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	722 (T)	722 (T)	722 (T)	722 (T)	---	729 (T)	---	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.527N	P=0.579N	P=0.500N	P=0.655N	P=0.346	P=0.529	(e)	P=0.459
INCIDENTAL TUMOR	P=0.527N	P=0.579N	P=0.500N	P=0.655N	P=0.346	P=0.529	(e)	P=0.459
LOGISTIC REGRESSION	P=0.527N	P=0.579N	P=0.500N	P=0.655N	P=0.346	P=0.529	(e)	P=0.459
COCHRAN-ARMITAGE	P=0.411N				P=0.408			
FISHER EXACT		P=0.515N	P=0.500N	P=0.508N		P=0.505	(e)	P=0.505
Pancreas Carcinoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	0/48 (0%)	0/50 (0%)	0/49 (0%)	0/49 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	0.0%	4.2%	0.0%	0.0%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	0/25 (0%)	0/16 (0%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	---	---	---	---	---	546	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.421N	P=0.245	(e)	(e)
INCIDENTAL TUMOR	(e)	(e)	(e)	(e)	P=0.235N	P=0.240	(e)	(e)
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.319N	P=0.148	(e)	(e)
COCHRAN-ARMITAGE	(e)				P=0.402N			
FISHER EXACT		(e)	(e)	(e)		P=0.253	(e)	(e)

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Pancreas Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	1/48 (2%)	1/50 (2%)	1/49 (2%)	0/49 (0%)	3/50 (6%)	0/50 (0%)	1/50 (2%)
ADJUSTED (b)	8.0%	5.0%	4.0%	6.3%	0.0%	6.8%	0.0%	3.8%
TERMINAL (d)	2/25 (8%)	1/20 (5%)	1/25 (4%)	1/16 (6%)	0/32 (0%)	1/37 (3%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	722 (T)	722 (T)	722 (T)	722 (T)	---	546	---	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.527N	P=0.579N	P=0.500N	P=0.655N	P=0.586	P=0.135	(e)	P=0.459
INCIDENTAL TUMOR	P=0.527N	P=0.579N	P=0.500N	P=0.655N	P=0.530N	P=0.133	(e)	P=0.459
LOGISTIC REGRESSION	P=0.527N	P=0.579N	P=0.500N	P=0.655N	P=0.576N	P=0.086	(e)	P=0.459
COCHRAN-ARMITAGE	P=0.411N				P=0.629N			
FISHER EXACT		P=0.515N	P=0.500N	P=0.508N		P=0.125	(e)	P=0.505
Pituitary Gland: Pars Distalis or Unspecified Site Adenoma								
TUMOR RATES								
OVERALL (a)	16/50 (32%)	13/50 (26%)	12/50 (24%)	11/50 (22%)	18/49 (37%)	12/50 (24%)	18/50 (36%)	15/50 (30%)
ADJUSTED (b)	47.2%	46.7%	32.7%	36.1%	44.9%	28.9%	52.1%	47.4%
TERMINAL (d)	9/25 (36%)	7/20 (35%)	5/25 (20%)	3/16 (19%)	10/31 (32%)	8/37 (22%)	13/29 (45%)	10/26 (38%)
FIRST INCIDENCE (DAYS)	434	628	269	428	588	642	671	634
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.398N	P=0.544N	P=0.284N	P=0.476N	P=0.305	P=0.083N	P=0.496	P=0.566
INCIDENTAL TUMOR	P=0.189N	P=0.341N	P=0.239N	P=0.245N	P=0.424	P=0.175N	P=0.563N	P=0.535N
LOGISTIC REGRESSION	P=0.162N	P=0.336N	P=0.255N	P=0.192N	P=0.521	P=0.111N	P=0.571N	P=0.429N
COCHRAN-ARMITAGE	P=0.163N				P=0.426N			
FISHER EXACT		P=0.330N	P=0.252N	P=0.184N		P=0.123N	P=0.553N	P=0.310N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Skin Basal Cell Adenoma, Basosquamous Tumor Benign, or Trichoepithelioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	1/50 (2%)
ADJUSTED (b)	0.0%	5.0%	0.0%	10.9%	0.0%	2.7%	0.0%	3.8%
TERMINAL (d)	0/25 (0%)	1/20 (5%)	0/25 (0%)	1/16 (6%)	0/32 (0%)	1/37 (3%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	---	722 (T)	---	700	---	729 (T)	---	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.084	P=0.455	(e)	P=0.149	P=0.346	P=0.529	(e)	P=0.459
INCIDENTAL TUMOR	P=0.120	P=0.455	(e)	P=0.233	P=0.346	P=0.529	(e)	P=0.459
LOGISTIC REGRESSION	P=0.102	P=0.455	(e)	P=0.183	P=0.346	P=0.529	(e)	P=0.459
COCHRAN-ARMITAGE	P=0.140				P=0.405			
FISHER EXACT		P=0.500	(e)	P=0.247		P=0.500	(e)	P=0.500
Skin Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	1/50 (2%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	1/50 (2%)
ADJUSTED (b)	0.0%	5.0%	0.0%	10.9%	0.0%	2.7%	0.0%	3.8%
TERMINAL (d)	0/25 (0%)	1/20 (5%)	0/25 (0%)	1/16 (6%)	0/32 (0%)	1/37 (3%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	---	722 (T)	---	700	---	729 (T)	---	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.084	P=0.455	(e)	P=0.149	P=0.346	P=0.529	(e)	P=0.459
INCIDENTAL TUMOR	P=0.120	P=0.455	(e)	P=0.233	P=0.346	P=0.529	(e)	P=0.459
LOGISTIC REGRESSION	P=0.102	P=0.455	(e)	P=0.183	P=0.346	P=0.529	(e)	P=0.459
COCHRAN-ARMITAGE	P=0.140				P=0.405			
FISHER EXACT		P=0.500	(e)	P=0.247		P=0.500	(e)	P=0.500

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Skin Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	8/50 (16%)	6/50 (12%)	3/50 (6%)	7/50 (14%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	2/50 (4%)
ADJUSTED (b)	30.0%	26.5%	11.4%	30.9%	0.0%	2.7%	0.0%	7.7%
TERMINAL (d)	7/25 (28%)	4/20 (20%)	2/25 (8%)	2/16 (13%)	0/32 (0%)	1/37 (3%)	0/29 (0%)	2/26 (8%)
FIRST INCIDENCE (DAYS)	656	673	708	670	---	729 (T)	---	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.432	P=0.556N	P=0.103N	P=0.405	P=0.096	P=0.529	(e)	P=0.193
INCIDENTAL TUMOR	P=0.508N	P=0.471N	P=0.102N	P=0.581N	P=0.096	P=0.529	(e)	P=0.193
LOGISTIC REGRESSION	P=0.522	P=0.521N	P=0.118N	P=0.548	P=0.096	P=0.529	(e)	P=0.193
COCHRAN-ARMITAGE	P=0.442N				P=0.140			
FISHER EXACT		P=0.387N	P=0.100N	P=0.500N		P=0.500	(e)	P=0.247
Skin Fibroma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	2/50 (4%)	4/50 (8%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	12.9%	5.9%	12.9%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	2/25 (8%)	0/20 (0%)	2/25 (8%)	0/16 (0%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	625	553	580	---	---	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.116N	P=0.406N	P=0.635	P=0.106N	(e)	(e)	(e)	(e)
INCIDENTAL TUMOR	P=0.085N	P=0.295N	P=0.629	P=0.078N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.078N	P=0.337N	P=0.644	P=0.070N	(e)	(e)	(e)	(e)
COCHRAN-ARMITAGE	P=0.077N				(e)			
FISHER EXACT		P=0.339N	P=0.643N	P=0.059N		(e)	(e)	(e)

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Skin Keratoacanthoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	6/50 (12%)	4/50 (8%)	2/50 (4%)	5/50 (10%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)
ADJUSTED (b)	22.2%	17.3%	7.6%	22.0%	0.0%	0.0%	0.0%	3.8%
TERMINAL (d)	5/25 (20%)	2/20 (10%)	1/25 (4%)	1/16 (6%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	656	673	708	670	---	---	---	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.498	P=0.505N	P=0.143N	P=0.502	P=0.163	(e)	(e)	P=0.459
INCIDENTAL TUMOR	P=0.460N	P=0.408N	P=0.141N	P=0.533N	P=0.163	(e)	(e)	P=0.459
LOGISTIC REGRESSION	P=0.564N	P=0.453N	P=0.150N	P=0.625	P=0.163	(e)	(e)	P=0.459
COCHRAN-ARMITAGE	P=0.449N				P=0.198			
FISHER EXACT		P=0.370N	P=0.134N	P=0.500N		(e)	(e)	P=0.500
Skin Melanoma Malignant								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	0.0%	0.0%	4.0%	4.5%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/25 (0%)	0/20 (0%)	1/25 (4%)	0/16 (0%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	---	---	722 (T)	465	---	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.056	(e)	P=0.500	P=0.239	(e)	(e)	(e)	(e)
INCIDENTAL TUMOR	P=0.076	(e)	P=0.500	P=0.300	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.087	(e)	P=0.500	P=0.265	(e)	(e)	(e)	(e)
COCHRAN-ARMITAGE	P=0.070				(e)			
FISHER EXACT		(e)	P=0.500	P=0.247		(e)	(e)	(e)

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Skin Squamous Cell Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	16.0%	5.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	4/25 (16%)	1/20 (5%)	1/25 (4%)	0/16 (0%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	722 (T)	722 (T)	---	---	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.053N	P=0.248N	P=0.175N	P=0.129N	(e)	(e)	(e)	(e)
INCIDENTAL TUMOR	P=0.053N	P=0.248N	P=0.175N	P=0.129N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.053N	P=0.248N	P=0.175N	P=0.129N	(e)	(e)	(e)	(e)
COCHRAN-ARMITAGE	P=0.034N*				(e)			
FISHER EXACT		P=0.181N	P=0.181N	P=0.059N		(e)	(e)	(e)
Skin Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	8/50 (16%)	5/50 (10%)	3/50 (6%)	5/50 (10%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)
ADJUSTED (b)	30.0%	21.9%	11.4%	22.0%	0.0%	0.0%	0.0%	3.8%
TERMINAL (d)	7/25 (28%)	3/20 (15%)	2/25 (8%)	1/16 (6%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	656	673	708	670	---	---	---	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.423N	P=0.424N	P=0.103N	P=0.550N	P=0.163	(e)	(e)	P=0.459
INCIDENTAL TUMOR	P=0.269N	P=0.339N	P=0.102N	P=0.341N	P=0.163	(e)	(e)	P=0.459
LOGISTIC REGRESSION	P=0.343N	P=0.382N	P=0.118N	P=0.422N	P=0.163	(e)	(e)	P=0.459
COCHRAN-ARMITAGE	P=0.229N				P=0.198			
FISHER EXACT		P=0.277N	P=0.100N	P=0.277N		(e)	(e)	P=0.500

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Skin Squamous Cell Papilloma, Papilloma, or Keratoacanthoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	8/50 (16%)	5/50 (10%)	3/50 (6%)	5/50 (10%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)
ADJUSTED (b)	30.0%	21.9%	11.4%	22.0%	0.0%	0.0%	0.0%	3.8%
TERMINAL (d)	7/25 (28%)	3/20 (15%)	2/25 (8%)	1/16 (6%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	1/26 (4%)
FIRST INCIDENCE (DAYS)	656	673	708	670	---	---	---	729 (T)
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.423N	P=0.424N	P=0.103N	P=0.550N	P=0.163	(e)	(e)	P=0.459
INCIDENTAL TUMOR	P=0.269N	P=0.339N	P=0.102N	P=0.341N	P=0.163	(e)	(e)	P=0.459
LOGISTIC REGRESSION	P=0.343N	P=0.382N	P=0.118N	P=0.422N	P=0.163	(e)	(e)	P=0.459
COCHRAN-ARMITAGE	P=0.229N				P=0.198			
FISHER EXACT		P=0.277N	P=0.1 N	P=0.277N		(e)	(e)	P=0.500
Testes Adenoma								
TUMOR RATES								
OVERALL (a)	42/49 (86%)	43/49 (88%)	43/49 (88%)	43/48 (90%)				
ADJUSTED (b)	95.4%	95.3%	97.7%	100.0%				
TERMINAL (d)	23/25 (92%)	18/20 (90%)	24/25 (96%)	16/16 (100%)				
FIRST INCIDENCE (DAYS)	473	444	529	444				
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.048 *	P=0.174	P=0.457	P=0.032 *				
INCIDENTAL TUMOR	P=0.187	P=0.600	P=0.410	P=0.273				
LOGISTIC REGRESSION	P=0.228	P=0.614	P=0.640N	P=0.303				
COCHRAN-ARMITAGE	P=0.344							
FISHER EXACT		P=0.500	P=0.500	P=0.394				

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Thyroid Gland: C-Cell Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	1/50 (2%)	3/50 (6%)	2/49 (4%)	3/50 (6%)	3/50 (6%)	2/50 (4%)	0/50 (0%)
ADJUSTED (b)	8.0%	5.0%	12.0%	12.5%	8.4%	7.8%	6.3%	0.0%
TERMINAL (d)	2/25 (8%)	1/20 (5%)	3/25 (12%)	2/16 (13%)	1/32 (3%)	2/37 (5%)	1/29 (3%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	722 (T)	722 (T)	722 (T)	687	695	707	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.342	P=0.579N	P=0.500	P=0.526	P=0.112N	P=0.604N	P=0.526N	P=0.169N
INCIDENTAL TUMOR	P=0.342	P=0.579N	P=0.500	P=0.526	P=0.108N	P=0.594	P=0.494N	P=0.192N
LOGISTIC REGRESSION	P=0.342	P=0.579N	P=0.500	P=0.526	P=0.052N	P=0.562	P=0.509N	P=0.143N
COCHRAN-ARMITAGE	P=0.491				P=0.072N			
FISHER EXACT		P=0.500N	P=0.500	P=0.684		P=0.661N	P=0.500N	P=0.121N
Thyroid Gland: C-Cell Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	2/50 (4%)	3/50 (6%)	2/49 (4%)	3/50 (6%)	3/50 (6%)	2/50 (4%)	0/50 (0%)
ADJUSTED (b)	8.0%	8.0%	12.0%	12.5%	8.4%	7.8%	6.3%	0.0%
TERMINAL (d)	2/25 (8%)	1/20 (5%)	3/25 (12%)	2/16 (13%)	1/32 (3%)	2/37 (5%)	1/29 (3%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	666	722 (T)	722 (T)	687	695	707	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.416	P=0.625	P=0.500	P=0.526	P=0.112N	P=0.604N	P=0.526N	P=0.169N
INCIDENTAL TUMOR	P=0.442	P=0.663	P=0.500	P=0.526	P=0.108N	P=0.594	P=0.494N	P=0.192N
LOGISTIC REGRESSION	P=0.454	P=0.656	P=0.500	P=0.526	P=0.052N	P=0.562	P=0.509N	P=0.143N
COCHRAN-ARMITAGE	P=0.560				P=0.072N			
FISHER EXACT		P=0.691N	P=0.500	P=0.684		P=0.661N	P=0.500N	P=0.121N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Thyroid Gland: Follicular Cell Adenoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/49 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	0.0%	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/25 (0%)	2/20 (10%)	0/25 (0%)	0/16 (0%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	---	722 (T)	---	---	---	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.476N	P=0.190	(e)	(e)	(e)	(e)	(e)	(e)
INCIDENTAL TUMOR	P=0.476N	P=0.190	(e)	(e)	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.476N	P=0.190	(e)	(e)	(e)	(e)	(e)	(e)
COCHRAN-ARMITAGE	P=0.409N				(e)			
FISHER EXACT		P=0.247	(e)	(e)		(e)	(e)	(e)
Uterus Polyp Stromal								
TUMOR RATES					#	#	#	#
OVERALL (a)					4/50 (8%)	7/50 (14%)	9/50 (18%)	8/50 (16%)
ADJUSTED (b)					12.5%	18.9%	27.5%	25.8%
TERMINAL (d)					4/32 (13%)	7/37 (19%)	6/29 (21%)	5/26 (19%)
FIRST INCIDENCE (DAYS)					729 (T)	729 (T)	687	503
STATISTICAL TESTS (f)								
LIFE TABLE					P=0.060	P=0.347	P=0.091	P=0.103
INCIDENTAL TUMOR					P=0.080	P=0.347	P=0.096	P=0.139
LOGISTIC REGRESSION					P=0.089	P=0.347	P=0.100	P=0.140
COCHRAN-ARMITAGE					P=0.167			
FISHER EXACT						P=0.262	P=0.117	P=0.178

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
Uterus Sarcoma Stromal or Polyp Stromal								
TUMOR RATES					#	#	#	#
OVERALL (a)					5/50 (10%)	7/50 (14%)	9/50 (18%)	8/50 (16%)
ADJUSTED (b)					14.3%	18.9%	27.5%	25.8%
TERMINAL (d)					4/32 (13%)	7/37 (19%)	6/29 (21%)	5/26 (19%)
FIRST INCIDENCE (DAYS)					493	729 (T)	687	503
STATISTICAL TESTS (f)								
LIFE TABLE					P=0.101	P=0.475	P=0.160	P=0.179
INCIDENTAL TUMOR					P=0.133	P=0.475	P=0.154	P=0.240
LOGISTIC REGRESSION					P=0.171	P=0.396	P=0.187	P=0.270
COCHRAN-ARMITAGE					P=0.238			
FISHER EXACT						P=0.380	P=0.194	P=0.277
All Organs Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	29/50 (58%)	32/50 (64%)	26/50 (52%)	27/50 (54%)	12/50 (24%)	16/50 (32%)	22/50 (44%)	23/50 (46%)
ADJUSTED (b)	69.3%	75.8%	65.0%	70.9%	32.2%	38.7%	49.4%	51.1%
TERMINAL (d)	13/25 (52%)	11/20 (55%)	12/25 (48%)	7/16 (44%)	8/32 (25%)	12/37 (32%)	8/29 (28%)	5/26 (19%)
FIRST INCIDENCE (DAYS)	309	466	529	444	636	546	496	380
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.360	P=0.197	P=0.407N	P=0.259	P=0.003 **	P=0.390	P=0.035 *	P=0.011 *
INCIDENTAL TUMOR	P=0.262N	P=0.375	P=0.372N	P=0.367N	P=0.044 *	P=0.251	P=0.042 *	P=0.068
LOGISTIC REGRESSION	P=0.184N	P=0.340	P=0.341N	P=0.419N	P=0.031 *	P=0.277	P=0.029 *	P=0.048 *
COCHRAN-ARMITAGE	P=0.265N				P=0.010 *			
FISHER EXACT		P=0.341	P=0.344N	P=0.420N		P=0.252	P=0.028 *	P=0.018 *

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
All Organs Mesothelioma: Benign, Malignant, NOS								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	8.0%	2.0%	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	2/25 (8%)	0/20 (0%)	1/25 (4%)	0/16 (0%)	0/32 (0%)	0/37 (0%)	0/29 (0%)	0/26 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	444	722 (T)	---	---	---	---	---
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.192N	P=0.542N	P=0.500N	P=0.340N	(e)	(e)	(e)	(e)
INCIDENTAL TUMOR	P=0.165N	P=0.552N	P=0.500N	P=0.340N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.150N	P=0.517N	P=0.500N	P=0.340N	(e)	(e)	(e)	(e)
COCHRAN-ARMITAGE	P=0.153N				(e)			
FISHER EXACT		P=0.500N	P=0.500N	P=0.247N		(e)	(e)	(e)
All Organs Benign Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	47/50 (94%)	46/50 (92%)	48/50 (96%)	49/50 (98%)	39/50 (78%)	34/50 (68%)	35/50 (70%)	35/50 (70%)
ADJUSTED (b)	100.0%	97.8%	100.0%	100.0%	83.0%	77.3%	89.6%	91.8%
TERMINAL (d)	25/25 (100%)	19/20 (95%)	25/25 (100%)	16/16 (100%)	24/32 (75%)	27/37 (73%)	25/29 (86%)	23/26 (88%)
FIRST INCIDENCE (DAYS)	434	444	269	428	588	642	580	503
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.027 *	P=0.240	P=0.457	P=0.023 *	P=0.138	P=0.080N	P=0.483N	P=0.346
INCIDENTAL TUMOR	P=0.083	P=0.383N	P=0.436	P=0.116	P=0.355	P=0.212N	P=0.235N	P=0.577N
LOGISTIC REGRESSION	P=0.095	P=0.328N	P=0.708	P=0.116	P=0.438	P=0.213N	P=0.267N	P=0.461N
COCHRAN-ARMITAGE	P=0.162				P=0.289N			
FISHER EXACT		P=0.500N	P=0.500	P=0.309		P=0.184N	P=0.247N	P=0.247N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN RATS(FISCHER344) -- PYRIDINE

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

	MALES				FEMALES			
DOSE	0 PPM	100 PPM	200 PPM	400 PPM	0 PPM	100 PPM	200 PPM	400 PPM
All Organs								
Malignant Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	34/50 (68%)	40/50 (80%)	29/50 (58%)	29/50 (58%)	21/50 (42%)	23/50 (46%)	23/50 (46%)	28/50 (56%)
ADJUSTED (b)	78.1%	86.3%	71.0%	75.1%	51.0%	48.5%	50.9%	62.7%
TERMINAL (d)	16/25 (64%)	14/20 (70%)	14/25 (56%)	8/16 (50%)	13/32 (41%)	13/37 (35%)	8/29 (28%)	10/26 (38%)
FIRST INCIDENCE (DAYS)	309	444	486	444	399	488	496	380
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.496N	P=0.087	P=0.299N	P=0.362	P=0.027 *	P=0.547N	P=0.361	P=0.052
INCIDENTAL TUMOR	P=0.045N*	P=0.149	P=0.220N	P=0.177N	P=0.270	P=0.365	P=0.467	P=0.270
LOGISTIC REGRESSION	P=0.036N*	P=0.126	P=0.203N	P=0.204N	P=0.209	P=0.356	P=0.441	P=0.173
COCHRAN-ARMITAGE	P=0.053N				P=0.094			
FISHER EXACT		P=0.127	P=0.204N	P=0.204N		P=0.420	P=0.420	P=0.115
All Organs								
Malignant and Benign Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	49/50 (98%)	49/50 (98%)	49/50 (98%)	49/50 (98%)	45/50 (90%)	43/50 (86%)	45/50 (90%)	44/50 (88%)
ADJUSTED (b)	100.0%	100.0%	100.0%	100.0%	91.8%	86.0%	93.7%	93.6%
TERMINAL (d)	25/25 (100%)	20/20 (100%)	25/25 (100%)	16/16 (100%)	28/32 (88%)	30/37 (81%)	26/29 (90%)	23/26 (88%)
FIRST INCIDENCE (DAYS)	309	444	269	428	399	488	496	380
STATISTICAL TESTS (f)								
LIFE TABLE	P=0.060	P=0.200	P=0.518	P=0.045 *	P=0.059	P=0.171N	P=0.377	P=0.167
INCIDENTAL TUMOR	P=0.552	P=0.726	P=0.736	P=0.700	P=0.540	P=0.475N	P=0.631	P=0.581N
LOGISTIC REGRESSION	P=0.526	P=0.687N	P=0.744N	P=0.822	P=0.540N	P=0.398N	P=0.630	P=0.556N
COCHRAN-ARMITAGE	P=0.634				P=0.515N			
FISHER EXACT		P=0.753N	P=0.753N	P=0.753N		P=0.380N	P=0.630N	P=0.500N

MALE TERMINAL SACRIFICE AT 104 WEEKS
FEMALE TERMINAL SACRIFICE AT 105 WEEKS

(a) Number of tumor-bearing animals / number of animals examined at site.
(b) Kaplan-Meier estimated lifetime tumor incidence after adjustment for intercurrent mortality.
(d) Observed incidence at terminal kill.
(f) Beneath the control incidence are the P-values associated with the trend test. Beneath the dosed group incidence are the P-values corresponding to pairwise comparisons between the controls and that dosed group. The life table analysis regards tumors in animals dying prior to terminal kill as being (directly or indirectly) the cause of death. The incidental tumor test regards these lesions as non-fatal. Logistic regression is an alternative method for analyzing the incidence of non-fatal tumors. The Cochran-Armitage and Fisher's exact tests compare directly the overall incidence rates. For all tests, a negative trend is indicated by "N".
(e) Value of Statistic cannot be computed.
(I) Interim sacrifice
(T) Terminal sacrifice
Tumor rates based on number of animals necropsied.

* To the right of any statistical result, indicates significance at (P<=0.05).
** To the right of any statistical result, indicates significance at (P<=0.01).

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
PYRIDINE

Facility: TSI Mason Research

Chemical CAS #: 110-86-1

Lock Date: 12/13/94

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Natural Death	26	27	30	33
Moribund Sacrifice	2	9	9	10
Survivors				
Terminal Sacrifice	22	14	11	7
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Esophagus	(50)	(50)	(50)	(50)
Foreign Body			1 (2%)	1 (2%)
Inflammation, Acute				1 (2%)
Ulcer				1 (2%)
Muscularis, Degeneration				1 (2%)
Intestine Large, Colon	(35)	(39)	(36)	(33)
Mineralization			1 (3%)	1 (3%)
Parasite Metazoan			1 (3%)	
Intestine Large, Rectum	(42)	(42)	(41)	(40)
Hemorrhage	1 (2%)			
Mineralization		1 (2%)		
Parasite Metazoan				1 (3%)
Ulcer				1 (3%)
Intestine Large, Cecum	(32)	(37)	(29)	(27)
Congestion			1 (3%)	
Edema		1 (3%)		
Hemorrhage	1 (3%)	2 (5%)	1 (3%)	
Inflammation, Acute		2 (5%)	2 (7%)	1 (4%)
Inflammation, Chronic			1 (3%)	1 (4%)
Ulcer		2 (5%)		2 (7%)
Artery, Mineralization		1 (3%)		
Intestine Small, Jejunum	(37)	(36)	(34)	(35)
Inflammation, Chronic				1 (3%)
Liver	(50)	(50)	(50)	(50)
Angiectasis	5 (10%)	9 (18%)	2 (4%)	
Basophilic Focus				2 (4%)
Cholangiofibrosis				1 (2%)
Clear Cell Focus	15 (30%)	7 (14%)	8 (16%)	8 (16%)
Congestion	19 (38%)	12 (24%)	6 (12%)	17 (34%)
Degeneration, Cystic	7 (14%)	13 (26%)	9 (18%)	5 (10%)
Eosinophilic Focus	14 (28%)	12 (24%)	4 (8%)	2 (4%)
Fibrosis	1 (2%)	5 (10%)	26 (52%)	31 (62%)
Hemorrhage	1 (2%)	1 (2%)	5 (10%)	3 (6%)
Hepatodiaphragmatic Nodule	2 (4%)	1 (2%)	2 (4%)	

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
ALIMENTARY SYSTEM - CONT				
Hypertrophy			1 (2%)	
Infarct			1 (2%)	
Infiltration Cellular, Histiocyte		1 (2%)	2 (4%)	
Inflammation, Acute	1 (2%)	1 (2%)	3 (6%)	1 (2%)
Mineralization		1 (2%)	3 (6%)	3 (6%)
Mixed Cell Focus	1 (2%)		1 (2%)	1 (2%)
Necrosis	6 (12%)	7 (14%)	6 (12%)	2 (4%)
Pigmentation	6 (12%)	15 (30%)	34 (68%)	42 (84%)
Regeneration				2 (4%)
Tension Lipidosis			1 (2%)	
Thrombosis			1 (2%)	
Vacuolization Cytoplasmic	18 (36%)	18 (36%)	12 (24%)	15 (30%)
Artery, Mineralization		1 (2%)		
Bile Duct, Cyst			2 (4%)	3 (6%)
Bile Duct, Dilatation		2 (4%)		
Bile Duct, Hyperplasia	31 (62%)	33 (66%)	30 (60%)	27 (54%)
Centrilobular, Cytomegaly		1 (2%)	1 (2%)	1 (2%)
Centrilobular, Degeneration	1 (2%)	15 (30%)	25 (50%)	33 (66%)
Centrilobular, Hypertrophy		1 (2%)		
Centrilobular, Necrosis	5 (10%)	6 (12%)	4 (8%)	23 (46%)
Hepatocyte, Atrophy	2 (4%)		1 (2%)	1 (2%)
Oval Cell, Hyperplasia	1 (2%)			
Periportal, Fibrosis			5 (10%)	7 (14%)
Sinusoid, Congestion	1 (2%)			
Mesentery	(7)	(1)	(2)	(2)
Mineralization	1 (14%)			
Artery, Inflammation	5 (71%)	1 (100%)		1 (50%)
Artery, Mineralization	2 (29%)			
Fat, Necrosis	1 (14%)			1 (50%)
Vein, Thrombosis			2 (100%)	
Oral Mucosa	(5)	(1)	(1)	
Hyperplasia, Squamous		1 (100%)	1 (100%)	
Inflammation, Suppurative	3 (60%)			
Pancreas	(46)	(50)	(50)	(49)
Atrophy	2 (4%)	3 (6%)	3 (6%)	1 (2%)
Basophilic Focus	1 (2%)			
Edema			1 (2%)	
Fibrosis			1 (2%)	
Hemorrhage		1 (2%)		
Hyperplasia	18 (39%)	18 (36%)	8 (16%)	8 (16%)
Necrosis	1 (2%)			
Acinus, Hyperplasia	1 (2%)		1 (2%)	
Artery, Inflammation	3 (7%)	5 (10%)	3 (6%)	
Artery, Mineralization	2 (4%)	6 (12%)	1 (2%)	
Duct, Hyperplasia	1 (2%)	1 (2%)	1 (2%)	
Salivary Glands	(48)	(49)	(47)	(48)
Atrophy				1 (2%)

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
ALIMENTARY SYSTEM - CONT				
Inflammation, Acute		1 (2%)		
Artery, Mineralization	2 (4%)	3 (6%)		
Duct, Cyst	1 (2%)		1 (2%)	
Stomach, Forestomach	(49)	(50)	(50)	(49)
Cyst			1 (2%)	2 (4%)
Erosion	1 (2%)			
Fibrosis				1 (2%)
Foreign Body			1 (2%)	2 (4%)
Hemorrhage			1 (2%)	
Hyperplasia, Squamous	2 (4%)	13 (26%)	11 (22%)	10 (20%)
Inflammation, Acute	1 (2%)			
Inflammation, Chronic			1 (2%)	1 (2%)
Inflammation, Chronic Active				1 (2%)
Mineralization	3 (6%)	5 (10%)	3 (6%)	1 (2%)
Ulcer	2 (4%)	4 (8%)	3 (6%)	4 (8%)
Ulcer, Chronic	1 (2%)			
Stomach, Glandular	(49)	(50)	(48)	(48)
Erosion	3 (6%)	3 (6%)	2 (4%)	4 (8%)
Fibrosis		1 (2%)		
Hemorrhage			2 (4%)	
Hyperplasia	1 (2%)		1 (2%)	
Inflammation, Chronic Active			1 (2%)	
Mineralization	8 (16%)	25 (50%)	16 (33%)	6 (13%)
Ulcer			1 (2%)	
Artery, Mineralization			1 (2%)	1 (2%)
Serosa, Edema		1 (2%)		
Tooth	(2)	(2)	(4)	(3)
Peridontal Tissue, Inflammation, Chronic				1 (33%)
Peridontal Tissue, Inflammation, Chronic Active	1 (50%)			1 (33%)
Peridontal Tissue, Inflammation, Granulomatous		1 (50%)		
Peridontal Tissue, Inflammation, Suppurative	1 (50%)	1 (50%)	4 (100%)	1 (33%)
CARDIOVASCULAR SYSTEM				
Blood Vessel	(8)	(23)	(12)	(3)
Mineralization	6 (75%)	6 (26%)	1 (8%)	
Aorta, Mineralization	7 (88%)	21 (91%)	10 (83%)	3 (100%)
Pulmonary Artery, Degeneration		1 (4%)		
Pulmonary Artery, Mineralization	3 (38%)	3 (13%)	5 (42%)	2 (67%)
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	49 (98%)	49 (98%)	49 (98%)	47 (94%)
Inflammation, Chronic	1 (2%)			
Mineralization	6 (12%)	17 (34%)	12 (24%)	3 (6%)
Thrombosis	1 (2%)		1 (2%)	

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
CARDIOVASCULAR SYSTEM - CONT				
Artery, Inflammation		1 (2%)		
Artery, Inflammation, Acute				1 (2%)
Artery, Mineralization	4 (8%)	15 (30%)	9 (18%)	2 (4%)
Artery, Thrombosis	1 (2%)			
Atrium, Dilatation			1 (2%)	1 (2%)
Atrium, Thrombosis	4 (8%)	2 (4%)	5 (10%)	3 (6%)
Valve, Inflammation				1 (2%)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(50)
Accessory Adrenal Cortical Nodule	1 (2%)			
Angiectasis	1 (2%)		1 (2%)	
Congestion		2 (4%)		1 (2%)
Degeneration		2 (4%)		
Hemorrhage	3 (6%)			
Hyperplasia	1 (2%)	2 (4%)	1 (2%)	1 (2%)
Hypertrophy	2 (4%)	2 (4%)	2 (4%)	
Mineralization		1 (2%)		
Necrosis				2 (4%)
Thrombosis		1 (2%)		1 (2%)
Vacuolization Cytoplasmic	17 (34%)	13 (26%)	12 (24%)	7 (14%)
Adrenal Medulla	(50)	(50)	(50)	(50)
Hyperplasia	3 (6%)	4 (8%)	2 (4%)	1 (2%)
Islets, Pancreatic	(47)	(50)	(49)	(49)
Hyperplasia	1 (2%)	1 (2%)	2 (4%)	1 (2%)
Parathyroid Gland	(48)	(47)	(48)	(47)
Hyperplasia	16 (33%)	32 (68%)	29 (60%)	12 (26%)
Inflammation, Chronic	1 (2%)			
Pituitary Gland	(49)	(49)	(50)	(50)
Angiectasis				1 (2%)
Congestion				2 (4%)
Cyst	17 (35%)	13 (27%)	18 (36%)	11 (22%)
Hemorrhage			1 (2%)	1 (2%)
Hyperplasia	13 (27%)	10 (20%)	7 (14%)	3 (6%)
Hypertrophy				1 (2%)
Pars Distalis, Hyperplasia	2 (4%)	1 (2%)		
Thyroid Gland	(49)	(50)	(48)	(49)
Inflammation, Granulomatous			1 (2%)	
C-Cell, Hyperplasia		1 (2%)	1 (2%)	
Follicle, Cyst	2 (4%)	4 (8%)	5 (10%)	1 (2%)
Follicular Cell, Hyperplasia		2 (4%)	1 (2%)	

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Coagulating Gland	(48)	(42)	(45)	(45)
Inflammation, Acute		1 (2%)	1 (2%)	
Inflammation, Chronic				1 (2%)
Inflammation, Chronic Active	1 (2%)			
Artery, Mineralization		1 (2%)		
Epididymis	(50)	(49)	(49)	(50)
Arteriole, Mineralization	1 (2%)			
Artery, Inflammation				1 (2%)
Epithelium, Hyperplasia				1 (2%)
Preputial Gland	(50)	(48)	(50)	(50)
Atrophy			1 (2%)	
Hyperplasia, Squamous				1 (2%)
Inflammation, Chronic	2 (4%)	2 (4%)	3 (6%)	1 (2%)
Inflammation, Chronic Active	1 (2%)		1 (2%)	
Inflammation, Suppurative	12 (24%)	9 (19%)	10 (20%)	3 (6%)
Duct, Cyst	49 (98%)	43 (90%)	46 (92%)	48 (96%)
Prostate	(50)	(49)	(50)	(50)
Fibrosis			2 (4%)	1 (2%)
Hemorrhage	1 (2%)		1 (2%)	
Hyperplasia	4 (8%)	4 (8%)	1 (2%)	2 (4%)
Inflammation, Acute	4 (8%)	1 (2%)		
Inflammation, Chronic	3 (6%)	4 (8%)	5 (10%)	2 (4%)
Inflammation, Chronic Active	5 (10%)	5 (10%)	2 (4%)	2 (4%)
Artery, Mineralization	1 (2%)			
Seminal Vesicle	(49)	(49)	(50)	(49)
Cyst		1 (2%)		
Hyperplasia		1 (2%)		
Inflammation, Chronic		1 (2%)		
Inflammation, Chronic Active			1 (2%)	
Artery, Mineralization		1 (2%)		
Testes	(50)	(49)	(49)	(50)
Atrophy	20 (40%)	20 (41%)	18 (37%)	9 (18%)
Congestion				1 (2%)
Inflammation, Granulomatous			1 (2%)	1 (2%)
Mineralization	6 (12%)	2 (4%)	9 (18%)	4 (8%)
Artery, Inflammation	24 (48%)	24 (49%)	14 (29%)	11 (22%)
Artery, Mineralization		3 (6%)	2 (4%)	
Interstitial Cell, Hyperplasia	3 (6%)	4 (8%)	7 (14%)	7 (14%)

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Atrophy		1 (2%)		1 (2%)
Erythroid Cell, Hyperplasia		1 (2%)		
Myeloid Cell, Hyperplasia	2 (4%)	1 (2%)	1 (2%)	
Lymph Node	(31)	(44)	(38)	(32)
Ectasia	2 (6%)	1 (2%)		
Hemorrhage	2 (6%)	1 (2%)		
Hyperplasia, Plasma Cell	2 (6%)			
Iliac, Ectasia	5 (16%)	3 (7%)	3 (8%)	1 (3%)
Iliac, Hemorrhage	1 (3%)	2 (5%)	2 (5%)	3 (9%)
Iliac, Hyperplasia, Lymphoid		1 (2%)	2 (5%)	1 (3%)
Iliac, Hyperplasia, Plasma Cell		4 (9%)	2 (5%)	2 (6%)
Inguinal, Atrophy	1 (3%)			
Inguinal, Ectasia	1 (3%)		1 (3%)	
Inguinal, Hemorrhage		1 (2%)	1 (3%)	1 (3%)
Inguinal, Hyperplasia, Lymphoid			1 (3%)	
Inguinal, Infiltration Cellular, Histiocyte			1 (3%)	
Mediastinal, Atrophy		1 (2%)		
Mediastinal, Congestion	1 (3%)	3 (7%)	2 (5%)	1 (3%)
Mediastinal, Ectasia	6 (19%)	12 (27%)	9 (24%)	6 (19%)
Mediastinal, Hemorrhage	8 (26%)	15 (34%)	10 (26%)	9 (28%)
Mediastinal, Hyperplasia, Lymphoid				1 (3%)
Mediastinal, Hyperplasia, Plasma Cell		2 (5%)	1 (3%)	1 (3%)
Pancreatic, Ectasia	2 (6%)	5 (11%)		1 (3%)
Pancreatic, Hemorrhage	4 (13%)	5 (11%)	4 (11%)	7 (22%)
Pancreatic, Hyperplasia, Lymphoid	2 (6%)	1 (2%)		4 (13%)
Pancreatic, Hyperplasia, Plasma Cell	1 (3%)		2 (5%)	2 (6%)
Pancreatic, Pigmentation			1 (3%)	
Renal, Ectasia	15 (48%)	20 (45%)	16 (42%)	10 (31%)
Renal, Fibrosis		2 (5%)		
Renal, Hemorrhage	10 (32%)	17 (39%)	19 (50%)	12 (38%)
Renal, Hyperplasia, Lymphoid			1 (3%)	2 (6%)
Renal, Hyperplasia, Plasma Cell		1 (2%)	6 (16%)	2 (6%)
Renal, Pigmentation			3 (8%)	
Lymph Node, Mandibular	(48)	(49)	(47)	(48)
Congestion		5 (10%)	1 (2%)	4 (8%)
Ectasia	15 (31%)	8 (16%)	10 (21%)	10 (21%)
Hemorrhage	3 (6%)	1 (2%)	3 (6%)	1 (2%)
Hyperplasia, Lymphoid		1 (2%)		1 (2%)
Hyperplasia, Plasma Cell	4 (8%)	8 (16%)	6 (13%)	4 (8%)
Lymph Node, Mesenteric	(46)	(50)	(50)	(50)
Atrophy		6 (12%)	1 (2%)	2 (4%)
Ectasia	5 (11%)	6 (12%)	6 (12%)	5 (10%)
Hemorrhage	12 (26%)	14 (28%)	12 (24%)	12 (24%)
Hyperplasia, Lymphoid	1 (2%)	1 (2%)	2 (4%)	5 (10%)
Hyperplasia, Plasma Cell		2 (4%)		1 (2%)

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
HEMATOPOIETIC SYSTEM - CONT				
Spleen	(49)	(50)	(49)	(49)
Angiectasis	1 (2%)			
Atrophy	2 (4%)	1 (2%)	1 (2%)	1 (2%)
Congestion	1 (2%)		1 (2%)	
Fibrosis		1 (2%)	1 (2%)	1 (2%)
Hematopoietic Cell Proliferation	1 (2%)	2 (4%)		2 (4%)
Hyperplasia, Lymphoid	1 (2%)			
Necrosis	1 (2%)			
Artery, Mineralization	1 (2%)	1 (2%)		
Thymus	(48)	(49)	(49)	(50)
Atrophy	15 (31%)	29 (59%)	28 (57%)	24 (48%)
Cyst	5 (10%)	6 (12%)	4 (8%)	6 (12%)
Ectopic Parathyroid Gland	3 (6%)	5 (10%)	1 (2%)	1 (2%)
Ectopic Thyroid	1 (2%)			
Fibrosis			1 (2%)	
Hemorrhage	8 (17%)	6 (12%)	8 (16%)	14 (28%)
Hyperplasia, Lymphoid	1 (2%)			
Hyperplasia, Squamous				2 (4%)
Artery, Mineralization		1 (2%)		
Epithelial Cell, Hyperplasia			1 (2%)	
INTEGUMENTARY SYSTEM				
Mammary Gland	(48)	(46)	(44)	(46)
Cyst		2 (4%)		1 (2%)
Hyperplasia	4 (8%)		2 (5%)	4 (9%)
Artery, Mineralization	3 (6%)	5 (11%)		
Duct, Dilatation	6 (13%)	7 (15%)	5 (11%)	4 (9%)
Skin	(50)	(50)	(50)	(50)
Cyst	1 (2%)	2 (4%)	1 (2%)	
Hyperkeratosis	1 (2%)			
Hyperplasia, Squamous		2 (4%)	1 (2%)	2 (4%)
Inflammation, Chronic	1 (2%)	2 (4%)		1 (2%)
Inflammation, Suppurative		1 (2%)		1 (2%)
Ulcer	1 (2%)	1 (2%)		2 (4%)
Hair Follicle, Cyst	1 (2%)			1 (2%)
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Fibrous Osteodystrophy	10 (20%)	21 (42%)	16 (32%)	6 (12%)
Inflammation, Chronic Active		1 (2%)		
Osteosclerosis			1 (2%)	
Cartilage, Degeneration				1 (2%)
Cranium, Fibrous Osteodystrophy	10 (20%)	15 (30%)	13 (26%)	2 (4%)

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
MUSCULOSKELETAL SYSTEM - CONT				
Joint, Arthrosis				1 (2%)
Joint, Fibrosis				1 (2%)
Joint, Inflammation, Chronic			1 (2%)	1 (2%)
Mandible, Hyperplasia				1 (2%)
Metacarpal, Inflammation, Chronic Active				1 (2%)
Metatarsal, Hyperplasia			1 (2%)	
Metatarsal, Inflammation, Chronic Active				1 (2%)
Periosteum, Hyperplasia				1 (2%)
Rib, Callus		1 (2%)		
Vertebra, Fibrous Osteodystrophy		4 (8%)	2 (4%)	
Vertebra, Inflammation, Chronic				1 (2%)
NERVOUS SYSTEM				
Brain	(50)	(49)	(50)	(50)
Degeneration		1 (2%)		
Hemorrhage	1 (2%)	1 (2%)		
Hydrocephalus	1 (2%)	1 (2%)		
Peripheral Nerve	(1)	(4)	(2)	(5)
Degeneration	1 (100%)			
Mineralization		2 (50%)	2 (100%)	
Radicular Neuropathy		4 (100%)	1 (50%)	2 (40%)
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Congestion		4 (8%)	2 (4%)	4 (8%)
Edema		2 (4%)		
Hemorrhage	2 (4%)	1 (2%)	10 (20%)	7 (14%)
Inflammation, Acute	1 (2%)	3 (6%)		
Inflammation, Chronic	1 (2%)		1 (2%)	
Inflammation, Granulomatous	4 (8%)	1 (2%)	5 (10%)	2 (4%)
Mineralization		1 (2%)		
Necrosis	1 (2%)		1 (2%)	
Alveolar Epithelium, Hyperplasia	1 (2%)		2 (4%)	
Alveolar Epithelium, Hypertrophy		1 (2%)		
Alveolus, Infiltration Cellular, Histiocyte	8 (16%)	5 (10%)	4 (8%)	
Alveolus, Mineralization	2 (4%)			
Artery, Mineralization	2 (4%)	3 (6%)		
Bronchus, Inflammation, Acute	1 (2%)			
Bronchus, Mineralization	1 (2%)			
Interstitium, Fibrosis	4 (8%)	6 (12%)	4 (8%)	1 (2%)
Interstitium, Inflammation, Chronic		2 (4%)		
Nose	(50)	(50)	(50)	(50)
Cyst	1 (2%)			

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
RESPIRATORY SYSTEM - CONT				
Erosion	1 (2%)			
Foreign Body	11 (22%)	4 (8%)	6 (12%)	1 (2%)
Hemorrhage	3 (6%)		1 (2%)	
Hyperplasia, Squamous	1 (2%)			
Inflammation, Acute	7 (14%)	7 (14%)	4 (8%)	2 (4%)
Inflammation, Chronic	7 (14%)	1 (2%)	2 (4%)	1 (2%)
Inflammation, Chronic Active	4 (8%)	6 (12%)	5 (10%)	6 (12%)
Metaplasia, Squamous		1 (2%)	1 (2%)	2 (4%)
Thrombosis			1 (2%)	
Ulcer			2 (4%)	
Artery, Thrombosis				1 (2%)
Olfactory Epithelium, Hyperplasia	1 (2%)			
Olfactory Epithelium, Metaplasia			1 (2%)	
Respiratory Epithelium, Hyperplasia	20 (40%)	9 (18%)	12 (24%)	15 (30%)
Respiratory Epithelium, Metaplasia		1 (2%)		
Respiratory Epithelium, Metaplasia, Squamous			1 (2%)	
Trachea	(50)	(50)	(50)	(50)
Cyst		1 (2%)		
Foreign Body			1 (2%)	
Inflammation, Acute		1 (2%)		
Inflammation, Chronic Active				1 (2%)
SPECIAL SENSES SYSTEM				
Eye			(1)	
Cornea, Ulcer			1 (100%)	
Harderian Gland	(1)		(4)	(1)
Inflammation, Chronic				1 (100%)
Lacrimal Gland			(1)	
Atrophy			1 (100%)	
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Congestion	4 (8%)			2 (4%)
Cyst	21 (42%)	31 (62%)	19 (38%)	16 (32%)
Hydronephrosis	19 (38%)	20 (40%)	30 (60%)	15 (30%)
Inflammation, Acute		2 (4%)		1 (2%)
Mineralization	8 (16%)	17 (34%)	8 (16%)	5 (10%)
Nephropathy	50 (100%)	50 (100%)	50 (100%)	50 (100%)
Artery, Mineralization	5 (10%)	8 (16%)	3 (6%)	
Renal Tubule, Accumulation, Hyaline Droplet			1 (2%)	1 (2%)
Renal Tubule, Hyperplasia	6 (12%)	17 (34%)	8 (16%)	5 (10%)
Vein, Thrombosis		2 (4%)	1 (2%)	3 (6%)
Urinary Bladder	(47)	(49)	(47)	(44)

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
URINARY SYSTEM - CONT				
Dilatation			1 (2%)	
Edema		1 (2%)		
Hemorrhage			1 (2%)	
Inflammation, Acute		1 (2%)		
Inflammation, Chronic	1 (2%)			
Inflammation, Chronic Active			1 (2%)	
Ulcer		1 (2%)		
Artery, Mineralization			1 (2%)	
Transitional Epithelium, Hyperplasia	1 (2%)	3 (6%)	1 (2%)	

a Number of animals examined microscopically at site and number of animals with lesion

END OF REPORT

Facility: TSI Mason Research

Chemical CAS #: 110-86-1

Lock Date: 12/13/94

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

a Number of animals examined microscopically at site and number of animals with lesion

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Natural Death	26	27	30	33
Moribund Sacrifice	2	9	9	10
Survivors				
Terminal Sacrifice	22	1	11	7
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Cecum	(32)	(37)	(29)	(27)
Carcinoma	1 (3%)			
Intestine Small, Duodenum	(39)	(44)	(42)	(42)
Carcinoma		1 (2%)		
Intestine Small, Jejunum	(37)	(36)	(34)	(35)
Carcinoma	1 (3%)	2 (6%)		
Intestine Small, Ileum	(28)	(32)	(28)	(31)
Liver	(50)	(50)	(50)	(50)
Cholangiocarcinoma	1 (2%)			2 (4%)
Hepatocellular Adenoma	2 (4%)		1 (2%)	
Histiocytic Sarcoma				1 (2%)
Oral Mucosa	(5)	(1)	(1)	
Squamous Cell Carcinoma	1 (20%)			
Pancreas	(46)	(50)	(50)	(49)
Carcinoma		1 (2%)		
Acinus, Adenoma	6 (13%)	7 (14%)	8 (16%)	7 (14%)
Acinus, Adenoma, Multiple	8 (17%)	4 (8%)	4 (8%)	
Acinus, Carcinoma	2 (4%)		2 (4%)	
Acinus, Carcinoma, Multiple	2 (4%)		1 (2%)	
Stomach, Forestomach	(49)	(50)	(50)	(49)
Fibrosarcoma			1 (2%)	
Squamous Cell Papilloma				1 (2%)
Stomach, Glandular	(49)	(50)	(48)	(48)
Fibrosarcoma, Metastatic, Stomach, Forestomach			1 (2%)	
Tongue			(1)	
Squamous Cell Carcinoma			1 (100%)	

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Endocardium, Schwannoma Benign	2 (4%)	2 (4%)		1 (2%)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(50)
Adenoma		1 (2%)		
Carcinoma				1 (2%)
Adrenal Medulla	(50)	(50)	(50)	(50)
Pheochromocytoma Malignant	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Pheochromocytoma Benign	5 (10%)	4 (8%)	1 (2%)	
Islets, Pancreatic	(47)	(50)	(49)	(49)
Adenoma	8 (17%)		3 (6%)	
Carcinoma		1 (2%)		1 (2%)
Parathyroid Gland	(48)	(47)	(48)	(47)
Adenoma	1 (2%)			
Pituitary Gland	(49)	(49)	(50)	(50)
Pars Distalis, Adenoma	15 (31%)	16 (33%)	12 (24%)	13 (26%)
Pars Distalis, Adenoma, Multiple	1 (2%)	1 (2%)		
Pars Intermedia, Adenoma	1 (2%)			1 (2%)
Thyroid Gland	(49)	(50)	(48)	(49)
Bilateral, Follicular Cell, Adenoma			1 (2%)	
C-Cell, Adenoma	4 (8%)	2 (4%)		3 (6%)
Follicular Cell, Adenoma			4 (8%)	
Follicular Cell, Carcinoma	3 (6%)	3 (6%)	1 (2%)	
GENERAL BODY SYSTEM				
Tissue NOS		(1)		
Hemangiosarcoma		1 (100%)		
GENITAL SYSTEM				
Epididymis	(50)	(49)	(49)	(50)
Preputial Gland	(50)	(48)	(50)	(50)
Adenoma	1 (2%)		1 (2%)	1 (2%)
Prostate	(50)	(49)	(50)	(50)
Adenoma	3 (6%)	1 (2%)	1 (2%)	
Schwannoma Malignant				1 (2%)
Seminal Vesicle	(49)	(49)	(50)	(49)
Testes	(50)	(49)	(49)	(50)
Bilateral, Interstitial Cell, Adenoma	3 (6%)	1 (2%)	1 (2%)	5 (10%)
Interstitial Cell, Adenoma	2 (4%)	5 (10%)	3 (6%)	7 (14%)

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Histiocytic Sarcoma				1 (2%)
Lymph Node	(31)	(44)	(38)	(32)
Iliac, Hemangiosarcoma		1 (2%)		
Pancreatic, Histiocytic Sarcoma				1 (3%)
Lymph Node, Mandibular	(48)	(49)	(47)	(48)
Histiocytic Sarcoma				1 (2%)
Lymph Node, Mesenteric	(46)	(50)	(50)	(50)
Hemangioma				1 (2%)
Hemangiosarcoma		1 (2%)	1 (2%)	
Histiocytic Sarcoma				1 (2%)
Spleen	(49)	(50)	(49)	(49)
Hemangiosarcoma		1 (2%)		
Thymus	(48)	(49)	(49)	(50)
Thymoma Benign	1 (2%)		2 (4%)	
Thymoma Malignant	1 (2%)			
INTEGUMENTARY SYSTEM				
Mammary Gland	(48)	(46)	(44)	(46)
Carcinoma			1 (2%)	
Fibroadenoma	1 (2%)	1 (2%)		1 (2%)
Skin	(50)	(50)	(50)	(50)
Basal Cell Adenoma		1 (2%)		
Basal Cell Carcinoma				1 (2%)
Carcinoma, Metastatic, Zymbal's Gland			1 (2%)	
Fibroma			2 (4%)	
Keratoacanthoma	7 (14%)	3 (6%)	2 (4%)	1 (2%)
Squamous Cell Carcinoma		1 (2%)		
Squamous Cell Papilloma	2 (4%)	1 (2%)	1 (2%)	
Sebaceous Gland, Adenoma			1 (2%)	
Subcutaneous Tissue, Fibroma	5 (10%)	6 (12%)		1 (2%)
Subcutaneous Tissue, Fibroma, Multiple				1 (2%)
Subcutaneous Tissue, Fibrosarcoma			1 (2%)	1 (2%)
Subcutaneous Tissue, Sarcoma	1 (2%)			
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Cranium, Osteoma	1 (2%)			
Joint, Sarcoma				1 (2%)
Skeletal Muscle	(1)		(2)	

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
MUSCULOSKELETAL SYSTEM - cont				
Fibroma			1 (50%)	
Lipoma	1 (100%)		1 (50%)	
NERVOUS SYSTEM				
Brain	(50)	(49)	(50)	(50)
Astrocytoma Malignant	1 (2%)	1 (2%)	1 (2%)	
Hemangioma	1 (2%)			
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Carcinoma			1 (2%)	
Carcinoma, Metastatic, Zymbal's Gland			1 (2%)	1 (2%)
Fibrosarcoma, Metastatic, Skin				1 (2%)
Histiocytic Sarcoma				1 (2%)
Nose	(50)	(50)	(50)	(50)
Chondroma				1 (2%)
Squamous Cell Carcinoma, Metastatic, Oral Mucosa	1 (2%)			
SPECIAL SENSES SYSTEM				
Zymbal's Gland	(1)		(2)	(3)
Carcinoma	1 (100%)		2 (100%)	3 (100%)
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Carcinoma, Metastatic, Lung			1 (2%)	
Histiocytic Sarcoma				1 (2%)
Lipoma	1 (2%)			
Renal Tubule, Adenoma	1 (2%)	4 (8%)	1 (2%)	2 (4%)
Renal Tubule, Adenoma, Multiple	1 (2%)	1 (2%)		
Renal Tubule, Carcinoma				1 (2%)
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma				1 (2%)

* Number of animals with any tissue examined microscopically

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
SYSTEMIC LESIONS - cont				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Leukemia Mononuclear	1 (2%)	1 (2%)	2 (4%)	
Lymphoma Malignant		2 (4%)		1 (2%)
Mesothelioma Malignant			1 (2%)	

WISTAR OUTBRED RATS MALE	0 PPM	100 PPM	200 PPM	400 PPM
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	43	38	32	39
Total Primary Neoplasms	101	79	68	62
Total Animals with Benign Neoplasms	40	37	29	33
Total Benign Neoplasms	84	61	51	47
Total Animals with Malignant Neoplasms	17	14	12	13
Total Malignant Neoplasms	17	18	17	15
Total Animals with Metastatic Neoplasms	1		3	2
Total Metastatic Neoplasm	1		4	2
Total Animals with Malignant Neoplasms Uncertain Primary Site				
Total Animals with Neoplasms Uncertain-Benign or Malignant				
Total Uncertain Neoplasms				

a Number of animals examined microscopically at site and number of animals with lesion
b Primary tumors: all tumors except metastatic tumors

END OF REPORT

2 YEAR CHRONIC

REASONS FOR REMOVAL: ALL

REMOVAL DATE RANGE: ALL

TREATMENT GROUPS: INCLUDE ALL

RATS(WISTAR OUTBRED)

FOR ALL DOSES THE TUMOR RATES IN THE FOLLOWING TISSUES/ORGANS ARE BASED ON NUMBER OF TISSUES EXAMINED.
IN OTHER TISSUES/ORGANS, RATES ARE BASED ON NUMBER OF ANIMALS NECROPSIED.

Adrenal Cortex
Adrenal Medulla
Bone Marrow
Brain
Epididymis
Heart
Islets, Pancreatic
Kidney
Liver
Lung
Nose
Pancreas
Parathyroid Gland
Pituitary Gland
Preputial Gland
Prostate
Salivary Glands
Spleen
Testes
Thymus
Thyroid Gland
Urinary Bladder

NTP
LAB: TSI Mason Research
EXPERIMENT: 55301 TEST: 06
TEST TYPE: CHRONIC
CONT: N01-ES-95268
PATHOLOGIST: D. SAUER

STATISTICAL ANALYSIS OF PRIMARY TUMORS
PYRIDINE

CAGES FROM 0000 TO LAST CAGE
ROUTE: DOSED WATER

REPORT: PEIRPT08
DATE: 10/09/97
TIME: 08:10:08

NTP C#: 55301B
CAS: 110-86-1

SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS
IN THE ANALYSIS OF THE STUDY OF PYRIDINE

	MALE RATS
ORGAN	MORPHOLOGY
Adrenal Medulla	Pheochromocytoma Benign
	Pheochromocytoma: Benign, Complex, Malignant, NOS
Islets, Pancreatic	Adenoma
	Carcinoma or Adenoma
Pancreas	Adenoma
	Carcinoma or Adenoma
Skin	Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma
	Keratoacanthoma
	Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma
	Squamous Cell Papilloma, Papilloma, or Keratoacanthoma
Testes	Adenoma
Thyroid Gland: Follicular Cell	
	Adenoma
Zymbal's Gland	Carcinoma
All Organs	Benign Tumors
	Malignant Tumors
	Malignant and Benign Tumors

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Adrenal Medulla Pheochromocytoma Benign				
TUMOR RATES				
OVERALL (a)	5/50 (10%)	4/50 (8%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	22.7%	19.7%	8.3%	0.0%
TERMINAL (d)	5/22 (23%)	2/14 (14%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	486	721	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.086N	P=0.540	P=0.318N	P=0.212N
INCIDENTAL TUMOR	P=0.038N*	P=0.621N	P=0.243N	P=0.212N
LOGISTIC REGRESSION	P=0.042N*	P=0.617N	P=0.288N	P=0.212N
COCHRAN-ARMITAGE	P=0.011N*			
FISHER EXACT		P=0.500N	P=0.102N	P=0.028N*
Adrenal Medulla Pheochromocytoma: Benign, Complex, Malignant, NOS				
TUMOR RATES				
OVERALL (a)	6/50 (12%)	5/50 (10%)	2/50 (4%)	1/50 (2%)
ADJUSTED (b)	24.5%	24.2%	10.4%	3.3%
TERMINAL (d)	5/22 (23%)	2/14 (14%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	587	486	481	553
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.186N	P=0.499	P=0.368N	P=0.348N
INCIDENTAL TUMOR	P=0.053N	P=0.601N	P=0.205N	P=0.247N
LOGISTIC REGRESSION	P=0.052N	P=0.606N	P=0.193N	P=0.175N
COCHRAN-ARMITAGE	P=0.025N*			
FISHER EXACT		P=0.500N	P=0.134N	P=0.056N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Heart				
Schwannoma Benign				
TUMOR RATES				
OVERALL (a)	2/50 (4%)	2/50 (4%)	0/50 (0%)	1/50 (2%)
ADJUSTED (b)	9.1%	9.8%	0.0%	12.5%
TERMINAL (d)	2/22 (9%)	1/14 (7%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	593	---	709
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.606N	P=0.555	P=0.400N	P=0.628
INCIDENTAL TUMOR	P=0.497N	P=0.554	P=0.400N	P=0.709
LOGISTIC REGRESSION	P=0.501N	P=0.627	P=0.400N	P=0.647
COCHRAN-ARMITAGE	P=0.296N			
FISHER EXACT		P=0.691N	P=0.247N	P=0.500N
Intestine Small: Jejunum				
Carcinoma				
TUMOR RATES	#	#	#	#
OVERALL (a)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	4.5%	14.3%	0.0%	0.0%
TERMINAL (d)	1/22 (5%)	2/14 (14%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	722 (T)	---	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.402N	P=0.342	P=0.638N	P=0.727N
INCIDENTAL TUMOR	P=0.402N	P=0.342	P=0.638N	P=0.727N
LOGISTIC REGRESSION	P=0.402N	P=0.342	P=0.638N	P=0.727N
COCHRAN-ARMITAGE	P=0.188N			
FISHER EXACT		P=0.500	P=0.500N	P=0.500N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Intestine Small: Site Unspecified Carcinoma				
TUMOR RATES	#	#	#	#
OVERALL (a)	1/50 (2%)	3/50 (6%)	0/50 (0%)	0/50 (0%)
ADJUSTED (b)	4.5%	19.0%	0.0%	0.0%
TERMINAL (d)	1/22 (5%)	2/14 (14%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	698	---	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.382N	P=0.167	P=0.638N	P=0.727N
INCIDENTAL TUMOR	P=0.324N	P=0.211	P=0.638N	P=0.727N
LOGISTIC REGRESSION	P=0.344N	P=0.191	P=0.638N	P=0.727N
COCHRAN-ARMITAGE	P=0.153N			
FISHER EXACT		P=0.309	P=0.500N	P=0.500N
Islets, Pancreatic Adenoma				
TUMOR RATES				
OVERALL (a)	8/47 (17%)	0/50 (0%)	3/49 (6%)	0/49 (0%)
ADJUSTED (b)	30.5%	0.0%	11.3%	0.0%
TERMINAL (d)	5/22 (23%)	0/14 (0%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	624	---	510	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.049N*	P=0.021N*	P=0.327N	P=0.091N
INCIDENTAL TUMOR	P=0.010N*	P=0.009N**	P=0.092N	P=0.035N*
LOGISTIC REGRESSION	P=0.015N*	P=0.009N**	P=0.152N	P=0.044N*
COCHRAN-ARMITAGE	P=0.004N**			
FISHER EXACT		P=0.002N**	P=0.087N	P=0.002N**

DATE: 10/09/97 EXPERIMENT: 55301 TEST: 06
STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Islets, Pancreatic Carcinoma or Adenoma				
TUMOR RATES				
OVERALL (a)	8/47 (17%)	1/50 (2%)	3/49 (6%)	1/49 (2%)
ADJUSTED (b)	30.5%	3.3%	11.3%	6.3%
TERMINAL (d)	5/22 (23%)	0/14 (0%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	624	638	510	631
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.149N	P=0.064N	P=0.327N	P=0.242N
INCIDENTAL TUMOR	P=0.034N*	P=0.031N*	P=0.092N	P=0.088N
LOGISTIC REGRESSION	P=0.047N*	P=0.029N*	P=0.152N	P=0.113N
COCHRAN-ARMITAGE	P=0.017N*			
FISHER EXACT		P=0.012N*	P=0.087N	P=0.013N*
Kidney: Renal Tubule Adenoma				
TUMOR RATES				
OVERALL (a)	2/50 (4%)	5/50 (10%)	1/50 (2%)	2/50 (4%)
ADJUSTED (b)	6.0%	21.4%	8.3%	13.6%
TERMINAL (d)	0/22 (0%)	1/14 (7%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	576	610	721	606
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.417	P=0.128	P=0.656N	P=0.381
INCIDENTAL TUMOR	P=0.438N	P=0.209	P=0.452N	P=0.679
LOGISTIC REGRESSION	P=0.539N	P=0.186	P=0.547N	P=0.640
COCHRAN-ARMITAGE	P=0.371N			
FISHER EXACT		P=0.218	P=0.500N	P=0.691N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Kidney: Renal Tubule Carcinoma or Adenoma				
TUMOR RATES				
OVERALL (a)	2/50 (4%)	5/50 (10%)	1/50 (2%)	3/50 (6%)
ADJUSTED (b)	6.0%	21.4%	8.3%	22.3%
TERMINAL (d)	0/22 (0%)	1/14 (7%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	576	610	721	606
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.206	P=0.128	P=0.656N	P=0.161
INCIDENTAL TUMOR	P=0.528	P=0.209	P=0.452N	P=0.461
LOGISTIC REGRESSION	P=0.414	P=0.186	P=0.547N	P=0.372
COCHRAN-ARMITAGE	P=0.562N			
FISHER EXACT		P=0.218	P=0.500N	P=0.500
Liver Cholangiocarcinoma				
TUMOR RATES				
OVERALL (a)	1/50 (2%)	0/50 (0%)	0/50 (0%)	2/50 (4%)
ADJUSTED (b)	4.5%	0.0%	0.0%	6.5%
TERMINAL (d)	1/22 (5%)	0/14 (0%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	---	---	552
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.128	P=0.590N	P=0.638N	P=0.281
INCIDENTAL TUMOR	P=0.204	P=0.590N	P=0.638N	P=0.405
LOGISTIC REGRESSION	P=0.254	P=0.590N	P=0.638N	P=0.526
COCHRAN-ARMITAGE	P=0.246			
FISHER EXACT		P=0.500N	P=0.500N	P=0.500

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Liver				
Hepatocellular Adenoma				
TUMOR RATES				
OVERALL (a)	2/50 (4%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	7.5%	0.0%	9.1%	0.0%
TERMINAL (d)	1/22 (5%)	0/14 (0%)	1/11 (9%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	654	---	722 (T)	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.370N	P=0.324N	P=0.689N	P=0.462N
INCIDENTAL TUMOR	P=0.329N	P=0.257N	P=0.612N	P=0.388N
LOGISTIC REGRESSION	P=0.315N	P=0.277N	P=0.610N	P=0.385N
COCHRAN-ARMITAGE	P=0.188N			
FISHER EXACT		P=0.247N	P=0.500N	P=0.247N
Pancreas				
Adenoma				
TUMOR RATES				
OVERALL (a)	14/46 (30%)	11/50 (22%)	12/50 (24%)	7/49 (14%)
ADJUSTED (b)	60.1%	41.0%	55.4%	51.8%
TERMINAL (d)	13/22 (59%)	4/14 (29%)	4/11 (36%)	3/7 (43%)
FIRST INCIDENCE (DAYS)	589	372	486	545
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.298	P=0.473	P=0.364	P=0.308
INCIDENTAL TUMOR	P=0.243N	P=0.498N	P=0.415	P=0.615
LOGISTIC REGRESSION	P=0.189N	P=0.320N	P=0.591N	P=0.493N
COCHRAN-ARMITAGE	P=0.050N			
FISHER EXACT		P=0.239N	P=0.316N	P=0.049N*

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Pancreas Carcinoma				
TUMOR RATES				
OVERALL (a)	4/46 (9%)	1/50 (2%)	3/50 (6%)	0/49 (0%)
ADJUSTED (b)	18.2%	3.3%	27.3%	0.0%
TERMINAL (d)	4/22 (18%)	0/14 (0%)	3/11 (27%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	638	722 (T)	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.322N	P=0.312N	P=0.441	P=0.282N
INCIDENTAL TUMOR	P=0.273N	P=0.300N	P=0.441	P=0.282N
LOGISTIC REGRESSION	P=0.237N	P=0.236N	P=0.441	P=0.282N
COCHRAN-ARMITAGE	P=0.064N			
FISHER EXACT		P=0.156N	P=0.453N	P=0.051N
Pancreas Carcinoma or Adenoma				
TUMOR RATES				
OVERALL (a)	16/46 (35%)	11/50 (22%)	13/50 (26%)	7/49 (14%)
ADJUSTED (b)	68.9%	41.0%	61.8%	51.8%
TERMINAL (d)	15/22 (68%)	4/14 (29%)	5/11 (45%)	3/7 (43%)
FIRST INCIDENCE (DAYS)	589	372	486	545
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.370	P=0.570N	P=0.161	P=0.421
INCIDENTAL TUMOR	P=0.185N	P=0.339N	P=0.414	P=0.517N
LOGISTIC REGRESSION	P=0.128N	P=0.192N	P=0.543N	P=0.368N
COCHRAN-ARMITAGE	P=0.024N*			
FISHER EXACT		P=0.122N	P=0.238N	P=0.018N*

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Pituitary Gland: Pars Distalis or Unspecified Site				
Adenoma				
TUMOR RATES				
OVERALL (a)	16/49 (33%)	17/49 (35%)	12/50 (24%)	13/50 (26%)
ADJUSTED (b)	51.8%	62.8%	54.7%	59.3%
TERMINAL (d)	9/22 (41%)	5/14 (36%)	4/11 (36%)	2/7 (29%)
FIRST INCIDENCE (DAYS)	468	506	494	483
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.058	P=0.148	P=0.388	P=0.065
INCIDENTAL TUMOR	P=0.434N	P=0.390	P=0.332N	P=0.541N
LOGISTIC REGRESSION	P=0.543	P=0.321	P=0.388N	P=0.581
COCHRAN-ARMITAGE	P=0.193N			
FISHER EXACT		P=0.500	P=0.232N	P=0.306N
Prostate				
Adenoma				
TUMOR RATES				
OVERALL (a)	3/50 (6%)	1/49 (2%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	13.6%	7.1%	9.1%	0.0%
TERMINAL (d)	3/22 (14%)	1/14 (7%)	1/11 (9%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	722 (T)	722 (T)	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.249N	P=0.476N	P=0.574N	P=0.377N
INCIDENTAL TUMOR	P=0.249N	P=0.476N	P=0.574N	P=0.377N
LOGISTIC REGRESSION	P=0.249N	P=0.476N	P=0.574N	P=0.377N
COCHRAN-ARMITAGE	P=0.072N			
FISHER EXACT		P=0.316N	P=0.309N	P=0.121N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Skin Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma				
TUMOR RATES	#	#	#	#
OVERALL (a)	9/50 (18%)	6/50 (12%)	3/50 (6%)	2/50 (4%)
ADJUSTED (b)	32.1%	37.9%	17.9%	23.8%
TERMINAL (d)	5/22 (23%)	5/14 (36%)	1/11 (9%)	1/7 (14%)
FIRST INCIDENCE (DAY	576	639	548	687
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.240N	P=0.602N	P=0.282N	P=0.382N
INCIDENTAL TUMOR	P=0.107N	P=0.520N	P=0.169N	P=0.173N
LOGISTIC REGRESSION	P=0.094N	P=0.452N	P=0.115N	P=0.188N
COCHRAN-ARMITAGE	P=0.013N*			
FISHER EXACT		P=0.288N	P=0.061N	P=0.026N*
Skin Fibroma				
TUMOR RATES	#	#	#	#
OVERALL (a)	5/50 (10%)	6/50 (12%)	2/50 (4%)	2/50 (4%)
ADJUSTED (b)	18.8%	32.6%	13.9%	28.6%
TERMINAL (d)	3/22 (14%)	4/14 (29%)	1/11 (9%)	2/7 (29%)
FIRST INCIDENCE (DAYS)	572	552	683	722 (T)
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.524N	P=0.256	P=0.481N	P=0.608
INCIDENTAL TUMOR	P=0.373N	P=0.295	P=0.362N	P=0.610N
LOGISTIC REGRESSION	P=0.325N	P=0.387	P=0.334N	P=0.598N
COCHRAN-ARMITAGE	P=0.094N			
FISHER EXACT		P=0.500	P=0.218N	P=0.218N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Skin Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Fibrous Histiocyt ma				
TUMOR RATES	#	#	#	#
OVERALL (a)	6/50 (12%)	6/50 (12%)	3/50 (6%)	3/50 (6%)
ADJUSTED (b)	21.2%	32.5%	17.8%	37.5%
TERMINAL (d)	3/22 (14%)	4/14 (29%)	1/11 (9%)	2/7 (29%)
FIRST INCIDENCE (DAYS)	572	552	674	709
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.475	P=0.363	P=0.524N	P=0.457
INCIDENTAL TUMOR	P=0.448N	P=0.411	P=0.377N	P=0.602N
LOGISTIC REGRESSION	P=0.446N	P=0.515	P=0.364N	P=0.646
COCHRAN-ARMITAGE	P=0.130N			
FISHER EXACT		P=0.620N	P=0.243N	P=0.243N
Skin Keratoacanthoma				
TUMOR RATES	#	#	#	#
OVERALL (a)	7/50 (14%)	3/50 (6%)	2/50 (4%)	1/50 (2%)
ADJUSTED (b)	26.4%	17.2%	15.6%	11.1%
TERMINAL (d)	4/22 (18%)	2/14 (14%)	1/11 (9%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	598	639	705	687
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.191N	P=0.356N	P=0.299N	P=0.315N
INCIDENTAL TUMOR	P=0.084N	P=0.272N	P=0.159N	P=0.143N
LOGISTIC REGRESSION	P=0.100N	P=0.255N	P=0.173N	P=0.184N
COCHRAN-ARMITAGE	P=0.019N*			
FISHER EXACT		P=0.159N	P=0.080N	P=0.030N*

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Skin Squamous Cell Papilloma				
TUMOR RATES	#	#	#	#
OVERALL (a)	2/50 (4%)	1/50 (2%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	6.7%	7.1%	2.8%	0.0%
TERMINAL (d)	1/22 (5%)	1/14 (7%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	576	722 (T)	548	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.309N	P=0.627N	P=0.641N	P=0.442N
INCIDENTAL TUMOR	P=0.240N	P=0.620N	P=0.671N	P=0.339N
LOGISTIC REGRESSION	P=0.171N	P=0.543N	P=0.462N	P=0.278N
COCHRAN-ARMITAGE	P=0.153N			
FISHER EXACT		P=0.500N	P=0.500N	P=0.247N
Skin Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma				
TUMOR RATES	#	#	#	#
OVERALL (a)	9/50 (18%)	5/50 (10%)	3/50 (6%)	1/50 (2%)
ADJUSTED (b)	32.1%	31.0%	17.9%	11.1%
TERMINAL (d)	5/22 (23%)	4/14 (29%)	1/11 (9%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	576	639	548	687
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.111N	P=0.462N	P=0.282N	P=0.191N
INCIDENTAL TUMOR	P=0.039N*	P=0.377N	P=0.169N	P=0.065N
LOGISTIC REGRESSION	P=0.033N*	P=0.319N	P=0.115N	P=0.070N
COCHRAN-ARMITAGE	P=0.005N**			
FISHER EXACT		P=0.194N	P=0.061N	P=0.008N**

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Skin				
Squamous Cell Papilloma, Papilloma, or Keratoacanthoma				
TUMOR RATES	#	#	#	#
OVERALL (a)	9/50 (18%)	4/50 (8%)	3/50 (6%)	1/50 (2%)
ADJUSTED (b)	32.1%	24.1%	17.9%	11.1%
TERMINAL (d)	5/22 (23%)	3/14 (21%)	1/11 (9%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	576	639	548	687
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.113N	P=0.320N	P=0.282N	P=0.191N
INCIDENTAL TUMOR	P=0.039N*	P=0.244N	P=0.169N	P=0.065N
LOGISTIC REGRESSION	P=0.034N*	P=0.201N	P=0.115N	P=0.070N
COCHRAN-ARMITAGE	P=0.006N**			
FISHER EXACT		P=0.117N	P=0.061N	P=0.008N**
Testes				
Adenoma				
TUMOR RATES				
OVERALL (a)	5/50 (10%)	6/49 (12%)	4/49 (8%)	12/50 (24%)
ADJUSTED (b)	19.3%	29.0%	22.2%	62.0%
TERMINAL (d)	3/22 (14%)	3/14 (21%)	1/11 (9%)	3/7 (43%)
FIRST INCIDENCE (DAYS)	592	486	660	464
STATISTICAL TESTS (f)				
LIFE TABLE	P<0.001 **	P=0.278	P=0.463	P<0.001 **
INCIDENTAL TUMOR	P=0.014 *	P=0.410	P=0.612N	P=0.057
LOGISTIC REGRESSION	P=0.009 **	P=0.395	P=0.606	P=0.033 *
COCHRAN-ARMITAGE	P=0.028 *			
FISHER EXACT		P=0.486	P=0.513N	P=0.054

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Thymus Thymoma Benign				
TUMOR RATES				
OVERALL (a)	1/48 (2%)	0/49 (0%)	2/49 (4%)	0/50 (0%)
ADJUSTED (b)	4.5%	0.0%	6.7%	0.0%
TERMINAL (d)	1/22 (5%)	0/14 (0%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	---	548	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.643N	P=0.590N	P=0.364	P=0.727N
INCIDENTAL TUMOR	P=0.544N	P=0.590N	P=0.430	P=0.727N
LOGISTIC REGRESSION	P=0.491N	P=0.590N	P=0.506	P=0.727N
COCHRAN-ARMITAGE	P=0.451N			
FISHER EXACT		P=0.495N	P=0.508	P=0.490N
Thymus Thymoma: Benign, Malignant, NOS				
TUMOR RATES				
OVERALL (a)	2/48 (4%)	0/49 (0%)	2/49 (4%)	0/50 (0%)
ADJUSTED (b)	7.2%	0.0%	6.7%	0.0%
TERMINAL (d)	1/22 (5%)	0/14 (0%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	624	---	548	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.421N	P=0.307N	P=0.565	P=0.453N
INCIDENTAL TUMOR	P=0.287N	P=0.289N	P=0.616	P=0.319N
LOGISTIC REGRESSION	P=0.258N	P=0.257N	P=0.687N	P=0.330N
COCHRAN-ARMITAGE	P=0.239N			
FISHER EXACT		P=0.242N	P=0.684N	P=0.237N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Thyroid Gland: C-Cell Adenoma				
TUMOR RATES				
OVERALL (a)	4/49 (8%)	2/50 (4%)	0/48 (0%)	3/49 (6%)
ADJUSTED (b)	17.0%	9.7%	0.0%	22.6%
TERMINAL (d)	3/22 (14%)	1/14 (7%)	0/11 (0%)	1/7 (14%)
FIRST INCIDENCE (DAYS)	701	581	---	574
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.345	P=0.532N	P=0.171N	P=0.295
INCIDENTAL TUMOR	P=0.496	P=0.462N	P=0.112N	P=0.489
LOGISTIC REGRESSION	P=0.541	P=0.425N	P=0.124N	P=0.490
COCHRAN-ARMITAGE	P=0.436N			
FISHER EXACT		P=0.329N	P=0.061N	P=0.500N
Thyroid Gland: Follicular Cell Adenoma				
TUMOR RATES				
OVERALL (a)	0/49 (0%)	0/50 (0%)	5/48 (10%)	0/49 (0%)
ADJUSTED (b)	0.0%	0.0%	24.6%	0.0%
TERMINAL (d)	0/22 (0%)	0/14 (0%)	1/11 (9%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	---	---	630	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.199	(e)	P=0.012 *	(e)
INCIDENTAL TUMOR	P=0.367	(e)	P=0.031 *	(e)
LOGISTIC REGRESSION	P=0.300	(e)	P=0.018 *	(e)
COCHRAN-ARMITAGE	P=0.466			
FISHER EXACT		(e)	P=0.027 *	(e)

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Thyroid Gland: Follicular Cell Carcinoma				
TUMOR RATES				
OVERALL (a)	3/49 (6%)	3/50 (6%)	1/48 (2%)	0/49 (0%)
ADJUSTED (b)	11.4%	13.3%	3.8%	0.0%
TERMINAL (d)	1/22 (5%)	1/14 (7%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	674	593	645	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.186N	P=0.507	P=0.474N	P=0.353N
INCIDENTAL TUMOR	P=0.084N	P=0.661N	P=0.223N	P=0.199N
LOGISTIC REGRESSION	P=0.098N	P=0.610	P=0.390N	P=0.281N
COCHRAN-ARMITAGE	P=0.053N			
FISHER EXACT		P=0.651N	P=0.308N	P=0.121N
Thyroid Gland: Follicular Cell Carcinoma or Adenoma				
TUMOR RATES				
OVERALL (a)	3/49 (6%)	3/50 (6%)	6/48 (13%)	0/49 (0%)
ADJUSTED (b)	11.4%	13.3%	27.5%	0.0%
TERMINAL (d)	1/22 (5%)	1/14 (7%)	1/11 (9%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	674	593	630	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.532N	P=0.507	P=0.096	P=0.353N
INCIDENTAL TUMOR	P=0.267N	P=0.661N	P=0.290	P=0.199N
LOGISTIC REGRESSION	P=0.309N	P=0.610	P=0.145	P=0.281N
COCHRAN-ARMITAGE	P=0.160N			
FISHER EXACT		P=0.651N	P=0.233	P=0.121N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
Zymbal's Gland Carcinoma				
TUMOR RATES	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	2/50 (4%)	3/50 (6%)
ADJUSTED (b)	3.2%	0.0%	7.5%	21.0%
TERMINAL (d)	0/22 (0%)	0/14 (0%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	660	---	494	466
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.028 *	P=0.551N	P=0.415	P=0.103
INCIDENTAL TUMOR	P=0.141	P=0.448N	P=0.716N	P=0.377
LOGISTIC REGRESSION	P=0.105	P=0.513N	P=0.543	P=0.275
COCHRAN-ARMITAGE	P=0.104			
FISHER EXACT		P=0.500N	P=0.500	P=0.309
All Organs Hemangiosarcoma				
TUMOR RATES	#	#	#	#
OVERALL (a)	0/50 (0%)	3/50 (6%)	1/50 (2%)	0/50 (0%)
ADJUSTED (b)	0.0%	17.9%	7.1%	0.0%
TERMINAL (d)	0/22 (0%)	2/14 (14%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	---	660	705	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.641	P=0.063	P=0.384	(e)
INCIDENTAL TUMOR	P=0.556N	P=0.084	P=0.581	(e)
LOGISTIC REGRESSION	P=0.592N	P=0.079	P=0.430	(e)
COCHRAN-ARMITAGE	P=0.366N			
FISHER EXACT		P=0.121	P=0.500	(e)

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
All Organs Hemangiosarcoma or Hemangioma				
TUMOR RATES	#	#	#	#
OVERALL (a)	1/50 (2%)	3/50 (6%)	1/50 (2%)	1/50 (2%)
ADJUSTED (b)	4.0%	17.9%	7.1%	6.3%
TERMINAL (d)	0/22 (0%)	2/14 (14%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	705	660	705	631
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.441	P=0.183	P=0.628	P=0.535
INCIDENTAL TUMOR	P=0.608N	P=0.270	P=0.571N	P=0.750
LOGISTIC REGRESSION	P=0.560	P=0.219	P=0.685	P=0.674
COCHRAN-ARMITAGE	P=0.444N			
FISHER EXACT		P=0.309	P=0.753N	P=0.753N
All Organs Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated				
TUMOR RATES	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	0/50 (0%)
ADJUSTED (b)	4.5%	2.6%	11.9%	0.0%
TERMINAL (d)	1/22 (5%)	0/14 (0%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	722 (T)	552	674	---
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.608N	P=0.688	P=0.323	P=0.727N
INCIDENTAL TUMOR	P=0.459N	P=0.694	P=0.516	P=0.727N
LOGISTIC REGRESSION	P=0.471N	P=0.761N	P=0.383	P=0.727N
COCHRAN-ARMITAGE	P=0.366N			
FISHER EXACT		P=0.753N	P=0.500	P=0.500N

DATE: 10/09/97 EXPERIMENT: 55301 TEST: 06
STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
All Organs Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type				
TUMOR RATES	#	#	#	#
OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)	1/50 (2%)
ADJUSTED (b)	0.0%	10.3%	0.0%	2.2%
TERMINAL (d)	0/22 (0%)	1/14 (7%)	0/11 (0%)	0/7 (0%)
FIRST INCIDENCE (DAYS)	---	639	---	466
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.375	P=0.172	(e)	P=0.483
INCIDENTAL TUMOR	P=0.592	P=0.177	(e)	P=0.901
LOGISTIC REGRESSION	P=0.561	P=0.203	(e)	P=0.654
COCHRAN-ARMITAGE	P=0.539			
FISHER EXACT		P=0.247	(e)	P=0.500
All Organs Benign Tumors				
TUMOR RATES	#	#	#	#
OVERALL (a)	40/50 (80%)	37/50 (74%)	29/50 (58%)	33/50 (66%)
ADJUSTED (b)	97.4%	97.1%	89.5%	96.4%
TERMINAL (d)	21/22 (95%)	13/14 (93%)	8/11 (73%)	6/7 (86%)
FIRST INCIDENCE (DAYS)	468	372	486	464
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.001 **	P=0.105	P=0.279	P=0.001 **
INCIDENTAL TUMOR	P=0.433N	P=0.518	P=0.077N	P=0.527N
LOGISTIC REGRESSION	P=0.522N	P=0.596	P=0.116N	P=0.549
COCHRAN-ARMITAGE	P=0.057N			
FISHER EXACT		P=0.318N	P=0.015N*	P=0.088N

DATE: 10/09/97 EXPERIMENT: 55301 TEST: 06
STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

DOSE	0 PPM	100 PPM	200 PPM	400 PPM
All Organs Malignant Tumors				
TUMOR RATES	#	#	#	#
OVERALL (a)	17/50 (34%)	14/50 (28%)	12/50 (24%)	13/50 (26%)
ADJUSTED (b)	53.9%	61.6%	53.8%	66.3%
TERMINAL (d)	9/22 (41%)	7/14 (50%)	3/11 (27%)	2/7 (29%)
FIRST INCIDENCE (DAYS)	587	552	481	466
STATISTICAL TESTS (f)				
LIFE TABLE	P=0.047 *	P=0.395	P=0.442	P=0.059
INCIDENTAL TUMOR	P=0.458	P=0.570	P=0.246N	P=0.538
LOGISTIC REGRESSION	P=0.402	P=0.537N	P=0.377N	P=0.462
COCHRAN-ARMITAGE	P=0.228N			
FISHER EXACT		P=0.333N	P=0.189N	P=0.257N
All Organs Malignant and Benign Tumors				
TUMOR RATES	#	#	#	#
OVERALL (a)	43/50 (86%)	38/50 (76%)	32/50 (64%)	39/50 (78%)
ADJUSTED (b)	97.7%	97.2%	93.7%	100.0%
TERMINAL (d)	21/22 (95%)	13/14 (93%)	9/11 (82%)	7/7 (100%)
FIRST INCIDENCE (DAYS)	468	372	481	464
STATISTICAL TESTS (f)				
LIFE TABLE	P<0.001 **	P=0.164	P=0.238	P<0.001 **
INCIDENTAL TUMOR	P=0.319	P=0.467N	P=0.046N*	P=0.479
LOGISTIC REGRESSION	P=0.235	P=0.385N	P=0.093N	P=0.325
COCHRAN-ARMITAGE	P=0.217N			
FISHER EXACT		P=0.154N	P=0.010N**	P=0.218N

STATISTICAL ANALYSIS OF PRIMARY TUMORS IN MALE RATS(WISTAR OUTBRED) -- PYRIDINE

TERMINAL SACRIFICE AT 104 WEEKS

(a) Number of tumor-bearing animals / number of animals examined at site.
(b) Kaplan-Meier estimated lifetime tumor incidence after adjustment for intercurrent mortality.
(d) Observed incidence at terminal kill.
(f) Beneath the control incidence are the P-values associated with the trend test. Beneath the dosed group incidence are the P-values corresponding to pairwise comparisons between the controls and that dosed group. The life table analysis regards tumors in animals dying prior to terminal kill as being (directly or indirectly) the cause of death. The incidental tumor test regards these lesions as non-fatal. Logistic regression is an alternative method for analyzing the incidence of non-fatal tumors. The Cochran-Armitage and Fisher's exact tests compare directly the overall incidence rates. For all tests, a negative trend is indicated by "N".
(e) Value of Statistic cannot be computed.
(I) Interim sacrifice
(T) Terminal sacrifice
Tumor rates based on number of animals necropsied.

* To the right of any statistical result, indicates significance at (P<=0.05).
** To the right of any statistical result, indicates significance at (P<=0.01).

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Data produced 8 (Month) 27 (Day) 98 (Year) Barbara Smith Camera Operator

Place Syracuse (City) New York (State)

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