



FYI-12020442

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

National Institutes of Health
National Institute of
Environmental Health Sciences
P. O. Box 12233
Research Triangle Park, NC 27709

Document Control Office
Attn: TSCA Section 8(e)
East Tower Room G99
Ofc. of Pollution Prevention & Toxics
401 M St., S.W.
Washington, DC 20460-0001

December 12, 2002

Contain NO CBI

RECEIVED
OPPT ODIC
2002 DEC 24 AM 6:09

Dear Document Control Office:

In compliance with the National Toxicology Program's (NTP) mission to keep our colleagues informed of the current NTP findings during ongoing studies, a copy of the Pathology Working Group (PWG) report and the Summary Pathology Tables for the chronic Gavage study on TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD) (1746-01-6) 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 Pathology 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.

RECEIVED
OPPT NCIC
2003 JAN - 8 AM 9:50



FYI-02-001442

Contain NO CBI



84030000009

65293

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,

A handwritten signature in cursive script that reads "William Eastin".

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

Encls: PWG Report and Pathology Summary Tables for Rats
cc: Central Data Management



PATHOLOGY ASSOCIATES
A CHARLES RIVER COMPANY

RECEIVED
OPPT CBIC

2002 DEC 24 AM 6:09

Toxic Equivalency Factor Evaluation

1746-01-6

PATHOLOGY WORKING GROUP
CHAIRPERSON'S REPORT

PWG CHAIR 2002
C96007G

CHRONIC TOXICITY AND
CARCINOGENICITY STUDY OF
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN
(TCDD) (C96007G)
IN FEMALE HARLAN SPRAGUE DAWLEY RATS
ADMINISTERED BY ORAL GAVAGE

Prepared by:

Micheal P. Jokinen, DVM
Pathology Working Group Chairperson

Pathology Associates International
4915D Prospectus Drive
Durham, NC 27713

RECEIVED
OPPT NCIC
2003 JAN - 8 AM 9:52

Submitted to:

National Toxicology Program/NIEHS
Research Triangle Park, NC

September 16, 2002

The pathologist performing this review, Dr. Micheal P. Jokinen, has had no involvement with any laboratory or organization concerned with this study other than NTP, and has not been involved in the origination or any previous review of data from this study.

PATHOLOGY WORKING GROUP CHAIRPERSON'S REPORT

Chronic toxicity and carcinogenicity study of 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) in female Harlan Sprague-Dawley rats

Participants: Drs. M. Jokinen (PAI - PWG Chairperson), A. Brix (EPL-QAP), K.Cimon (EPL), G. Flake (NIEHS), J. Hailey (NIEHS), B. Hamilton (GlaxoSmithKline), R. Herbert (NIEHS), R. Maronpot (NIEHS), J. Nold (GlaxoSmithKline), A. Nyska (NIEHS), D. Sells (Battelle Columbus-SP)

Date: June 18, 2002

Site: NIEHS, Research Triangle Park, NC

The PWG was convened to evaluate selected slides from the two year gavage study of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in female Harlan Sprague-Dawley rats. A preliminary Special PWG had been held on September 5, 2001 to standardize terminology to be used during the QA review and for future studies.

Due to the large number of slides to be reviewed the PWG recommended that some of the slides be reviewed later by a smaller group of pathologists rather than all being reviewed by the PWG. Consequently, a number of disagreements over miscellaneous lesions were reviewed and resolved by Drs. Jokinen and Nyska on June 26, 2002, and a number of liver slides and some lung slides were reviewed during a Special PWG held on June 27, 2002. Participants in the Special PWG were Drs. M. Jokinen (PAI - PWG Chairperson), A. Brix (EPL-QAP), J. Hailey (NIEHS), and A. Nyska (NIEHS). The findings of the review by Drs. Jokinen and Nyska and of the Special PWG are included in this report.

Animals were sacrificed for interim evaluation at 14 weeks, 31 weeks, and 53 weeks after the beginning of the study, and the remaining animals were sacrificed at study termination at two years. A high dose (100 ng/kg) stop study group was included in which animals were dosed for 30 weeks, given vehicle only for the remainder of the study, and sacrificed at study termination at two years. Dose levels (in ng/kg) and numbers of animals examined microscopically per dose group at each interim sacrifice and at the two year terminal sacrifice were as follows:

	0 ng/kg	3 ng/kg	10 ng/kg	22 ng/kg	46 ng/kg	100 ng/kg	100* ng/kg
14-Wk	10	10	10	10	10	10	0
31-Wk	10	10	10	10	10	10	0
53-Wk	8	8	8	8	8	8	0
2-Yr	53	54	53	53	53	53	50

* Stop Study

The study was conducted at Battelle Columbus. The Study Pathologist (SP) was Dr. D. Sells and the Quality Assessment Pathologist (QAP) was Dr. A. Brix of EPL.

A number of organs were considered to be potential target organs and were reviewed by the QAP for all diagnoses, neoplastic and nonneoplastic. All neoplasms from all organs from all animals were also reviewed. The following were considered potential target organs and were reviewed from **all sacrifices** (14, 31, and 53 week and terminal sacrifices, including stop exposure group).

Liver
Lung
Pancreas
Adrenal Cortex

The following organs were reviewed from all animals from **all sacrifices** (14, 31, and 53 week and terminal sacrifice, including stop exposure group) for the specific diagnosis listed.

Thymus – Atrophy

The following organs were reviewed from all animals from the **terminal sacrifice** (including the stop exposure group) for the specific diagnoses listed.

Mesentery, Artery – Inflammation, Chronic Active
Oral Mucosa, Gingival – Squamous Cell Carcinoma
Oral Mucosa, Gingival – Hyperplasia, Squamous
Stomach, Forestomach – Hyperplasia, Squamous
Stomach, Forestomach – Inflammation
Stomach, Forestomach -- Ulcer
Heart – Cardiomyopathy
Thyroid Gland, Follicle -- Atrophy
Clitoral Gland, Duct – Cyst
Uterus – Squamous Cell Carcinoma
Uterus – Squamous Cell Carcinoma, Multiple
Uterus – Squamous Cell Papilloma
Uterus – Metaplasia, Squamous
Lymph Node, Mandibular – Ectasia
Nose, Turbinate -- Inflammation
Kidney – Nephropathy
Kidney, Papilla, Transitional Epithelium – Hyperplasia
Kidney, Pelvis, Transitional Epithelium – Hyperplasia
Urinary Bladder, Transitional Epithelium -- Hyperplasia

The following organs were reviewed from animals from the **53-week interim sacrifice** when the specific diagnoses listed were present.

Uterus, Endometrium – Cyst
Uterus, Endometrium – Hyperplasia, Cystic

The following organs were reviewed from animals from the **terminal sacrifice** (including stop exposure group) when the specific diagnoses listed were present.

Stomach, Forestomach – Necrosis

Nose, Turbinate, Septum, Respiratory Epithelium – Hyperplasia

Nose, Turbinate, Respiratory Epithelium -- Hyperplasia

Lung – Adenoma

Kidney – Hydronephrosis

Kidney, Pelvis – Dilatation

Ovary, Corpus Luteum – Atrophy

Ovary – Atrophy

Uterus, Endometrium – Hyperplasia, Cystic

Uterus, Epithelium – Hyperplasia

SUMMARY OF PWG FINDINGS

Liver

Cholangiocarcinoma and **Cholangiocarcinoma, Multiple** occurred with moderately high combined incidence in the 100 ng/kg group and with lower incidences in the 22, and 46 ng/kg groups and in the 100 ng/kg stop exposure group.

Hepatocellular Adenoma and **Hepatocellular Adenoma, Multiple** occurred in treated groups, particularly in the 100 ng/kg group, and **Hepatocholangioma** was observed in a few treated animals. **Cholangioma** occurred in one stop study animal.

Incidences of several nonneoplastic liver lesions were increased in treated groups as compared with controls, with the greatest increase being in the 1000 ng/kg group. These lesions included **Cholangiofibrosis, Eosinophilic Focus, Fatty Change, Inflammation, Necrosis, Pigmentation, Bile Duct Cyst, Bile Duct Hyperplasia, Oval Cell Hyperplasia, Multinucleated Hepatocyte, Hepatocyte Hypertrophy, and Portal Fibrosis.**

Lung

Cystic Keratinizing Epithelioma and **Cystic Keratinizing Epithelioma, Multiple** occurred in a few animals in the 100 ng/kg group.

Squamous Metaplasia occurred in a few animals in the 46 and 100 ng/kg groups and in the stop study group, as well as in one control animal.

Bronchiolar Metaplasia of the alveolar epithelium occurred with higher incidence in all treated groups, including the stop exposure group, as compared with controls.

Gingival Oral Mucosa

Squamous Cell Carcinoma occurred in one to few animals in each of the treated groups except the 22 ng/kg group, and in the stop exposure group. The incidence was highest in the 100 ng/kg group. Squamous Cell Carcinoma was also present in one control animal.

Uterus

Squamous Cell Carcinoma occurred in a few animals in the 10 and 46 ng/kg groups and in the stop study group.

Incidences of **Cystic Endometrial Hyperplasia** and **Squamous Metaplasia** were lower in the 100 ng/kg group than in the other dose groups and controls.

Acinar Pancreas

Carcinoma or **Adenoma** occurred in a few 100 ng/kg or stop study group animals.

Incidences of **Atrophy, Chronic Active Inflammation** (generally seen in association with atrophy), **Cytoplasmic Vacuolization**, and **Artery, Chronic Active Inflammation** were increased in treated groups, particularly in the 100 ng/kg group, as compared with controls.

Adrenal Cortex

The incidences of **Atrophy, Hyperplasia**, and **Cytoplasmic Vacuolation** of the adrenal cortex were increased in treated groups, particularly in the 100 ng/kg group, as with compared controls.

Kidney

The incidence and/or average severity of **Nephropathy** was increased in the 22, 46, and 100 ng/kg groups and the stop study group, as compared with controls.

Incidences of **Transitional Epithelium Hyperplasia** were also increased in treated groups.

Heart

The incidence of **Cardiomyopathy** was increased in all treated groups, including the stop study group, as compared with controls. The highest incidences occurred in the 46 and 100 ng/kg dose groups.

Thyroid Gland

Follicular Cell Hypertrophy occurred with increased incidences in the interim and terminal sacrifice treated groups, as compared with controls. The incidence was greatest in the 100 ng/kg group.

Mesentery

Artery Chronic Active Inflammation occurred in one or more animals in the 3, 46, and 100 ng/kg groups and in the stop exposure group. Incidences were highest in the 100 ng/kg group.

Thymus

Atrophy occurred with greater incidence and/or average severity, as compared with controls, in the interim sacrifice and terminal sacrifice groups, including the stop exposure group. The incidence and/or average severity was greatest in the 100 ng/kg group.

Clitoral Gland

The incidences of **Duct Cyst** were increased in treated groups, and the incidence was highest in the 100 ng/kg group as compared with controls.

Stomach, Forestomach

Squamous Hyperplasia occurred with somewhat greater incidence in the 46 and 100 ng/kg groups as compared with controls.

Inflammation occurred with a slightly higher incidence in the 100 ng/kg group and the stop study group as compared with the other groups.

Mandibular Lymph Node

Ectasia occurred in a few animals in the 46 and 100 ng/kg groups and in the stop study group.

Ovary

Atrophy was observed with lower incidence in the 100 ng/kg group as compared with the other treated groups and controls.

Urinary Bladder

Transitional Epithelial Hyperplasia occurred with greater incidence in the 46 ng/kg group as compared with the other treated groups and controls. In nearly every case the bladder contained inflammation and the hyperplasia appeared to be secondary to the inflammation.

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

LIVER

The SP diagnosed increased incidences of a number of neoplastic and nonneoplastic lesions in treated groups. These lesions generally occurred with greatest incidence in the 100 ng/kg group but many also occurred, generally with lower incidences, in other treated groups. The SP's findings were confirmed by the QA/PWG review. Neoplastic lesions included **Cholangiocarcinoma, Multiple Cholangiocarcinoma, Hepatocellular Adenoma, Multiple Hepatocellular Adenoma, Hepatocholangioma** (in a few treated animals), and **Cholangioma** (in one stop study animal). Nonneoplastic lesions included **Cholangiofibrosis, Eosinophilic Focus, Fatty Change, Inflammation, Necrosis, Pigmentation, Bile Duct Cyst, Bile Duct Hyperplasia, Oval Cell Hyperplasia, Multinucleated Hepatocyte, Hepatocyte Degeneration, Hepatocyte Hypertrophy, Cytoplasmic Alteration, and Portal Fibrosis**. In addition, at the direction of the special preliminary PWG, the QAP added diagnoses of **Toxic Hepatopathy and Regeneration**, which were confirmed by the PWG Chair.

The PWG examined nearly all diagnosed hepatocellular neoplasms (hepatocellular adenoma and carcinoma) and in many instances considered the lesion diagnosed as adenoma to represent either a focus or area of regeneration. The PWG also reviewed examples of cholangiocarcinoma, and various nonneoplastic lesions and confirmed the diagnoses. The microscopic appearance of the various liver lesions is described below.

Cholangioma was a well demarcated mass consisting of multiple, densely packed, irregular, bile duct structures, some of which were moderately dilated, within a small amount of fibrous stroma. The bile duct structures were composed of a single layer of densely packed, columnar, somewhat pleomorphic, but otherwise relatively normal-appearing, bile duct epithelial cells. **Cholangiocarcinoma** consisted of an irregular, relatively large, non-circumscribed lesion that replaced normal liver parenchyma. The lesion consisted of fibrous connective tissue stroma containing numerous atypical bile ducts, which frequently contained mucinous material and cellular debris. The epithelium forming the atypical bile ducts was often discontinuous, consisted usually of large atypical cells, and displayed degenerative changes. Mitotic figures and localized invasion of adjacent liver parenchyma were also observed. **Cholangiofibrosis** appeared similar to cholangiocarcinoma but was a much smaller, well demarcated lesion which did not show evidence of localized invasion

Hepatocellular Adenoma was a nodular mass that usually was larger than a focus, had a distinct border, and produced compression of surrounding normal parenchyma. Adenoma was composed of a rather uniform population of mildly to moderately pleomorphic hepatocytes that generally were normal size or slightly larger than normal hepatocytes and were arranged in abnormal lobular

patterns. The hepatic cords within an adenoma usually intersected the surrounding normal hepatic cords at an oblique angle or sometimes even at a right angle. A few small proliferating bile ducts or oval cells were sometimes seen, but generally an adenoma did not contain mature bile ducts, portal areas, or large blood vessels.

Eosinophilic Focus was characterized by a focus of hepatocytes with altered tinctorial properties. Eosinophilic Focus was composed principally of cells with eosinophilic cytoplasm. To be classified as an Eosinophilic Focus at least 80% of the cells within the focus had to be eosinophilic cells, otherwise the focus was classified as a **Mixed Cell Focus**. Mixed cell focus was composed of a mixture of cells with different staining properties, generally a mixture of eosinophilic cells and cells with clear cytoplasm (clear cells). The margins of the focus were distinct, but the hepatic cords generally merged imperceptibly with the surrounding hepatic cords. A few foci had a more definite border and the cords within the focus were not always smoothly continuous with those in the surrounding parenchyma. In addition, some larger foci caused variable degrees of compression of the surrounding hepatic parenchyma. Hepatocytes within foci were generally somewhat larger than normal but appeared otherwise normal. The cells were arranged in a relatively normal lobular pattern and foci sometimes contained large blood vessels and/or portal areas.

Regeneration was characterized by areas of focal hypertrophy and hyperplasia of hepatocytes and was considered to represent an attempt by the liver to compensate for hepatocyte damage due to toxicity. Regeneration was characterized by multiple, small to large, nodular foci generally composed of hepatocytes that were considerably larger than normal hepatocytes (hepatocyte hypertrophy) sometimes mixed with areas of increased numbers of small hepatocytes (hepatocyte hyperplasia). The cells within regeneration usually were very large, larger than cells seen within adenomas and usually larger than cells seen within foci, with abundant eosinophilic cytoplasm, and often with variable degrees of cytoplasmic vacuolation. In a few areas of regeneration, however, the cells were of more normal size. The cells appeared to be arranged in normal cords, but the cells often were so large as to obscure the sinusoids between the cords giving the appearance of solid sheets of hepatocytes. Proliferating bile ducts, indicative of a regenerative response, and portal areas were usually present within regeneration. The presence of large, hypertrophic, vacuolated hepatocytes together with portal areas and/or proliferating bile ducts were considered to be characteristic of regeneration. However, in those cases in which the hepatocytes were more normal sized, the presence of portal areas and/or proliferating bile ducts served to differentiate a focus of regeneration from focus or adenoma. Areas of regeneration often blended with the surrounding parenchyma. However, large, multinodular areas of regeneration were sometimes seen that caused compression of surrounding tissue, and/or bulging of the capsular surface. The opinion of the PWG was that since this lesion is included as part of toxic hepatopathy, which is graded, there was no need to grade the severity of regeneration. Therefore, this change was not graded but rather just recorded as being present.

The QAP had changed a number of diagnoses of foci made by the SP to regeneration. The PWG Chair concurred with the QAP. In addition, the PWG Chair noted a number of additional cases of regeneration that had been diagnosed by foci by the SP but had not been changed by the QAP. The PWG Chair showed a number of these to the PWG which agreed with the PWG Chair's diagnoses of regeneration. Consequently, in the remaining cases in which the PWG Chair diagnosed regeneration instead of focus, the diagnosis should be changed from focus to regeneration.

Hepatocyte Hypertrophy was characterized by enlarged hepatocytes with increased amounts of cytoplasm. In hypertrophy of minimal severity periportal hepatocytes often had deeply eosinophilic cytoplasm while centrilobular hepatocytes had clearer, paler cytoplasm. In more severe hypertrophy hepatocytes were diffusely enlarged with abundant eosinophilic cytoplasm. The SP had diagnosed the hypertrophy using the diagnosis **Hepatocyte, Periportal -- Hypertrophy**. The PWG examined some representative examples and noted that in some instances the periportal hepatocytes appeared to be primarily involved while in other livers the centrilobular hepatocytes were also involved. Consequently, the PWG concluded that the hypertrophy was not confined simply to periportal hepatocytes and recommended that the diagnosis of **Hepatocyte, Periportal -- Hypertrophy** be deleted and replaced with the more general diagnosis **Hepatocyte -- Hypertrophy** in all of the studies in this group.

Multinucleated Hepatocytes was characterized by scattered hepatocytes that were enlarged and contained multiple (more than 2 and often 4-6) nuclei. The presence of binucleated hepatocytes was not sufficient to make this diagnosis. This lesion had been called Cellular Atypia by the SP but at the special preliminary PWG it was decided that the diagnosis of Multinucleated Hepatocytes was more appropriate.

Inflammation was generally a minor change consisting of accumulation of mononuclear cells (predominantly lymphocytes and plasma cells, with occasional macrophages) most often within portal areas but also sometimes randomly scattered throughout the liver.

Bile Duct Hyperplasia consisted of increased numbers of portal bile ducts.

Oval Cell Hyperplasia consisted of small ovoid cells with basophilic cytoplasm and a round to ovoid nucleus that were arranged in single or double rows and located predominantly in the portal areas.

Pigmentation consisted of light brown to golden pigment present within macrophages and occasionally hepatocytes. The pigmented macrophages were often seen in portal areas but were also seen scattered randomly within the liver.

Toxic Hepatopathy was a diagnosis added by the QA pathologist during the QA review that included all nonneoplastic liver changes under one overall term. The severity of the toxic hepatopathy was graded in order to give one overall severity grade for the degree of toxicity in a liver. The purpose of this was to allow for easier comparison of the degree of toxic change among different dose groups than would be possible if the severities of all the individual nonneoplastic changes had to be compared among the different groups. This diagnosis was used in addition to, not instead of, any of the nonneoplastic diagnoses already made. The changes included under the diagnosis included focal cellular alteration, multinucleated hepatocytes, cystic degeneration, fatty change, inflammation, necrosis, pigmentation, regeneration, bile duct cysts, bile duct hyperplasia, hepatocyte degeneration, hepatocyte hypertrophy, oval cell hyperplasia, and portal fibrosis. Some treated animals occasionally had just a few of these changes present but this was not considered to be sufficient liver involvement to warrant a diagnosis of toxic hepatopathy.

Bile Duct Cyst was characterized by either single or multiple dilated bile ducts that were lined by attenuated epithelium.

Bile Duct Fibrosis was characterized by accumulation of fibrous connective tissue surrounding bile ducts. It was sometimes accompanied by a decrease in the height or number of epithelial cells lining the ducts, and by bile duct hyperplasia.

Portal Fibrosis consisted of fibrous connective tissue accumulation that extended between adjacent portal areas.

Necrosis consisted of scattered necrotic areas of hepatic parenchyma that were often randomly distributed, but occasionally, in more severe cases, were distributed more diffusely.

Cytoplasmic Alteration was a diffuse hepatocyte change in which the hepatocytes were enlarged with clear cytoplasm, consistent with glycogen storage.

Focal or Diffuse Fatty Change was generally a minor change consisting of discrete clear vacuoles (consistent with lipid) in the cytoplasm of hepatocytes and involving either foci of hepatocytes (focal fatty change) or scattered diffusely throughout the liver (diffuse fatty change).

Hepatocyte Degeneration consisted of loss of hepatocytes with remaining hepatocytes appearing either atrophied (small with decreased cytoplasm), vacuolated, or undergoing individual cell necrosis. Degeneration generally affected centrilobular hepatocytes.

Hepatocyte Cytoplasmic Vacuolation was present in a few 100 ng/kg and stop study animals, and consisted of small discrete vacuoles within the hepatocyte cytoplasm which gave the cytoplasm a fine, lace-like appearance.

Cystic Degeneration was present in 22 and 100 ng/kg animals and consisted of focal areas of cystic spaces or greatly enlarged hepatocytes filled with lightly eosinophilic, often vacuolated material.

LUNG

Cystic Keratinizing Epithelioma and Cystic Keratinizing Epithelioma, Multiple occurred in a few animals in the 100 ng/kg group. **Cystic keratinizing epithelioma** sometimes occurred singly but more commonly occurred as multiple lesions within the same lung. They ranged from relatively small to large lesions that replaced much of the normal lung parenchyma. They consisted of cystic structures composed of a highly irregular wall of highly keratinized stratified squamous epithelium and a center filled with keratin. The outer portion of the lesion grew by expansion into the adjacent lung but evidence of invasion was not observed. The SP had diagnosed these lesions as Squamous Cell Carcinoma but during the preliminary PWG it was decided these lesions presented Cystic Keratinizing Epithelioma rather than Squamous Cell Carcinoma.

Squamous Metaplasia occurred in a few animals in the 46 and 100 ng/kg groups and in the stop study group, as well as in one control animal. It was generally a minor change consisting of one or more small, irregular foci of keratinizing stratified squamous epithelium that had replaced the normal alveolar epithelium.

Bronchiolar Metaplasia of the alveolar epithelium occurred in treated groups with the highest incidences present in the 46 and 100 ng/kg groups. The lesion often diffusely affected the epithelium located near the terminal bronchioles at the bronchiolar-alveolar junction and the adjacent alveoli, although in cases of lesser severity it consisted of a multifocal rather than diffuse change. Bronchiolar metaplasia consisted of replacement of the normal alveolar epithelium by cuboidal to columnar, sometimes ciliated cells, and was often accompanied by prominent mucus production in the affected areas. Aggregates of large alveolar macrophages were sometimes present in the areas of bronchiolar metaplasia. Bronchiolar Metaplasia had been diagnosed as Alveolar Epithelial Hyperplasia by the SP, but during the special preliminary PWG it was decided that the term Bronchiolar Metaplasia was more appropriate. The QAP had retained a number of the SP's diagnoses of Alveolar Epithelial Hyperplasia in treated animals that were considered by the PWG Chair to represent Bronchiolar Metaplasia. The PWG examined some representative examples and concurred with the PWG Chair's diagnoses.

A number of control animals had a lung change that had some similarities to bronchiolar metaplasia in treated animals, and which had also been diagnosed as

Alveolar Epithelial Hyperplasia by the SP. This change in controls was also characterized by extension of cuboidal bronchiolar epithelial cells into adjacent alveoli. However, unlike bronchiolar metaplasia in treated animals, prominent mucus production was not observed and a very prominent inflammatory cell infiltrate, consisting of large aggregates of alveolar macrophages commonly mixed with focal aggregates of neutrophils, was usually associated with the affected areas. Representative lungs from treated and control animals were examined by the special PWG. After careful examination the PWG found that the control and treated lungs could be readily separated by the prominent inflammatory component seen in controls but not in treated animals, and the prominent mucus production seen in treated animals but not in controls. Consequently, the PWG concluded it was most appropriate to retain the SP's diagnoses of **Alveolar Epithelial Hyperplasia** in control animals to differentiate the change in controls from that seen in treated animals. It was interesting to note that the degree of inflammation in the control lungs appeared to be greater than in lungs of treated animals.

As a post-PWG action item the special PWG recommended staining the lungs from the control and high dose animals with Alcian Blue and Periodic Acid Schiff (PAS) stains to detect the presence of mucus. These slides were examined by Dr. A. Nyska of NIEHS and by the PWG Chair who both found that, overall, the amount of mucus in the treated lungs was greater than that seen in the control lungs, thus confirming the findings of the special PWG participants.

Aggregates of large, clear alveolar histiocytes, a change diagnosed as **Hyperplasia, Histiocytic** by the SP, were often present in areas of bronchiolar metaplasia, although histiocyte aggregates were also seen that were not associated with bronchiolar metaplasia and were also present in control lungs. The PWG examined an example of histiocytic hyperplasia diagnosed by the SP and considered the diagnosis **Infiltrate Cellular, Histiocyte** to be more appropriate. The PWG recommended that the term Hyperplasia, Histiocytic be replaced with Infiltrate Cellular, Histiocyte in all of the studies in this group.

The PWG examined examples of cystic keratinizing epithelioma, squamous metaplasia, and bronchiolar metaplasia and in each case confirmed the diagnosis.

GINGIVAL ORAL MUCOSA

Squamous Cell Carcinoma occurred in one to few animals in each of the treated groups except the 22 ng/kg group, in the stop study group, and in one control animal. The incidence was highest in the 100 ng/kg group. Squamous cell carcinoma occurred within the oral mucosa of the palate and was located adjacent to the incisor tooth in nasal section III. Squamous cell carcinoma was characterized by irregular cords and clusters of stratified squamous epithelial cells that invaded deep into the underlying connective tissue and often invaded the bone of the maxilla.

Squamous Hyperplasia occurred in few to several animals in each of the treated groups, as well as in one control animal. It was a focal lesion that occurred in the stratified squamous epithelium of the gingival oral mucosa adjacent to the incisor teeth in nasal section III. It consisted of varying degrees of thickening of the epithelium, often with the formation of epithelial rete pegs that extended a short distance into the underlying connective tissue. Ends of hair shafts and/or some degree of inflammation were often present in the areas of squamous hyperplasia suggesting, at least in these cases, the hyperplasia was secondary to the presence of the hair shafts and associated inflammation.

The PWG examined an example of squamous cell carcinoma and confirmed the diagnosis. In addition, the PWG also examined a few lesions in which there was a question as to whether the lesion represented marked squamous hyperplasia or squamous cell carcinoma; the PWG consensus for these lesions can be found on the Slide Review Worksheets attached to this report. It was unclear whether there was an association between squamous hyperplasia and squamous cell carcinoma.

UTERUS

Squamous Cell Carcinoma occurred in the uterus of a few animals in the 10 and 42 ng/kg groups and in the stop study group. Squamous cell carcinoma occurred on the endometrial surface, often caused dilatation of the uterus, and was characterized by irregular cords and clusters of atypical stratified squamous epithelial cells that invaded the underlying myometrium.

Incidences of **Cystic Endometrial Hyperplasia** and **Squamous Metaplasia** were lower in the 100 ng/kg group than in the other dose groups and controls. The significance of these findings was unclear. Cystic Endometrial Hyperplasia was most commonly a minimal to mild change and had the typical appearance of this lesion, which is seen as a spontaneous aging change. It consisted of hypercellularity of the endometrial epithelium combined with varying degrees of dilatation of uterine glands and the uterine lumen. The SP had made several diagnoses of Epithelium – Hyperplasia, generally in addition to Cystic Endometrial Hyperplasia; the PWG Chair considered the epithelial hyperplasia to be part of the cystic endometrial hyperplasia. Representative examples were reviewed, the PWG Chair's findings were confirmed, and the SP's diagnoses of epithelial hyperplasia were deleted. Squamous metaplasia was generally a minimal to mild, multifocal change consisting of tubular structures within the endometrium that were lined by stratified squamous epithelium.

ACINAR PANCREAS

Adenoma and **Carcinoma** of the acinar cells occurred in a few animals in the 100 ng/kg and the stop study groups. Incidences of **Atrophy**, **Chronic Active Inflammation**, **Cytoplasmic Vacuolization**, and **Artery Chronic Active Inflammation** were increased in treated groups, particularly in the 1000 ng/kg group, as compared with controls.

Adenoma was characterized microscopically by a discrete mass consisting of tubular and acinar structures composed of small acinar cells with brightly eosinophilic cytoplasm and lacking zymogen granules. In contrast, **Carcinoma** was a large, multinodular lesion, with moderate amounts of dense fibrous stroma. One of the carcinomas had metastasized. Carcinomas were composed of densely packed clusters of poorly formed acinar structures consisting of small acinar cells with prominent vesicular nuclei and small amounts of eosinophilic cytoplasm with indistinct borders. Scattered solid areas composed of densely packed, highly pleomorphic, round to ovoid acinar cells with large vesicular nuclei and scant cytoplasm were also seen.

Atrophy was a focal to multifocal to diffuse change consisting of a reduction in the amount of acinar tissue with an associated increase in stromal fibrous connective tissue. **Chronic Active Inflammation** was seen in association with Atrophy in a small number of treated animals and consisted of an infiltrate of mononuclear cells and a few neutrophils within the stroma. **Cytoplasmic Vacuolation** consisted of small, clear, discrete intracytoplasmic vacuoles within pancreatic acinar cells. Sometimes these vacuoles coalesced to form larger single vacuoles. The severity of the change was determined by the degree of vacuolization per cell and the amount of tissue involved. **Artery Chronic Active Inflammation** was a focal to multifocal change characterized by a thick mantle of macrophages, lymphocytes and plasma cells around the arteries, with infiltration into the muscular layers of the artery. There was often fibrinoid necrosis of the vessel, and the tunica intima was frequently thickened. Endothelial cells were swollen, or decreased in number. This inflammatory reaction often extended into the surrounding parenchyma.

There was very good agreement among the SP, QAP, and PWG Chair concerning the presence of the above changes in the acinar pancreas. All of the acinar pancreatic neoplasms were reviewed and the diagnoses confirmed. A few cases of minimal cytoplasmic vacuolation and a case of minimal atrophy were reviewed and the diagnoses confirmed.

ADRENAL CORTEX

Adenoma and **Carcinoma** of the adrenal cortex occurred in one to few animals in several of the groups. Incidences of **Atrophy** and **Hyperplasia** of the adrenal cortex were increased in treated groups, particularly in the 46 and 100 ng/kg groups. In addition, incidences of **Cytoplasmic Vacuolation** were increased in some treated groups, particularly the 100 ng/kg group.

Hypertrophy, and **Cystic Degeneration** occurred relatively frequently in all dose groups, including controls. The PWG examined examples of atrophy, and hyperplasia and confirmed their presence. The PWG also examined some slides in which there was a difference of opinion as to whether a lesion represented cortical adenoma. The QAP had added a number of diagnoses of Angiectasis to animals in the interim sacrifice groups. The PWG Chair did not

concur with the QAP's diagnoses. The PWG examined a representative example and agreed that Angiectasis was not present and recommended not adding the QAP's diagnoses of Angiectasis.

Cortical Adenoma was a large, discrete lesion that replaced glandular parenchyma and caused compression of the remaining normal tissue. Adenoma was distinguished from hypertrophy or hyperplasia by the fact that adenoma consisted of somewhat atypical cortical cells that were arranged in abnormal patterns, rather than consisting of normal appearing cells arranged in the normal cord pattern as was the case with hypertrophy and hyperplasia. Large adenomas replaced much of the gland and caused enlargement of the gland. In contrast, **Cortical Carcinoma** was larger than adenoma, consisted of highly atypical cells arranged in highly abnormal patterns. Invasion through the capsule into adjacent tissue was also present. Carcinomas replaced much of the gland and caused enlargement of the gland.

Cortical Atrophy was a locally extensive to diffuse change characterized by loss of cortical epithelial cells within the zona fasciculata and zona reticularis with a subsequent reduction in cortical thickness. The zona glomerulosa was spared. The remaining cells were sometimes vacuolated, especially in the more severe lesions. In severe cases the entire cortex was considerably reduced in thickness resulting in a smaller gland that often was surrounded by thickened capsule.

Cortical Hyperplasia was a focal to multifocal change, generally located in the zona fasciculata, consisting of a discrete area containing increased numbers of cortical cells. The hyperplastic cells were the same size or somewhat smaller than surrounding normal cortical cells, and had slightly basophilic cytoplasm. In some cases, especially with large lesions, there was compression of the surrounding tissue. However, these lesions were distinguishable as hyperplasia by the fact that the cells still formed normal cords, particularly in the upper zona fasciculata. Cortical hypertrophy and hyperplasia frequently occurred in the same gland.

Cortical Cytoplasmic Vacuolation was a focal to multifocal to diffuse change consisting of small, discrete, clear intracytoplasmic vacuoles. Sometimes the cytoplasm contained a large single vacuole that displaced the nucleus. The changes were morphologically consistent with the accumulation of lipid. Cytoplasmic vacuolation occurred mostly commonly within foci of hypertrophy.

Cortical Hypertrophy was a focal to multifocal lesion consisting of discrete foci of enlarged cortical epithelial cells within the zona fasciculata and, in more severe cases, extending into the zona reticularis. Large lesions sometimes compressed adjacent parenchyma. However, these lesions were distinguishable as hypertrophy due to the fact that the cells still formed normal cords, particularly in the upper zona fasciculata. Cortical hypertrophy and hyperplasia frequently occurred in the same gland.

Cortical Cystic Degeneration was a focal to multifocal, unilateral to bilateral lesion consisting of variably sized endothelial-lined spaces, usually containing blood and occasionally thrombi, that were located in the zona fasciculata and reticularis. Larger lesions compressed or replaced adjacent parenchyma.

KIDNEY

The incidence and/or average severity of **Nephropathy** was increased in some treated groups, particularly the 100 ng/kg group, as compared with controls. The incidence of **Transitional Epithelium Hyperplasia** was also increased in some treated groups. The significance of this was unclear as it did not appear to correlate with the increased severity of nephropathy since the animals with hyperplasia often had minimal nephropathy. Since there was very good agreement among the SP, QAP, and PWG Chair concerning the presence of nephropathy and transitional epithelium hyperplasia, the PWG opted not to review any examples. The SP had diagnosed the transitional cell hyperplasia under two different sites, Pelvis Transitional Epithelium Hyperplasia, and Papilla Transitional Epithelium Hyperplasia. It was decided during the special preliminary PWG that it was most appropriate to combine these two under the one diagnosis of Transitional Epithelium Hyperplasia.

Nephropathy was generally a minimal to mild change, although sometimes moderate to marked nephropathy was seen. It had the typical appearance of this lesion as seen in aging rats, and was similar to that observed in Fischer rats. Nephropathy was characterized by scattered foci of regenerative tubules lined by basophilic epithelium and sometimes surrounded by increased basement membrane, dilated tubules filled with proteinaceous casts and surrounded by fibrous connective tissue, and scattered foci of mixed inflammatory cells. Severity was graded based upon the number and extent of changes described above. Minimal nephropathy was characterized by small numbers of scattered affected tubules, usually involving less than 10% of the renal tubules. On the other extreme, marked nephropathy involved approximately 50-60% or more of the tubules. **Transitional Epithelium Hyperplasia** was sometimes focal to multifocal, but generally a diffuse, usually minimal to mild change consisting of varying degrees of thickening of the renal pelvic or papillary epithelium up to approximately 1.5-2 times normal thickness.

HEART

The incidence of **Cardiomyopathy** was increased in treated groups, especially in the 46 and 100 ng/kg groups, as well as the stop study group, as compared with controls. **Cardiomyopathy** had the typical microscopic appearance of this lesion as seen in aging rats, and appeared similar to cardiomyopathy seen in aging Fischer rats. It was a multifocal, generally minimal to mild lesion consisting of hypereosinophilic myofibers that lacked cross striations, infiltrates of mononuclear cells, separation of myofibers by myxomatous material (bluish material on H&E stain), and eventual replacement of myofibers by fibrous connective tissue. The severity was graded based upon the number and extent of foci of myocardial

degeneration. Minimal cardiomyopathy consisted of a few scattered foci while mild cardiomyopathy consisted of a greater number of lesions more diffusely scattered within the myocardium. Since there was very good agreement among the SP, QAP, and PWG Chair concerning the presence of cardiomyopathy, the PWG opted not to review any examples.

MESENTERY

Artery Chronic Active Inflammation occurred in a few treated animals, primarily in the 46 and 100 ng/kg groups. This change in the mesentery appeared similar to that seen in the pancreas. The PWG reviewed one case and confirmed the diagnosis.

THYROID GLAND

The SP had diagnosed **Follicle – Atrophy** in the treated and control groups of terminal sacrifice animals. The incidence of this change was increased in some treated groups, primarily in the 100 ng/kg group, as compared with the incidence in controls. This was a localized to diffuse change, characterized by follicles that were decreased in size and contained decreased amounts of colloid in which aggregates of amphophilic, flocculant appearing material were often present. The affected follicles were lined by large, prominent cuboidal follicular epithelial cells that were approximately two to three times normal size, usually with abundant pale cytoplasm sometimes containing small, clear, resorption vacuoles. Since some degree of this change commonly occurs spontaneously, the SP only diagnosed this change when at least half of the thyroid follicles in the glands were affected. A severity grade of minimal was recorded when 50-60% of the follicles were involved, mild severity when 60-75% of the follicles were involved, moderate when 75-90% of the follicles were involved, and marked when over 90% of the follicles were involved. The severity was minimal to mild in nearly all affected animals in all groups, including the control and treated groups.

The SP's findings were confirmed by the QA/PWG review. However, the PWG Chair considered this change to represent follicular cell hypertrophy rather than atrophy. Representative examples were shown to the PWG, which concurred that the change was appropriately diagnosed as hypertrophy. TCDD is known to have goitrogenic activity so this finding is not considered unusual. Consequently, it was recommended that all diagnoses of **Follicle – Atrophy** made by the SP be changed to **Follicular Cell – Hypertrophy**.

Since TSH levels had been found to be elevated in the treated interim sacrifice animals, indicative of the presence of a goitrogenic effect, and no follicular hypertrophy (atrophy) had been diagnosed in the interim sacrifice animals, it was decided, as a post-PWG action item, to have the PWG Chair review the thyroid glands from all interim sacrifice animals to see if this change was present but had not been noted previously. During this review the PWG Chair noted the presence of **Follicular Cell – Hypertrophy** in treated animals in the interim sacrifice groups, and diagnosed it and graded the severity using the same criteria as used by the SP in the terminal sacrifice animals. Consequently, the PWG Chair's diagnoses of Follicular

Cell – Hypertrophy in the interim sacrifice animals will be added to the pathology findings for this study. Follicular Cell – Hypertrophy was seen in treated groups from the 14, 31, and 53 week interim sacrifice groups. It was not observed in controls. The incidences were highest in the 100 ng/kg group at each sacrifice time. The PWG Chair's findings regarding follicular cell hypertrophy in the thyroid glands of interim sacrifice animals are listed in Table 1, which is attached to this report.

THYMUS

Atrophy occurred with greater incidence and average severity, as compared with controls, in the interim sacrifice groups. Incidences in the terminal sacrifice treated group, including the stop study group, were slightly greater than in terminal controls, while the average severities of atrophy were considerably greater in the treated and stop study groups as compared with controls. The incidence and average severity was greatest in the 100 ng/kg group. **Atrophy** consisted of varying degrees of loss of lymphoid cells from the cortex resulting in reduction of cortical thickness. There was very good agreement among the SP, QAP, and PWG Chair concerning the presence of thymus atrophy. One slide of thymus atrophy was reviewed and the diagnosis confirmed.

CLITORAL GLAND

The incidences of **Duct Cyst** were increased in some treated groups, particularly the 100 ng/kg group, as compared with controls. **Duct Cyst** consisted of dilated ducts that were filled with keratin and lined by attenuated epithelium. The severity varied from minimal to marked and was graded depending upon the size of the dilated ducts. Minimal lesions consisted of ducts dilated to approximately 2-3mm and marked lesions consisted of ducts dilated to approximately 1cm or more in diameter. Since there was very good agreement among the SP, QAP, and PWG Chair concerning the presence of duct cyst, the PWG opted not to review any examples.

MANDIBULAR LYMPH NODE

The SP diagnosed **Ectasia**, consisting of mild to moderate, focal to multifocal dilatation of medullary sinuses (lymphangiectasis), in a few treated animals, primarily in the 100 ng/kg group. This finding was confirmed by the QA/PWG review. Its significance was unclear.

FORESTOMACH

Squamous Hyperplasia occurred with low incidences in all groups, including controls, but occurred with somewhat greater incidences in the 46 and, particularly, the 100 ng/kg group, as compared with controls. **Squamous Hyperplasia** of the forestomach epithelium was generally a minimal to mild, focal, or occasionally multifocal change characterized by varying degrees of thickening of the stratified squamous epithelium up to approximately five times normal thickness in more severe cases. Sometimes the hyperplasia occurred around a focal ulcer, although most cases occurred without the presence of an apparent ulcer. Minimal to mild

Inflammation, composed of focal to multifocal infiltrate of small numbers of mixed inflammatory cells within the submucosa, was occasionally seen adjacent to foci of hyperplasia, although it was unclear whether there was an association between the two changes. A single slide of a disagreement concerning the presence of hyperplasia was reviewed. Since there was good agreement among the SP, QAP, and PWG Chair concerning these lesions, no additional slides were shown to the PWG.

OVARY

Corpus Luteum Atrophy was diagnosed by the SP with lower incidence in the 100 ng/kg group of terminal sacrifice animals, as compared with controls and other treated groups of terminal sacrifice animals. This finding was confirmed by the QA/PWG review. Its significance was unclear. This change was characterized by absence of ovarian structures, primarily corpora lutea, but also lack of follicles in some cases. The PWG examined a representative example and confirmed that atrophy was present. The PWG noted that this same change had occurred in ovaries in the PCB126 study. Representative slides from that study were examined by Dr. Barbara Davis of NIEHS, an expert in ovarian pathology. Dr. Davis noted the atrophy was characterized by overall reduction in ovarian size, and a preponderance of interstitial tissue with few or no follicles and corpora lutea, and recommended the diagnosis **Ovary – Atrophy** be used as it was a more appropriate diagnosis for this change. Since the diagnoses of Ovary, Corpus Luteum – Atrophy in the PCB126 study were all changed to Ovary – Atrophy, in accordance with Dr. Davis's recommendation, and since the same situation was present in this study, the PWG recommended using the same diagnosis of Ovary -- Atrophy for this study in order to maintain diagnostic consistency. Consequently, it was recommended that all diagnoses of Ovary, Corpus Luteum -- Atrophy made by the SP in this study be changed to Ovary – Atrophy.

URINARY BLADDER

Transitional Epithelium – Hyperplasia occurred in one or more animals in most of the groups, including controls, but occurred with the highest incidence in the 46 ng/kg group. This change was characterized by diffuse hypercellularity and thickening of the transitional epithelium up to approximately three to four times normal thickness. It was noted that in nearly every case inflammation was present with the hyperplasia and it appeared the hyperplasia was secondary to the inflammation. Hyperplasia of the transitional epithelium of the urinary bladder often occurred in animals that also had hyperplasia of the transitional epithelium of the renal pelvis.

NOSE

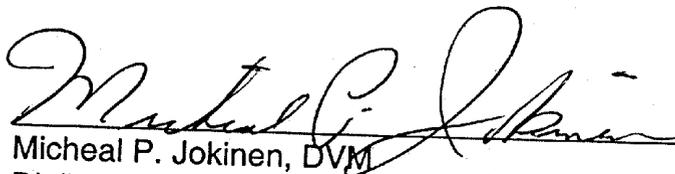
The SP had diagnosed **Nose, Turbinate – Inflammation** in a few animals with slightly greater incidences in some treated groups. The QAP considered the diagnosis **Nose – Inflammation** to be more appropriate and added a few additional diagnoses. The PWG Chair concurred with the QAP's findings. The QAP's findings

did not indicate an apparent treatment related effect. The inflammation was a minimal to marked, focal to multifocal change, characterized by accumulation of varying amounts of mixed inflammatory cell infiltrate within the nasal cavity.

POST-PWG ACTION ITEMS

It was recommended that the PWG Chair review all thyroids from the interim sacrifice animals to determine whether follicular cell hypertrophy was present that had not been detected previously. This review was done and the PWG Chair found follicular cell hypertrophy in the interim sacrifice groups. The findings of that review are included in this report.

In addition, it was decided to stain some slides of lungs from control animals containing alveolar epithelial hyperplasia and lungs from treated animals containing bronchiolar metaplasia with PAS and Alcian Blue stains for the presence of mucus in order to better characterize these changes. The staining was accomplished and the findings were included in this report under the discussion of the lung.



Micheal P. Jokinen, DVM
Diplomate, ACVP
PWG Chairperson

9/16/02
Date

National Toxicology Program

TR-521 TCDD Toxic Equivalency Factor Evaluation

Pathology Tables – Rats

- P03 - Incidence Rates of Non-Neoplastic Lesions
- P05 - Incidence Rates of Neoplasms by Anatomic Site (systemic lesions abridged)
- P08 - Statistical Analysis of Primary Tumors
- P18 - Incidence Rates of Non-Neoplastic Lesions by Anatomic Site (a) with Average Severity Grades [b]

NTP Experiment Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

14 WEEK SSAC

Report: PETRPT03
Date: 11/25/02
Time: 11:41:22

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25017 Scheduled Sacrifice

Removal Date Range: 09/02/98 - 09/03/98

Treatment Groups:	Include	0 NG/KG
	Include 001	0 NG/KG
	Include 002	3 NG/KG
	Include 003	10 NG/KG
	Include 004	22 NG/KG
	Include 005	46 NG/KG
	Include 006	100 NG/KG

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 11:41:22

SPRAGUE-DAWLEY RATS FEMALE
 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

DISPOSITION SUMMARY

Disposition	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Animals Initially In Study	98	98	98	98	98	98
Scheduled Sacrifice	16	16	16	16	16	16
Early Deaths						
Survivors						
Animals Examined Microscopically	10	10	10	10	10	10

ALIMENTARY SYSTEM

Liver	(10)	(10)	(10)	(10)	(10)	(10)
Fatty Change, Diffuse						2 (20%)
Inflammation	10 (100%)	10 (100%)	8 (80%)	10 (100%)	10 (100%)	10 (100%)
Mixed Cell Focus		2 (20%)		1 (10%)	1 (10%)	2 (20%)
Pigmentation	1 (10%)					1 (10%)
Hepatocyte, Hypertrophy	1 (10%)	1 (10%)	4 (40%)	7 (70%)	10 (100%)	10 (100%)
Hepatocyte, Multinucleated						10 (100%)
Pancreas	(10)	(10)	(10)	(10)	(10)	3 (30%)
Inflammation, Chronic Active						10 (100%)
Acinus, Atrophy						2 (20%)

CARDIOVASCULAR SYSTEM

None

ENDOCRINE SYSTEM

Adrenal Cortex	(10)	(10)	(10)	(10)	(10)	(10)
Hypertrophy	1 (10%)	2 (20%)	2 (20%)	1 (10%)	1 (10%)	1 (10%)
Thyroid Gland	(10)	(10)	(10)	(10)	(10)	(10)
Follicular Cell, Hypertrophy		1 (10%)	3 (30%)	4 (40%)	4 (40%)	9 (90%)

GENERAL BODY SYSTEM

None

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

NTP Experiment Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 11:41:22

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
GENITAL SYSTEM						
Ovary	(10)					
Atrophy	2 (20%)					
Uterus	(10)					
Metaplasia, Squamous	1 (10%)	(1)				(10)
Endometrium, Hyperplasia, Cystic	5 (50%)					1 (10%)
						(10)
HEMATOPOIETIC SYSTEM						
Spleen	(10)					
Pigmentation	10 (100%)					(10)
Thymus	(10)					
Atrophy		(10)				10 (100%)
		1 (10%)				(10)
INTEGUMENTARY SYSTEM						
None						
MUSCULOSKELETAL SYSTEM						
None						
NERVOUS SYSTEM						
None						
RESPIRATORY SYSTEM						
Lung						
Inflammation, Chronic	(10)	(10)	(10)	(10)	(10)	(10)
						1 (10%)
SPECIAL SENSES SYSTEM						
None						

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

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
TOXIC EQUIVALENCY FACTOR EVALUATION (TEQDD)

Report: PEIRPT03
Date: 11/25/02
Time: 11:41:22

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
SPRAGUE-DAWLEY RAJTS FEMALE						

URINARY SYSTEM

None

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

END OF REPORT

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

31 WEEK SSAC

Report: PRIRPT03
Date: 11/25/02
Time: 11:52:07

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25017 Scheduled Sacrifice

Removal Date Range: 12/30/98 - 12/31/98

Treatment Groups:		
Include 001	0	NG/KG
Include 002	3	NG/KG
Include 003	10	NG/KG
Include 004	22	NG/KG
Include 005	46	NG/KG
Include 006	100	NG/KG

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TEQDD)

Report: PETRPT03
 Date: 11/25/02
 Time: 11:52:07

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
DISPOSITION SUMMARY						
Animals Initially In Study	98	98	98	98	98	98
Scheduled Sacrifice	16	16	16	16	16	16
Early Deaths						
Survivors						
Animals Examined Microscopically	10	10	10	10	10	10

ALIMENTARY SYSTEM	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Liver	(10)	(10)	(10)	(10)	(10)	(10)
Angiectasis	1 (10%)	1 (10%)	1 (10%)	1 (10%)	1 (10%)	1 (10%)
Fatty Change, Diffuse	9 (90%)	9 (90%)	10 (100%)	10 (100%)	10 (100%)	10 (100%)
Hepatodysplastic Nodule	1 (10%)	3 (30%)	3 (30%)	2 (20%)	3 (30%)	3 (30%)
Inflammation	1 (10%)	4 (40%)	1 (10%)	1 (10%)	1 (10%)	7 (70%)
Mitotic Alteration	2 (20%)	1 (10%)	8 (80%)	9 (90%)	10 (100%)	1 (10%)
Mixed Cell Focus, Multiple						
Necrosis						
Pigmentation						
Toxic Hepatopathy						
Bile Duct, Hyperplasia		2 (20%)	3 (30%)	6 (60%)	9 (90%)	10 (100%)
Hepatocyte, Hypertrophy					5 (50%)	9 (90%)
Hepatocyte, Multinucleated						1 (10%)
Oval Cell, Hyperplasia						1 (10%)
Pancreas	(10)	(10)	(10)	(10)	(10)	(10)
Acinus, Atrophy	2 (20%)		1 (10%)		1 (10%)	
Acinus, Vacuolization						5 (50%)
Cytoplasmic						

CARDIOVASCULAR SYSTEM	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
None						
ENDOCRINE SYSTEM						
Adrenal Cortex	(10)	(10)	(10)	(10)	(10)	(10)
Degeneration, Cystic					1 (10%)	1 (10%)
Hyperplasia		2 (20%)	3 (30%)	3 (30%)	3 (30%)	3 (30%)
Hypertrophy						

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 11:52:07

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
SPRAGUE-DAWLEY RATS FEMALE						
ENDOCRINE SYSTEM - CONT						
Necrosis						
Thyroid Gland	(10)	(10)	(10)	1 (10%)	(10)	(10)
Follicular Cell, Hypertrophy		3 (30%)	3 (30%)	(10)	4 (40%)	6 (60%)
GENERAL BODY SYSTEM						
None						
GENITAL SYSTEM						
Ovary	(10)					(10)
Atrophy	9 (90%)					7 (70%)
Uterus	(10)	(1)				(10)
Inflammation, Suppurative		1 (100%)				
Metaplasia, Squamous	8 (80%)					4 (40%)
Endometrium, Hyperplasia, Cystic	1 (10%)	1 (100%)				2 (20%)
HEMATOPOIETIC SYSTEM						
None						
INTEGUMENTARY SYSTEM						
None						
MUSCULOSKELETAL SYSTEM						
None						
NERVOUS SYSTEM						
None						

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TECD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 11:52:07

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

RESPIRATORY SYSTEM

Lung Infiltration Cellular, Histiocyte (10) 2 (20%) (10) 3 (30%) (10) 1 (10%) (10) 1 (10%) (10) 1 (10%) (10) 1 (10%)

SPECIAL SENSES SYSTEM

None

URINARY SYSTEM

None

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

END OF REPORT

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

53 WEEK SSAC

Report: PEIRPT03
Date: 11/25/02
Time: 12:07:47

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25017 Scheduled Sacrifice

Removal Date Range: 06/03/99 - 06/04/99

Treatment Groups:	Include	0 NG/KG
	001	0 NG/KG
	002	3 NG/KG
	003	10 NG/KG
	004	22 NG/KG
	005	46 NG/KG
	006	100 NG/KG

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PRRP03
 Date: 11/25/02
 Time: 12:07:47

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

DISPOSITION SUMMARY

Animals Initially in Study	98	98	98	98	98	98
Scheduled Sacrifice	13	12	13	13	13	13
Early Deaths						
Survivors						
Animals Examined Microscopically	8	8	8	8	8	8

ALIMENTARY SYSTEM

Liver	(8)	(8)	(8)	(8)	(8)	(8)
Basophilic Focus			1 (13%)			2 (25%)
Basophilic Focus, Multiple		1 (13%)			1 (13%)	2 (25%)
Cholangiofibrosis						1 (13%)
Clear Cell Focus	2 (25%)					6 (75%)
Fatty Change, Diffuse					2 (25%)	
Hepatodysplastic Nodule			8 (100%)			8 (100%)
Inflammation	8 (100%)	8 (100%)	8 (100%)	8 (100%)	8 (100%)	8 (100%)
Mixed Cell Focus	2 (25%)	1 (13%)	5 (63%)	2 (25%)	8 (100%)	8 (100%)
Pigmentation		4 (50%)	1 (13%)	8 (100%)	8 (100%)	8 (100%)
Toxic Hepatopathy			1 (13%)			2 (25%)
Bile Duct, Cyst			1 (13%)			8 (100%)
Bile Duct, Fibrosis			1 (13%)			8 (100%)
Bile Duct, Hyperplasia		4 (50%)	7 (88%)	2 (25%)	8 (100%)	8 (100%)
Hepatocyte, Hypertrophy				8 (100%)	8 (100%)	8 (100%)
Hepatocyte, Multinucleated					2 (25%)	
Pancreas	(8)	(8)	(8)	(8)	(8)	(8)
Inflammation, Chronic Active						2 (25%)
Acinus, Atrophy						2 (25%)
Acinus, Vacuolization						7 (88%)

CARDIOVASCULAR SYSTEM

None						
------	--	--	--	--	--	--

ENDOCRINE SYSTEM

Adrenal Cortex	(8)	(8)	(8)	(8)	(8)	(8)
----------------	-----	-----	-----	-----	-----	-----

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

Page 2

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TEED)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:07:47

	SPRAGUE-DAWLEY RATS FEMALE					
	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
ENDOCRINE SYSTEM - CONT						
Degeneration, Cystic						
Hyperplasia	1 (13%)	1 (13%)	1 (13%)	2 (25%)	3 (38%)	1 (13%)
Hypertrophy	1 (13%)	3 (38%)	4 (50%)	4 (50%)	5 (63%)	2 (25%)
Vacuolization	5 (63%)	1 (13%)				7 (88%)
Pituitary Gland						
Cyst	(8)		(1)			(7)
Thyroid Gland	1 (13%)					
Follicular Cell, Hypertrophy	(8)	(8)	(8)	(8)	(8)	(8)
		1 (13%)	2 (25%)	2 (25%)	3 (38%)	5 (63%)
GENERAL BODY SYSTEM						
None						
GENITAL SYSTEM						
Ovary	(8)					(7)
Atrophy	8 (100%)					5 (71%)
Uterus	(8)			(1)		(8)
Metaplasia, Squamous	7 (88%)					4 (50%)
Cervix, Cyst, Squamous	1 (13%)					
Endometrium, Hyperplasia, Cystic	5 (63%)			1 (100%)		2 (25%)
HEMATOPOIETIC SYSTEM						
Spleen	(8)					(8)
Hyperplasia, Focal, Lymphoid	1 (13%)					(8)
Pigmentation	8 (100%)					(8)
Thymus	(8)	(8)		(8)		(8)
Atrophy	4 (50%)	2 (25%)	(7)	7 (88%)	(8)	8 (100%)
			3 (43%)		8 (100%)	8 (100%)
INTEGUMENTARY SYSTEM						
Mammary Gland	(8)	(2)				(8)
Cyst	3 (38%)					
MUSCULOSKELETAL SYSTEM						
None						

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:07:47

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

NERVOUS SYSTEM

None

RESPIRATORY SYSTEM

Lung Infiltration Cellular, Histocyte (8) 3 (38%) (8) 1 (13%) (8) 2 (25%) (8) 1 (13%) (8) 4 (50%) (8) 3 (38%)

SPECIAL SENSES SYSTEM

None

URINARY SYSTEM

Kidney (2) (1)
 Cyst 1 (50%) 1 (100%)
 Inflammation, Chronic Active 1 (50%) 1 (100%)
 Nephropathy 1 (50%) 1 (100%)
 Pelvis, Dilatation (1) (1)
 Ureter 1 (100%) 1 (100%)
 Mineralization (1) 1 (100%)
 Transitional Epithelium, Hyperplasia 1 (100%) 1 (100%)
 Urinary Bladder 1 (100%) 1 (100%)
 Inflammation 1 (100%) 1 (100%)
 Transitional Epithelium, Hyperplasia 1 (100%) 1 (100%)

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

END OF REPORT

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
TOXIC EQUIVALENCY FACTOR EVALUATION (TEQDD)

Report: PEIRPT03
Date: 11/25/02
Time: 12:18:49

FINAL#1/RATS

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25018 Dosing Accident
25020 Natural Death

25019 Moribund Sacrifice
25021 Terminal Sacrifice

Removal Date Range: All

Treatment Groups:	Include	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG	100 NG/ KG/STOP
	001							
	002							
	003							
	004							
	005							
	006							
	007							

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TEDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

DISPOSITION SUMMARY

Disposition	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Animals Initially In Study	98	98	98	98	98	98
Early Deaths	19	27	15	19	17	17
Morbund Sacrifice	9	6	10	15	14	15
Natural Death			5			
Dosing Accident						
Survivors	25	21	23	19	22	21
Terminal Sacrifice						
Animals Examined Microscopically	53	54	53	53	53	53

ALIMENTARY SYSTEM

Esophagus	(52)	(54)	(53)	(52)	(53)	(53)
Hemorrhage			1 (2%)			
Perforation	1 (2%)	2 (4%)	2 (4%)	1 (2%)	2 (4%)	
Muscularis, Inflammation		(53)	(53)	(53)	(53)	(51)
Periesophageal Tissue, Inflammation	(52)	2 (4%)	1 (2%)	(52)	(53)	2 (4%)
Intestine Large, Colon	1 (2%)	(54)	(53)	(52)	(53)	(53)
Parasite Metazoan	(52)	2 (4%)	1 (2%)	(52)	(53)	(53)
Intestine Large, Rectum	(52)	(54)	(53)	(52)	(53)	(53)
Parasite Metazoan	6 (12%)	4 (7%)	(53)	(52)	(53)	(53)
Intestine Small, Duodenum	(53)	(54)	(53)	(52)	(53)	(53)
Cyst		1 (2%)				
Ulcer			1 (2%)			
Epithelium, Hyperplasia	(53)	(54)	(53)	(53)	(53)	(53)
Liver						
Angiectasis	2 (4%)	1 (2%)	1 (2%)	7 (13%)	3 (6%)	5 (9%)
Basophilic Focus	8 (15%)	6 (11%)	8 (15%)	1 (2%)	3 (6%)	3 (6%)
Basophilic Focus, Multiple	4 (8%)	3 (6%)	5 (9%)	1 (2%)	2 (4%)	5 (9%)
Cholangiofibrosis	1 (2%)	1 (2%)	2 (4%)	1 (2%)	11 (21%)	31 (58%)
Clear Cell Focus	4 (8%)	1 (2%)	1 (2%)	2 (4%)	1 (2%)	1 (2%)
Clear Cell Focus, Multiple	1 (2%)			2 (4%)	1 (2%)	1 (2%)
Congestion	2 (4%)			2 (4%)		2 (4%)
Cytoplasmic Alteration						
Degeneration, Cystic						
Eosinophilic Focus	8 (15%)	6 (11%)	7 (13%)	2 (4%)	5 (9%)	4 (8%)
Eosinophilic Focus, Multiple	3 (6%)	8 (15%)	14 (26%)	10 (19%)	22 (42%)	42 (79%)
Fatty Change, Diffuse	2 (4%)	2 (4%)	12 (23%)	17 (32%)	30 (57%)	48 (91%)
Fatty Change, Focal	6 (11%)	6 (11%)	4 (8%)	4 (8%)	1 (2%)	2 (4%)
Hematopoietic Cell Proliferation	2 (4%)	2 (4%)	2 (4%)	4 (8%)	2 (4%)	2 (4%)
Hemorrhage	1 (2%)				1 (2%)	

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TQDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:18:49

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
ALIMENTARY SYSTEM - CONT						
Hepatodiaphragmatic Nodule						
Inflammation	33 (62%)	2 (4%)	47 (89%)	1 (2%)	2 (4%)	49 (92%)
Mitotic Alteration		46 (85%)		50 (94%)	52 (98%)	
Mixed Cell Focus	4 (8%)	8 (15%)	8 (15%)	1 (2%)	1 (2%)	4 (8%)
Necrosis	26 (49%)	11 (20%)	21 (40%)	23 (43%)	28 (53%)	17 (32%)
Pigmentation	1 (2%)	4 (7%)	4 (8%)	8 (15%)	10 (19%)	17 (32%)
Regeneration	4 (8%)	9 (17%)	34 (64%)	48 (91%)	52 (98%)	53 (100%)
Thrombosis				3 (6%)	7 (13%)	36 (68%)
Toxic Hepatopathy						
Artery, Inflammation, Chronic Active		2 (4%)	8 (15%)	30 (57%)	45 (85%)	53 (100%)
Bile Duct, Cyst						
Bile Duct, Fibrosis	3 (6%)	1 (2%)	2 (4%)	2 (4%)	4 (8%)	2 (4%)
Bile Duct, Hyperplasia		2 (4%)		1 (2%)	3 (6%)	21 (40%)
Centrilobular, Degeneration	5 (9%)	4 (7%)	7 (13%)	22 (42%)	40 (75%)	4 (8%)
Hepatocyte, Hypertrophy	2 (4%)	2 (4%)		4 (8%)	3 (6%)	53 (100%)
Hepatocyte, Multinucleated		19 (35%)	19 (36%)	42 (79%)	41 (77%)	5 (9%)
Hepatocyte, Centrilobular, Atrophy			16 (30%)	26 (49%)	36 (68%)	52 (98%)
Oval Cell, Hyperplasia		4 (7%)		26 (49%)	36 (68%)	51 (96%)
Portal, Fibrosis			3 (6%)	20 (38%)	1 (2%)	53 (100%)
Mesentery						
Metaplasia, Osseous	(2)	(2)		(1)	(6)	53 (100%)
Artery, Inflammation, Chronic Active	1 (50%)	1 (50%)	1 (50%)	1 (100%)	4 (67%)	7 (88%)
Fat, Necrosis		1 (50%)			1 (17%)	1 (13%)
Vein, Thrombosis	1 (50%)					
Oral Mucosa						
Gingival, Hyperplasia, Squamous		(9)	(16)	(16)	(22)	(29)
Pancreas	(2)	7 (78%)	7 (81%)	13 (81%)	15 (68%)	16 (55%)
Hemorrhage	1 (50%)	(54)	(52)	(53)	(52)	(51)
Inflammation, Acute						
Inflammation, Chronic Active						
Necrosis						
Acinus, Atrophy	1 (2%)	2 (4%)	2 (4%)	1 (2%)	3 (6%)	6 (12%)
Acinus, Hyperplasia	2 (4%)		4 (8%)	1 (2%)	4 (8%)	1 (2%)
Acinus, Vacuolization	1 (2%)			1 (2%)	2 (4%)	9 (18%)
Artery, Inflammation, Chronic Active		1 (2%)	1 (2%)	2 (4%)	15 (29%)	42 (82%)
Salivary Glands	(51)	(54)	(52)	(50)	(51)	(52)
Atrophy						
Inflammation						
Mineralization						
Stomach, Forestomach	1 (2%)	(54)	(53)	(53)	(53)	(53)
Cyst, Squamous	(53)					
Edema						
				1 (2%)		1 (2%)

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:18:49

	SPRAGUE-DAWLEY RATS FEMALE					
	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
ALIMENTARY SYSTEM - CONT						
Erosion	1 (2%)	1 (2%)	1 (2%)	1 (2%)	1 (2%)	3 (6%)
Hyperkeratosis	3 (6%)	4 (7%)	4 (8%)	2 (4%)	7 (13%)	11 (21%)
Hyperplasia, Squamous	1 (2%)	1 (2%)	2 (4%)	2 (4%)	2 (4%)	5 (9%)
Inflammation						1 (2%)
Mineralization			1 (2%)			4 (8%)
Necrosis						1 (2%)
Ulcer	2 (4%)	1 (2%)	(53)	1 (2%)	(53)	(53)
Stomach, Glandular	(53)	(54)				
Diverticulum						
Erosion	1 (2%)					
Metaplasia	3 (6%)			1 (2%)	3 (6%)	2 (4%)
Mineralization						1 (2%)
Ulcer						1 (2%)
Tooth	(16)	(16)	(12)	(13)	(14)	(18)
Peridontal Tissue, Fibrosis	1 (6%)					
Peridontal Tissue, Inflammation	15 (94%)	16 (100%)	12 (100%)	13 (100%)	14 (100%)	18 (100%)

CARDIOVASCULAR SYSTEM						
Blood Vessel	(53)	(54)	(53)	(53)	(53)	(53)
Thrombosis						
Aorta, Mineralization	1 (2%)	1 (2%)	1 (2%)		1 (2%)	(52)
Heart	(53)	(54)	(53)	(52)	(53)	(52)
Cardiomyopathy	10 (19%)	12 (22%)	22 (42%)	25 (48%)	32 (60%)	36 (69%)
Mineralization	1 (2%)				1 (2%)	1 (2%)
Artery, Inflammation						
Artery, Mineralization						
Artery, Thrombosis		1 (2%)				1 (2%)

ENDOCRINE SYSTEM						
Adrenal Cortex	(53)	(54)	(53)	(53)	(53)	(53)
Angiectasis	11 (21%)	21 (39%)	18 (34%)	17 (32%)	17 (32%)	11 (21%)
Atrophy	2 (4%)		4 (8%)	5 (9%)	5 (9%)	27 (51%)
Degeneration, Cystic	11 (21%)	15 (28%)	21 (40%)	18 (34%)	17 (32%)	17 (32%)
Hyperplasia	16 (30%)	16 (30%)	18 (34%)	25 (47%)	29 (55%)	30 (57%)
Hypertrophy	41 (77%)	43 (80%)	46 (87%)	40 (75%)	45 (85%)	47 (89%)
Inflammation, Chronic Active	1 (2%)					
Inflammation, Suppurative	1 (2%)					
Mineralization		1 (2%)		1 (2%)	3 (6%)	1 (2%)
Necrosis						

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:18:49

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
ENDOCRINE SYSTEM - CONT						
Thrombosis						
Vacuolization	11 (21%)	7 (13%)	12 (23%)	1 (2%)	18 (34%)	15 (28%)
Adrenal Medulla	(53)	(54)	(53)	21 (40%)	(53)	(53)
Angiectasis		1 (2%)	2 (4%)	1 (2%)		
Hyperplasia	19 (36%)	10 (19%)	18 (34%)	7 (13%)	10 (19%)	9 (17%)
Inflammation, Suppurative				1 (2%)		
Islets, Pancreatic	(51)	(54)	(53)	(53)	(52)	(52)
Hyperplasia			1 (2%)	1 (2%)		
Parathyroid Gland	(46)	(47)	(47)	(44)	(45)	(45)
Fibrosis			1 (2%)			
Pituitary Gland	1 (2%)	(54)	(52)	(53)	(53)	(52)
Hyperplasia	(53)	18 (33%)	25 (48%)	20 (38%)	21 (40%)	9 (17%)
Angiectasis	25 (47%)	1 (2%)	1 (2%)	4 (8%)	3 (6%)	1 (2%)
Atypia Cellular	1 (2%)					
Cyst	1 (2%)					
Cytoplasmic Alteration	1 (2%)					
Developmental Malformation	1 (2%)					
Inflammation, Chronic	1 (2%)					
Vacuolization Cytoplasmic	19 (36%)	3 (6%)	1 (2%)	2 (4%)	2 (4%)	1 (2%)
Pars Distalis, Hyperplasia	2 (4%)	19 (35%)	16 (31%)	21 (40%)	26 (49%)	19 (37%)
Pars Intermedia, Hyperplasia	(52)	(54)	(53)	(51)	(53)	(52)
Thyroid Gland		1 (2%)	1 (2%)	1 (2%)	4 (8%)	1 (2%)
Angiectasis	1 (2%)			1 (2%)		1 (2%)
Cyst						
Inflammation, Chronic Active	19 (37%)	17 (31%)	22 (42%)	19 (37%)	16 (30%)	23 (44%)
Inflammation, Suppurative	2 (4%)	2 (4%)	1 (2%)	1 (2%)		
C-Cell, Hyperplasia	3 (6%)	4 (7%)	4 (8%)	7 (14%)	10 (19%)	17 (33%)
Follicular Cell, Hyperplasia						
Follicular Cell, Hypertrophy						
GENERAL BODY SYSTEM						
None						
GENITAL SYSTEM						
Clitoral Gland	(50)	(52)	(53)	(52)	(51)	(53)
Hyperplasia, Basal Cell	1 (2%)		1 (2%)			
Inflammation	41 (82%)	40 (77%)	35 (66%)	34 (65%)	28 (55%)	26 (49%)
Duct, Cyst	34 (68%)	37 (71%)	41 (77%)	42 (81%)	41 (80%)	48 (91%)
Ovary	(51)	(53)	(53)	(53)	(53)	(53)

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PFRPT03
 Date: 11/25/02
 Time: 12:18:49

	SPRAGUE-DAWLEY RAFFS FEMALE					
	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
GENITAL SYSTEM - CONT						
Atrophy	49 (96%)	46 (87%)	50 (94%)	44 (83%)	50 (94%)	31 (58%)
Congestion	14 (27%)	16 (30%)	13 (25%)	15 (28%)	14 (26%)	13 (25%)
Cyst			1 (2%)		1 (2%)	1 (2%)
Fibrosis				1 (2%)	1 (2%)	1 (2%)
Inflammation, Chronic Active		1 (2%)				1 (2%)
Inflammation, Suppurative						
Artery, Inflammation, Chronic Active						
Corpus Luteum, Cyst						
Periovarian Tissue, Inflammation, Suppurative				1 (2%)		
Oviduct	(2)	(1)	(2)		(1)	(1)
Inflammation	2 (100%)	1 (100%)	1 (50%)		1 (100%)	1 (100%)
Necrosis						
Epithelium, Hyperplasia	(52)	(53)	(53)	(53)	(53)	(53)
Uterus						
Adenomyosis					1 (2%)	1 (2%)
Cyst	1 (2%)	2 (4%)	3 (6%)	9 (17%)	3 (6%)	1 (2%)
Hemorrhage		6 (11%)	12 (23%)	23 (43%)	11 (21%)	1 (2%)
Inflammation, Chronic Active	7 (13%)	31 (58%)	28 (53%)	1 (2%)	32 (60%)	5 (9%)
Inflammation, Suppurative	29 (56%)	1 (2%)	1 (2%)	1 (2%)	32 (60%)	17 (32%)
Metaplasia, Squamous						
Necrosis						
Ulcer		1 (2%)	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Cervix, Hyperplasia, Stromal						
Cervix, Inflammation, Suppurative						
Endometrium, Adenomyosis		33 (62%)	1 (2%)	27 (51%)	31 (58%)	19 (36%)
Endometrium, Hyperplasia, Cystic	30 (58%)		35 (66%)	1 (2%)		
Epithelium, Hyperplasia		(1)	1 (2%)	(3)	(3)	(1)
Serosa, Inflammation, Chronic Active						
Vagina						
Cyst		1 (100%)	1 (100%)		1 (33%)	
Hyperplasia, Stromal					2 (67%)	
Inflammation					1 (33%)	
Necrosis						
HEMATOPOIETIC SYSTEM						
Bone Marrow	(53)	(54)	(53)	(53)	(53)	(53)
Atrophy						
Hyperplasia	36 (68%)	41 (76%)	32 (60%)	35 (66%)	37 (70%)	43 (81%)
Lymph Node	(2)	(6)	(3)	(5)	(6)	(9)
Deep Cervical, Hemorrhage				1 (20%)		1 (17%)
Inguinal, Ectasia						

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
HEMATOPOIETIC SYSTEM - CONT						
Lumbar, Ectasia	1 (50%)	2 (33%)	1 (33%)	2 (40%)	1 (17%)	1 (11%)
Lumbar, Hemorrhage				1 (20%)	1 (17%)	3 (33%)
Lumbar, Hyperplasia, Plasma Cell		2 (33%)		1 (20%)	1 (17%)	5 (56%)
Lumbar, Pigmentation				1 (20%)		
Mediastinal, Congestion						
Mediastinal, Ectasia						
Mediastinal, Hemorrhage		1 (17%)		1 (20%)	1 (17%)	3 (33%)
Mediastinal, Hyperplasia					1 (17%)	5 (56%)
Mediastinal, Hyperplasia, Histiocytic		1 (17%)	1 (33%)		1 (17%)	3 (33%)
Mediastinal, Hyperplasia, Lymphoid					1 (17%)	1 (11%)
Mediastinal, Hyperplasia, Plasma Cell						
Mediastinal, Pigmentation						
Renal, Ectasia			1 (33%)	1 (20%)		
Renal, Hyperplasia, Histiocytic						
Renal, Hyperplasia, Plasma Cell						
Lymph Node, Mandibular	1 (2%)	1 (17%)	1 (33%)		1 (17%)	1 (11%)
Congestion		1 (17%)				
Ectasia		1 (17%)				
Hyperplasia, Lymphoid		3 (6%)	3 (6%)	2 (44%)	1 (2%)	6 (12%)
Hyperplasia, Plasma Cell	25 (49%)	31 (57%)	23 (44%)	22 (44%)	15 (29%)	2 (4%)
Inflammation, Suppurative						
Lymph Node, Mesenteric						
Atrophy	(52)	(53)	(53)	(53)	(53)	(51)
Ectasia		1 (2%)		1 (2%)		1 (2%)
Hemorrhage						
Hyperplasia, Histiocytic	1 (2%)				1 (2%)	1 (2%)
Hyperplasia, Plasma Cell						
Spleen						
Hematopoietic Cell Proliferation	(51)	(54)	(53)	(53)	(52)	(52)
Hyperplasia, Lymphoid	46 (90%)	50 (93%)	38 (72%)	42 (79%)	44 (85%)	43 (83%)
Necrosis	1 (2%)					
Pigmentation						
Lymphoid Follicle, Atrophy	45 (88%)	49 (91%)	1 (2%)	51 (96%)	49 (94%)	47 (90%)
Thymus	4 (8%)		49 (92%)	1 (2%)	1 (2%)	1 (2%)
Atrophy	(51)	(52)	(52)	(49)	(46)	(42)
Cyst	36 (71%)	41 (79%)	44 (85%)	41 (84%)	44 (96%)	42 (100%)
Hemorrhage						
Inflammation, Chronic Active	1 (2%)		1 (2%)		1 (2%)	1 (2%)

INTERGUMENTARY SYSTEM

Mammary Gland
 Cyst

(53)	(54)	(53)	(53)	(53)	(53)	(53)
4 (8%)	3 (6%)		1 (2%)	1 (2%)	1 (2%)	1 (2%)

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PRTPT03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE

0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
INDEUMENTARY SYSTEM - CONT						
Hyperplasia	25 (47%)	21 (39%)	24 (45%)	22 (42%)	18 (34%)	16 (30%)
Inflammation, Chronic Active	1 (2%)	1 (2%)	1 (2%)	(53)	1 (2%)	1 (2%)
Inflammation, Granulomatous	(53)	(54)	(53)	(53)	(53)	(53)
Skin	1 (2%)					2 (4%)
Cyst Epithelial Inclusion			1 (2%)		1 (2%)	
Hemorrhage			1 (2%)		1 (2%)	
Hyperplasia, Squamous			2 (4%)		1 (2%)	1 (2%)
Inflammation, Chronic Active			1 (2%)		1 (2%)	
Necrosis			1 (2%)			
Ulcer					1 (2%)	
Epidermis, Inflammation						1 (2%)

MUSCULOSKELETAL SYSTEM

Bone	(53)	(54)	(53)	(53)	(53)	(53)
Fracture		1 (2%)	(1)	(2)	1 (50%)	1 (50%)
Maxilla, Inflammation, Focal, Suppurative						
Skeletal Muscle						
Hemorrhage						
Inflammation, Chronic Active						

NERVOUS SYSTEM

Brain	(53)	(54)	(53)	(53)	(53)	(53)
Hemorrhage			1 (2%)		1 (2%)	
Hydrocephalus		1 (2%)	1 (2%)		2 (4%)	2 (4%)
Inflammation, Suppurative						
Mineralization		1 (2%)	1 (2%)		1 (2%)	
Vacuolization Cytoplasmic, Focal						
Artery, Thrombosis						
Cerebellum, Developmental Malformation	1 (2%)		1 (2%)			
Cerebellum, Necrosis		1 (2%)				
Gial Cell, Hyperplasia			1 (100%)			
Spinal Cord						
Gliosis						1 (2%)

RESPIRATORY SYSTEM

Lung	(53)	(54)	(53)	(52)	(53)	(52)
Congestion			2 (4%)			

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE

0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

RESPIRATORY SYSTEM - CONT

Edema					
Hemorrhage					
Infiltration Cellular, Histocyte	41 (77%)	1 (2%)	2 (4%)	1 (2%)	2 (4%)
Inflammation, Chronic Active		46 (85%)	43 (81%)	43 (83%)	49 (92%)
Inflammation, Granulomatous	2 (4%)	1 (2%)	2 (4%)	2 (4%)	50 (96%)
Inflammation, Suppurative	1 (2%)			2 (4%)	1 (2%)
Metaplasia, Squamous	1 (2%)			2 (4%)	
Mineralization	1 (2%)				
Necrosis					5 (9%)
Pigmentation					1 (2%)
Alveolar Epithelium, Hyperplasia		1 (2%)		1 (2%)	6 (12%)
Alveolar Epithelium, Metaplasia	12 (23%)				1 (2%)
Bronchiole, Dilatation	2 (4%)	19 (35%)	33 (62%)	35 (67%)	46 (88%)
Serosa, Inflammation, Focal, Suppurative			1 (2%)		
Nose					
Cyst, Squamous	(53)	(54)	(53)	(53)	(53)
Inflammation					
Goblet Cell, Septum, Hyperplasia	2 (4%)			3 (6%)	4 (8%)
Nasolacrimal Duct, Inflammation					
Nasolacrimal Duct, Respiratory Epithelium, Hyperplasia	2 (4%)				
Nasopharyngeal Duct, Inflammation					
Nasopharyngeal Duct, Necrosis				1 (2%)	1 (2%)
Olfactory Epithelium, Degeneration				1 (2%)	
Olfactory Epithelium, Inflammation					
Respiratory Epithelium, Cyst					1 (2%)
Respiratory Epithelium, Hyperplasia				1 (2%)	2 (4%)
Septum, Inflammation					
Septum, Hyperplasia, Squamous					
Squamous Epithelium, Inflammation, Suppurative	1 (2%)				
Turbinate, Hyperplasia, Squamous					
Turbinate, Septum, Inflammation				1 (2%)	1 (2%)
Turbinate, Respiratory Epithelium, Hyperplasia			1 (2%)		
				1 (2%)	2 (4%)

SPECIAL SENSES SYSTEM

Eye
 Degeneration
 Hemorrhage
 Anterior Chamber, Inflammation, Suppurative

(53) (54) (53) (52) (53) (53)
 1 (2%) 1 (2%) 1 (2%) 1 (2%) 1 (2%) 1 (2%)
 1 (2%) 1 (2%) 1 (2%) 1 (2%) 1 (2%) 1 (2%)

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
SPECIAL SENSES SYSTEM - CONT'						
Cornea, Inflammation, Suppurative			1 (2%)		1 (2%)	1 (2%)
Lens, Degeneration	5 (9%)	5 (9%)	5 (9%)	3 (6%)	4 (8%)	6 (11%)
Retina, Atrophy					1 (2%)	
Retina, Degeneration	(53)	(54)	(53)	(52)	(53)	(53)
Harderian Gland	1 (2%)					
Acrophy, Focal	12 (23%)	3 (6%)	2 (4%)	2 (4%)	8 (15%)	6 (11%)
Inflammation						

URINARY SYSTEM

Kidney	(53)	(54)	(53)	(53)	(53)	(53)
Calculus Gross Observation	1 (2%)	1 (2%)	1 (2%)	3 (6%)	2 (4%)	1 (2%)
Calculus Micro Observation Only	3 (6%)	5 (9%)	2 (4%)		1 (2%)	1 (2%)
Casts Protein	2 (4%)	1 (2%)			1 (2%)	1 (2%)
Cyst			1 (2%)			
Fibrosis	5 (9%)	1 (2%)		1 (2%)	1 (2%)	2 (4%)
Infarct			2 (4%)	1 (2%)	1 (2%)	2 (4%)
Inflammation, Chronic Active	40 (75%)	39 (72%)	30 (57%)	32 (60%)	42 (79%)	42 (79%)
Inflammation, Suppurative					1 (2%)	
Mineralization					1 (2%)	
Necrosis	34 (64%)	26 (48%)	32 (60%)	36 (68%)	39 (74%)	52 (98%)
Nephropathy			1 (2%)			
Papilla, Necrosis	2 (4%)	1 (2%)	1 (2%)	1 (2%)	2 (4%)	2 (4%)
Pelvis, Dilatation	2 (4%)	1 (2%)	1 (2%)	1 (2%)	4 (8%)	1 (2%)
Pelvis, Inflammation						
Renal Tubule, Degeneration	3 (6%)	6 (11%)	8 (15%)		11 (21%)	11 (21%)
Transitional Epithelium, Hyperplasia	(1)					
Ureter	1 (100%)					
Inflammation	1 (100%)	(53)	(53)	(52)	(53)	(53)
Transitional Epithelium, Hyperplasia	(52)					
Urinary Bladder		1 (2%)				
Calculus Micro Observation Only		1 (2%)				
Hemorrhage	6 (12%)	10 (19%)	4 (8%)		8 (15%)	3 (6%)
Inflammation						
Metaplasia, Squamous					6 (11%)	2 (4%)
Transitional Epithelium, Hyperplasia	1 (2%)	2 (4%)	1 (2%)			

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEPREP03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE
 100 NG/
 KG/STOP

DISPOSITION SUMMARY

Animals Initially In Study	50
Early Deaths	16
Moribund Sacrifice	13
Natural Death	21
Survivors	50
Terminal Sacrifice	
Animals Examined Microscopically	50

ALIMENTARY SYSTEM

Intestine Large, Colon	(49)
Parasite Metazoan	1 (2%)
Intestine Large, Rectum	(50)
Parasite Metazoan	5 (10%)
Intestine Small, Jejunum	(50)
Inflammation, Chronic	1 (2%)
Liver	(50)
Angiectasis	4 (8%)
Atypia Cellular	1 (2%)
Basophilic Focus	7 (14%)
Basophilic Focus, Multiple	9 (18%)
Cholangiofibrosis	1 (2%)
Clear Cell Focus	6 (12%)
Clear Cell Focus, Multiple	2 (4%)
Cytoplasmic Alteration	1 (2%)
Eosinophilic Focus	6 (12%)
Eosinophilic Focus, Multiple	21 (42%)
Fatty Change, Diffuse	10 (20%)
Fatty Change, Focal	8 (16%)
Hematopoietic Cell Proliferation	2 (4%)
Hepatodiaphragmatic Nodule	1 (2%)
Inflammation	43 (86%)
Mixed Cell Focus	1 (2%)
Mixed Cell Focus, Multiple	28 (56%)
Necrosis	8 (16%)
Pigmentation	45 (90%)
Toxic Hepatopathy	16 (32%)
Vacuolization Cytoplasmic	1 (2%)
Bile Duct, Cyst	6 (12%)
Bile Duct, Fibrosis	5 (10%)

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PTRRPT03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE 100 MG/
 KG/STDP

ALIMENTARY SYSTEM - CONT'	
Bile Duct, Hyperplasia	7 (14%)
Hepatocyte, Hypertrophy	22 (44%)
Hepatocyte, Multinucleated	32 (64%)
Oval Cell, Hyperplasia	1 (2%)
Portal, Fibrosis	1 (2%)
Serosa, Inflammation, Chronic Active	1 (2%)
Mesentery	(1)
Artery, Inflammation, Chronic Active	1 (100%)
Oral Mucosa	(11)
Gingival, Hyperplasia, Squamous	8 (73%)
Pancreas	(49)
Angiectasis	1 (2%)
Basophilic Focus	1 (2%)
Inflammation, Chronic Active	4 (8%)
Acinus, Atrophy	4 (8%)
Artery, Inflammation, Chronic Active	2 (4%)
Salivary Glands	(49)
Atrophy	2 (4%)
Fibrosis	1 (2%)
Inflammation	1 (2%)
Stomach, Fore stomach	(50)
Hyperkeratosis	1 (2%)
Hyperplasia, Squamous	5 (10%)
Inflammation	4 (8%)
Ulcer	4 (8%)
Stomach, Glandular	(50)
Erosion	1 (2%)
Tongue	(1)
Inflammation, Chronic Active	1 (100%)
Tooth	(12)
Peridental Tissue, Inflammation	12 (100%)

CARDIOVASCULAR SYSTEM	
Heart	(50)
Cardiomyopathy	22 (44%)
Inflammation	1 (2%)
Atrium, Thrombosis	2 (4%)
Epicardium, Inflammation, Chronic Active	1 (2%)

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE
 100 NG/
 KG/STOP

ENDOCRINE SYSTEM

Adrenal Cortex	(50)
Angiectasis	15 (30%)
Atrophy	4 (8%)
Degeneration, Cystic	17 (34%)
Hyperplasia	20 (40%)
Hypertrophy	46 (92%)
Necrosis	3 (6%)
Vacuolization Cytoplasmic	13 (26%)
Adrenal Medulla	(50)
Hyperplasia	15 (30%)
Islets, Pancreatic	(49)
Hyperplasia	1 (2%)
Pituitary Gland	(50)
Angiectasis	15 (30%)
Cytoplasmic Alteration	1 (2%)
Vacuolization Cytoplasmic	3 (6%)
Pars Distalis, Hyperplasia	18 (36%)
Thyroid Gland	(49)
Angiectasis	1 (2%)
C-Cell, Hyperplasia	15 (31%)
Follicular Cell, Hypertrophy	6 (12%)

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Clitoral Gland	(49)
Atrophy	1 (2%)
Hyperplasia, Basal Cell	1 (2%)
Hyperplasia, Squamous	1 (2%)
Inflammation	35 (71%)
Duct, Cyst	35 (71%)
Ovary	(49)
Atrophy	45 (92%)
Cyst	16 (33%)
Inflammation, Granulomatous	1 (2%)
Oviduct	(2)
Inflammation	2 (100%)

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TEDD)

Report: PEIRPT03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE

100 MG/
 KG/STOP

GENITAL SYSTEM - CONT

Uterus	(50)
Inflammation, Chronic Active	1 (2%)
Inflammation, Suppurative	9 (18%)
Metaplasia, Squamous	33 (66%)
Cervix, Inflammation, Chronic Active	1 (2%)
Endometrium, Hyperplasia, Cystic	32 (64%)

HEMATOPOIETIC SYSTEM

Bone Marrow	(50)
Atrophy	1 (2%)
Hyperplasia	36 (72%)
Myelofibrosis	1 (2%)
Lymph Node	(5)
Lumbar, Ectasia	2 (40%)
Lumbar, Hyperplasia, Plasma Cell	2 (40%)
Mediastinal, Hemorrhage	1 (20%)
Mediastinal, Hyperplasia, Plasma Cell	1 (20%)
Lymph Node, Mandibular	(49)
Ectasia	2 (4%)
Hyperplasia, Lymphoid	2 (4%)
Hyperplasia, Plasma Cell	30 (61%)
Lymph Node, Mesenteric	(49)
Hyperplasia, Histiocytic	1 (2%)
Spleen	(49)
Hematopoietic Cell Proliferation	42 (86%)
Hyperplasia, Lymphoid	1 (2%)
Pigmentation	42 (86%)
Lymphoid Follicle, Atrophy	1 (2%)
Red Pulp, Atrophy	1 (2%)
Thymus	(49)
Atrophy	45 (92%)

INTEGUMENTARY SYSTEM

Mammary Gland	(50)
Cyst	4 (8%)
Hyperplasia	19 (38%)
Skin	(50)
Ulcer	1 (2%)

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

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PHIRPT03
 Date: 11/25/02
 Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE 100 NG/
 KG/STOP

MUSCULOSKELETAL SYSTEM

None

NERVOUS SYSTEM

Brain
 Hemorrhage (50)
 Inflammation, Suppurative 1 (2%)
 1 (2%)

RESPIRATORY SYSTEM

Lung (50)
 Infiltration Cellular, Histiocyte 41 (82%)
 Inflammation, Suppurative 1 (2%)
 Metaplasia, Squamous 3 (6%)
 Alveolar Epithelium, Metaplasia, Bronchiolar 31 (62%)
 Serosa, Inflammation, Suppurative 1 (2%)
 Nose (50)
 Inflammation 1 (2%)
 Goblet Cell, Respiratory Epithelium, 1 (2%)
 Hyperplasia
 Nasolacrimal Duct, Inflammation 1 (2%)
 Olfactory Epithelium, Degeneration 1 (2%)
 Olfactory Epithelium, Inflammation 1 (2%)
 Olfactory Epithelium, Glands, Hyperplasia 1 (2%)
 Respiratory Epithelium, Cyst 1 (2%)
 Respiratory Epithelium, Inflammation, 1 (2%)
 Suppurative 1 (2%)

SPECIAL SENSES SYSTEM

Eye (50)
 Retinal Detachment 1 (2%)
 Bilateral, Cataract 1 (2%)
 Retina, Atrophy 6 (12%)
 Retina, Degeneration 1 (2%)
 Harderian Gland (50)
 Hemorrhage 1 (2%)
 Inflammation 9 (18%)

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

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
TOXIC EQUIVALENCY FACTOR EVALUATION (TEDD)

Report: PEIRPT03
Date: 11/25/02
Time: 12:18:49

SPRAGUE-DAWLEY RATS FEMALE

100 NG/
KG/STOP

URINARY SYSTEM

Kidney	(50)
Accumulation, Hyaline Droplet	2 (4%)
Cast Protein	1 (2%)
Mineralization	42 (84%)
Nephropathy	41 (82%)
Papilla, Transitional Epithelium, Hyperplasia	1 (2%)
Pelvis, Dilatation	1 (2%)
Transitional Epithelium, Hyperplasia	5 (10%)
Urinary Bladder	(50)
Inflammation	2 (4%)

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

END OF REPORT

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
Route: GAVAGE

14 WEEK SSAC

Report: PEIRPT05
Date: 11/25/02
Time: 11:41:36

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25017 Scheduled Sacrifice

Removal Date Range: 09/02/98 - 09/03/98

Treatment Groups:

Include 001	0 NG/KG
Include 002	3 NG/KG
Include 003	10 NG/KG
Include 004	22 NG/KG
Include 005	46 NG/KG
Include 006	100 NG/KG

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

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
 Route: GAVAGE

Report: PEIRPT05
 Date: 11/25/02
 Time: 11:41:36

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

DISPOSITION SUMMARY	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Animals Initially in Study	98	98	98	98	98	98
Scheduled Sacrifice	16	16	16	16	16	16
Early Deaths						
Survivors	10	10	10	10	10	10
Animals Examined Microscopically						

ALIMENTARY SYSTEM

None

CARDIOVASCULAR SYSTEM

None

ENDOCRINE SYSTEM

None

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Uterus
Decidua Benign

(10) (1) 1 (100%) (10)

HEMATOPOIETIC SYSTEM

None

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC
 Route: GAVAGE
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT05
 Date: 11/25/02
 Time: 11:41:36

SPRAGUE-DAWLEY RATS FEMALE

0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
---------	---------	----------	----------	----------	-----------

INTEGUMENTARY SYSTEM

Mammary Gland
 Carcinoma

(10)
 1 (10%)

(10)

MUSCULOSKELETAL SYSTEM

None

NERVOUS SYSTEM

None

RESPIRATORY SYSTEM

None

SPECIAL SENSES SYSTEM

None

URINARY SYSTEM

None

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRP05
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD) Date: 11/25/02
 Route: GAVAGE Time: 11:41:36

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

TUMOR SUMMARY

Total Animals with Primary Neoplasms (b)	1	1	1			
Total Primary Neoplasms	1	1	1			
Total Animals with Benign Neoplasms			1	1		
Total Benign Neoplasms			1	1		
Total Animals with Malignant Neoplasms	1					
Total Malignant Neoplasms	1					
Total Animals with Metastatic Neoplasms						
Total Metastatic Neoplasm						
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

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

31 WEEK SSAC

Report: PEIRPT05
Date: 11/25/02
Time: 12:01:07

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25017 Scheduled Sacrifice

Removal Date Range: 12/30/98 - 12/31/98

Treatment Groups:

Include 001	0	NG/KG
Include 002	3	NG/KG
Include 003	10	NG/KG
Include 004	22	NG/KG
Include 005	46	NG/KG
Include 006	100	NG/KG

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

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
 Route: GAVAGE

Report: PIRPPT05
 Date: 11/25/02
 Time: 12:01:07

SPRAGUE-DAWLEY RATS FEMALE

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
DISPOSITION SUMMARY						
Animals Initially in Study	98	98	98	98	98	98
Scheduled Sacrifice	16	16	16	16	16	16
Early Deaths						
Survivors	10	10	10	10	10	10
Animals Examined Microscopically						

ALIMENTARY SYSTEM

None

CARDIOVASCULAR SYSTEM

None

ENDOCRINE SYSTEM

None

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

None

HEMATOPOIETIC SYSTEM

None

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT05
Date: 11/25/02
Time: 12:01:07

SPRAGUE-DAWLEY RATS FEMALE

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
--	---------	---------	----------	----------	----------	-----------

100 NG/KG

INTEGUMENTARY SYSTEM

Mammary Gland

Fibroadenoma

Skin

Sarcoma

(10)

(1)

1 (100%)

(1)

1 (100%)

(10)

MUSCULOSKELETAL SYSTEM

None

NERVOUS SYSTEM

None

RESPIRATORY SYSTEM

None

SPECIAL SENSES SYSTEM

None

URINARY SYSTEM

None

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD) (b)
 Route: GAVAGE

Report: PEIRPT05
 Date: 11/25/02
 Time: 12:01:07

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

TUMOR SUMMARY

Total Animals with Primary Neoplasms (b)	1					1
Total Primary Neoplasms	1					1
Total Animals with Benign Neoplasms						
Total Benign Neoplasms	1					1
Total Animals with Malignant Neoplasms						
Total Malignant Neoplasms						
Total Animals with Metastatic Neoplasms						
Total Metastatic Neoplasms						
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

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
Route: GAVAGE

Report: PEIRPT05
Date: 11/25/02
Time: 12:07:58

53 WEEK SSAC

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25017 scheduled sacrifice

Removal Date Range: 06/03/99 - 06/04/99

Treatment Groups:	Include 001	0 NG/KG
	Include 002	3 NG/KG
	Include 003	10 NG/KG
	Include 004	22 NG/KG
	Include 005	46 NG/KG
	Include 006	100 NG/KG

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

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRPT05
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD) Date: 11/25/02
 Route: GAVAGE Time: 12:07:58

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

DISPOSITION SUMMARY

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Animals Initially in Study	98	98	98	98	98	98
Scheduled Sacrifice	13	12	13	13	13	13
Early Deaths						
Survivors						
Animals Examined Microscopically	8	8	8	8	8	8

ALIMENTARY SYSTEM

None

CARDIOVASCULAR SYSTEM

None

ENDOCRINE SYSTEM

Adrenal Medulla	(8)	(1)	(1)	(8)
Pheochromocytoma		1 (100%)		
Pituitary Gland Adenoma	(8)	(1)	1 (100%)	(7)

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Uterus	(8)	(1)	(8)
Polyp Stromal	1 (13%)		1 (13%)

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC
 Route: GAVAGE

TOXIC EQUIVALENCY FACTOR EVALUATION (TCED)

Report: PEIRPT05
 Date: 11/25/02
 Time: 12:07:58

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

HEMATOPOIETIC SYSTEM

None

INTEGUMENTARY SYSTEM

Mammary Gland (8)
 Fibroadenoma (2)
 Fibroadenoma, Multiple 2 (100%)

(2)
 1 (50%)
 1 (50%)

(8)

MUSCULOSKELETAL SYSTEM

None

NERVOUS SYSTEM

None

RESPIRATORY SYSTEM

None

SPECIAL SENSES SYSTEM

None

URINARY SYSTEM

None

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
 Route: GAVAGE

Report: PRRP05
 Date: 11/25/02
 Time: 12:07:58

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

TUMOR SUMMARY

Total Animals with Primary Neoplasms (b)	1	2	3		1
Total Primary Neoplasms	1	2	4		1
Total Animals with Benign Neoplasms	1	2	3		1
Total Benign Neoplasms	1	2	4		1
Total Animals with Malignant Neoplasms					
Total Malignant Neoplasms					
Total Animals with Metastatic Neoplasms					
Total Metastatic Neoplasms					
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

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TQDD)
Route: GAVAGE

Report: PEIRPT05
Date: 11/25/02
Time: 12:20:55

FINAL#1/RATS

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25018 Dosing Accident

25019 Moribund Sacrifice
25021 Terminal Sacrifice

25020 Natural Death

Removal Date Range: All

Treatment Groups:

Include 001	0 NG/KG
Include 002	3 NG/KG
Include 003	10 NG/KG
Include 004	22 NG/KG
Include 005	46 NG/KG
Include 006	100 NG/KG
Include 007	100 NG/ KG/STOP

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

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
 Route: GAVAGE

Report: PEIRPT05
 Date: 11/25/02
 Time: 12:20:55

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

DISPOSITION SUMMARY

Disposition	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Animals Initially in Study	98	98	98	98	98	98
Early Deaths						
Moribund Sacrifice	19	27	15	19	17	17
Natural Death	9	6	10	15	14	15
Dosing Accident						
Survivors	25	21	23	19	22	21
Terminal Sacrifice						
Animals Examined Microscopically	53	54	53	53	53	53

ALIMENTARY SYSTEM

Intestine Large, Rectum	(52)	(54) 1 (2%)	(53)	(52)	(53)	(53)
Carcinoma	(51)	(54)	(53)	(53)	(53)	(52)
Intestine Small, Jejunum						
Leiomyoma	(53)	(54)	(53)	(53)	(53)	(53)
Liver						
Carcinoma, Metastatic, Pancreas				1 (2%)	2 (4%)	8 (15%)
Carcinoma, Metastatic, Uterus					3 (6%)	17 (32%)
Cholangiocarcinoma					1 (2%)	6 (11%)
Cholangiocarcinoma, Multiple					2 (4%)	5 (9%)
Hepatocellular Adenoma					1 (2%)	1 (2%)
Hepatocellular Adenoma, Multiple						
Hepatocholangioma	(2)	(2)		(1)	(6)	(8)
Mesentery						
Carcinoma, Metastatic, Uterus					1 (17%)	
Schwannoma Malignant	1 (50%)	(9)	(16)	(16)	(22)	(29)
Oral Mucosa	(2)	2 (22%)	1 (6%)		4 (18%)	10 (34%)
Gingival, Squamous Cell Carcinoma	1 (50%)	(54)	(52)	(53)	(52)	(51)
Pancreas	(51)				1 (2%)	
Carcinoma, Metastatic, Uterus						
Acinus, Adenoma						1 (2%)
Acinus, Carcinoma	(53)	(54)	(53)	(53)	(53)	(53)
Stomach, Forestomach	1 (2%)				1 (2%)	2 (4%)
Squamous Cell Carcinoma						
Squamous Cell Papilloma						
Stomach, Glandular	(53)	(54)	(53)	(53)	(53)	(53)

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC
 Route: GAVAGE
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PETRPT05
 Date: 11/25/02
 Time: 12:20:55

SPRAGUE-DAWLEY RATS, FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

CARDIOVASCULAR SYSTEM

Heart	(53)	(54) 1 (2%)	(53)	(52)	(53)	(52)
Schwannoma Malignant						

ENDOCRINE SYSTEM

Adrenal Cortex	(53)	(54)	(53)	(53)	(53)	(53)
Adenoma	1 (2%)		2 (4%)	2 (4%)	1 (2%)	1 (2%)
Carcinoma						
Pheochromocytoma Benign						
Capsule, Sarcoma, Metastatic, Skeletal Muscle						
Adrenal Medulla	(53)	(54)	1 (2%)	(53)	(53)	(53)
Pheochromocytoma Malignant						
Pheochromocytoma Benign	3 (6%)	2 (4%)	2 (4%)	3 (6%)	3 (6%)	1 (2%)
Islets, Pancreatic	(51)	(54)	(53)	(53)	(53)	3 (6%)
Adenoma	1 (2%)		2 (4%)			(52)
Carcinoma						
Parathyroid Gland	(46)	(47)	(47)	(44)	(45)	(45)
Adenoma						
Pituitary Gland	(53)	(54)	(52)	(53)	(53)	(52)
Adenoma	4 (8%)					1 (2%)
Meningioma Malignant, Metastatic, Brain						
Pars Distalis, Adenoma	18 (34%)	20 (37%)	26 (50%)	15 (28%)	20 (38%)	10 (19%)
Pars Distalis, Adenoma, Multiple	3 (6%)					
Pars Intermedia, Adenoma	2 (4%)					
Thyroid Gland	(52)	(54)	(53)	(51)	(53)	(52)
Bilateral, C-Cell, Adenoma	3 (6%)	3 (6%)	2 (4%)	2 (4%)	1 (2%)	3 (6%)
C-Cell, Adenoma	17 (33%)	12 (22%)	15 (28%)	14 (27%)	12 (23%)	8 (15%)
C-Cell, Carcinoma	1 (2%)					
Follicular Cell, Adenoma	1 (2%)	1 (2%)			2 (4%)	
Follicular Cell, Carcinoma						1 (2%)

GENERAL BODY SYSTEM

None

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TQDD)

Report: PETRPT05
 Date: 11/25/02
 Time: 12:20:55

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

GENITAL SYSTEM

Clitoral Gland	(50)	(52)	(53)	(52)	(51)	(53)
Ovary	(51)	(53)	(53)	(53)	(53)	(53)
Granulosa Cell Tumor Malignant					1 (2%)	
Thecoma Benign					1 (2%)	
Periovarian Tissue, Schwannoma Malignant,					1 (2%)	
Metastatic, Uterus	1 (2%)	(53)	(53)	(53)	(53)	(53)
Uterus	(52)	1 (2%)	1 (2%)	(53)	(53)	(53)
Adenoma					2 (4%)	
Carcinoma		1 (2%)		1 (2%)	1 (2%)	1 (2%)
Carcinoma, Multiple					1 (2%)	
Hemangiosarcoma					8 (15%)	
Leiomyoma	1 (2%)	7 (13%)	4 (8%)	3 (6%)	9 (17%)	7 (13%)
PolyP Stromal	9 (17%)				1 (2%)	1 (2%)
Squamous Cell Carcinoma	2 (4%)				4 (8%)	1 (2%)
Squamous Cell Carcinoma, Multiple					1 (2%)	
Squamous Cell Papilloma	1 (2%)	1 (2%)	1 (2%)			
Cervix, Carcinoma						
Cervix, Schwannoma Malignant	1 (2%)					
Vagina						
Schwannoma Malignant		1 (2%)			3 (3)	3 (3)
Schwannoma Malignant, Metastatic, Skin		1 (1)	1 (1)		1 (33%)	1 (33%)
Squamous Cell Carcinoma						1 (33%)

HEMATOPOIETIC SYSTEM

Bone Marrow	(53)	(54)	(53)	(53)	(53)	(53)
Lymph Node	(2)	(6)	(3)	(5)	(6)	(53)
Deep Cervical, Carcinoma, Metastatic,						
Thyroid Gland	1 (50%)					
Lumbar, Carcinoma, Metastatic, Uterus		(54)	(52)	(50)	1 (17%)	(52)
Lymph Node, Mandibular	(51)	(53)	(53)	(53)	(51)	(51)
Lymph Node, Mesenteric	(52)	(54)	(53)	(53)	(52)	(52)
Spleen	(51)				1 (2%)	
Hemangiosarcoma						
Schwannoma Malignant, Metastatic, Uterus	1 (2%)	(52)	(52)	(49)	(46)	(42)
Thymus	(51)	1 (2%)				
Carcinoma, Metastatic, Lung						
Histiocytic Sarcoma, Metastatic, Lung						

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC
 Route: GAVAGE
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT05
 Date: 11/25/02
 Time: 12:20:55

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

INTEGUMENTARY SYSTEM

Mammary Gland	(53)	(54)	(53)	(53)	(53)	(53)	(53)
Adenoma	2 (4%)	7 (13%)	1 (2%)	2 (4%)	2 (4%)	1 (2%)	
Carcinoma	3 (6%)	1 (2%)	4 (8%)				
Carcinoma, Multiple	1 (2%)	26 (48%)					
Fibroadenoma	21 (40%)	12 (23%)	17 (32%)	17 (32%)	12 (23%)	24 (45%)	20 (38%)
Fibroadenoma, Multiple	12 (23%)	14 (26%)	17 (32%)	12 (23%)	12 (23%)	12 (23%)	4 (8%)
Skin	(53)	(54)	(53)	(53)	(53)	(53)	(53)
Basal Cell Carcinoma	1 (2%)		1 (2%)				
Fibroma	1 (2%)		2 (4%)				1 (2%)
Fibrosarcoma							
Keratoacanthoma							
Lipoma							
Myxosarcoma		1 (2%)	1 (2%)				
Schwannoma Malignant	1 (2%)		1 (2%)	2 (4%)			1 (2%)

MUSCULOSKELETAL SYSTEM

Bone	(53)	(54)	(53)	(53)	(53)	(53)	(53)
Cranium, Schwannoma Malignant, Metastatic, Skin							
Periosteum, Fibrosarcoma							
Skeletal Muscle							
Fibrous Histiocytoma			(1)				
Sarcoma			1 (100%)	1 (2%)	1 (2%)	2 (2)	1 (50%)

NERVOUS SYSTEM

Brain	(53)	(54)	(53)	(53)	(53)	(53)	(53)
Glioma Malignant							
Granular Cell Tumor Malignant			1 (2%)	1 (2%)			

RESPIRATORY SYSTEM

Lung	(53)	(54)	(53)	(52)	(53)	(52)	(52)
Alveolar/Bronchiolar Adenoma, Multiple							
Alveolar/Bronchiolar Carcinoma							
Carcinoma, Metastatic, Mammary Gland							
Carcinoma, Metastatic, Pancreas							
Carcinoma, Metastatic, Thyroid Gland	1 (2%)						1 (2%)

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRPT05
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD) Date: 11/25/02
 Route: GAVAGE Time: 12:20:55

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

RESPIRATORY SYSTEM - cont

Cystic Keratinizing Epithelioma		1 (2%)	1 (2%)	1 (2%)	(53)	(53)	1 (2%)	7 (13%)
Cystic Keratinizing Epithelioma, Multiple				1 (2%)	1 (2%)			2 (4%)
Nephroblastoma, Metastatic, Kidney				1 (2%)	1 (2%)			1 (2%)
Sarcoma, Metastatic, Skeletal Muscle				(53)	(53)			(53)
Mediastinum, Sarcoma								1 (2%)
Nose								1 (2%)
Squamous Cell Carcinoma, Metastatic, Oral								1 (2%)
Mucosa								

SPECIAL SENSES SYSTEM

Ear		(2)	(2)	(2)				(2)
Pinna, Neural Crest Tumor		1 (50%)		(53)	(52)	(53)		(53)
Harderian Gland		(53)	(54)					(53)
Squamous Cell Carcinoma, Metastatic, Oral								3 (6%)
Mucosa								
Zymbal's Gland		(1)						
Carcinoma		1 (100%)						

URINARY SYSTEM

Kidney		(53)	(54)	(53)	(53)	(53)	(53)	(53)
Nephroblastoma			2 (4%)	1 (2%)				
Schwannoma Malignant, Metastatic, Uterus		1 (2%)						
Stromal Nephroma		(52)	(53)	(53)	(52)	(53)	(53)	(53)
Urinary Bladder			1 (2%)					
POLYP		1 (2%)						
Schwannoma Malignant, Metastatic, Uterus								1 (2%)
Squamous Cell Carcinoma, Metastatic, Uterus								1 (2%)
Transitional Epithelium, Carcinoma								

SYSTEMIC LESIONS

Multiple Organs		*(53)	*(54)	*(53)	*(53)	*(53)	*(53)	*(53)
Leukemia Granulocytic			1 (2%)	1 (2%)	1 (2%)			2 (4%)
Lymphoma Malignant								

* Number of animals with any tissue examined microscopically

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
 Route: GAVAGE

Report: PEIRPT05
 Date: 11/25/02
 Time: 12:20:55

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

TUMOR SUMMARY

Total Animals with Primary Neoplasms (b)	47	54	48	44	50	50
Total Primary Neoplasms	116	105	106	89	118	128
Total Animals with Benign Neoplasms	45	49	45	40	46	41
Total Benign Neoplasms	102	86	92	78	90	84
Total Animals with Malignant Neoplasms	13	19	13	11	24	34
Total Malignant Neoplasms	13	19	14	11	28	44
Total Animals with Metastatic Neoplasms	2	3	2	2	3	6
Total Metastatic Neoplasm	6	3	3	3	6	7
Total Animals with Malignant Neoplasms Uncertain Primary Site						
Total Animals with Neoplasms Uncertain-Benign or Malignant	1					
Total Uncertain Neoplasms	1					

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

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
 Route: GAVAGE

Report: P1RPP05
 Date: 11/25/02
 Time: 12:20:55

SPRAGUE-DAWLEY RATS FEMALE 100 NG/
 KG/STOP

DISPOSITION SUMMARY

Animals Initially in Study 50
 Early Deaths
 Moribund Sacrifice 16
 Natural Death 13
 Survivors 21
 Terminal Sacrifice
 Animals Examined Microscopically 50

ALIMENTARY SYSTEM

Intestine Large, Rectum (50)
 Fibrous Histiocytoma, Metastatic, Skin 1 (2%)
 Intestine Small, Jejunum (50)
 Schwannoma Malignant, Metastatic, Heart 1 (2%)
 Liver (50)
 Cholangiocarcinoma 1 (2%)
 Cholangiocarcinoma, Multiple 1 (2%)
 Cholangioma 1 (2%)
 Fibrous Histiocytoma, Metastatic, Skin 1 (2%)
 Hepatocellular Adenoma 2 (4%)
 Schwannoma Malignant, Metastatic, Heart 1 (2%)
 Oral Mucosa (11)
 Gingival, Squamous Cell Carcinoma 5 (45%)
 Pancreas (49)
 Acinus, Carcinoma 1 (2%)
 Tongue (1)
 Squamous Cell Carcinoma 1 (100%)

CARDIOVASCULAR SYSTEM

Blood Vessel (49)
 Aorta, Fibrous Histiocytoma, Metastatic, Skin 1 (2%)
 Heart (50)
 Carcinoma, Metastatic, Mammary Gland 1 (2%)
 Schwannoma Malignant 3 (6%)

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC
 Route: GAVAGE

TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT05
 Date: 11/25/02
 Time: 12:20:55

SPRAGUE-DAWLEY RATS FEMALE 100 NG/
 KG/STOP

ENDOCRINE SYSTEM

Adrenal Cortex	(50)
Capsule, Schwannoma Malignant, Metastatic,	
Heart	1 (2%)
Adrenal Medulla	(50)
Pheochromocytoma Complex	1 (2%)
Pheochromocytoma Benign	1 (2%)
Pituitary Gland	(50)
Pars Distalis, Adenoma	19 (38%)
Thyroid Gland	(49)
Bilateral, C-Cell, Adenoma	2 (4%)
C-Cell, Adenoma	11 (22%)
C-Cell, Carcinoma	1 (2%)

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Ovary	(49)
Carcinoma, Metastatic, Uterus	1 (2%)
Uterus	(50)
Carcinoma	2 (4%)
Polyp Stromal	3 (6%)
Polyp Stromal, Multiple	1 (2%)
Squamous Cell Carcinoma	2 (4%)

HEMATOPOIETIC SYSTEM

Bone Marrow	(50)
Fibrous Histiocytoma, Metastatic, Skin	1 (2%)
Lymph Node, Mesenteric	(49)
Fibrous Histiocytoma, Metastatic, Skin	1 (2%)
Spleen	(49)
Fibrous Histiocytoma, Metastatic, Skin	1 (2%)
Hemangiosarcoma	1 (2%)
Schwannoma Malignant, Metastatic, Heart	1 (2%)
Thymus	(49)
Fibrous Histiocytoma, Metastatic, Skin	1 (2%)

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
 Route: GAVAGE

Report: PEIRPT05
 Date: 11/25/02
 Time: 12:20:55

SPRAGUE-DAWLEY RATS FEMALE 100 NG/
 KG/STOP

HEMATOPOIETIC SYSTEM - cont
 Thymoma Malignant 1 (2%)

INTEGUMENTARY SYSTEM

Mammary Gland (50)
 Adenolipoma 1 (2%)
 Carcinoma 1 (2%)
 Fibroadenoma 19 (38%)
 Fibroadenoma, Multiple 13 (26%)
 Skin (50)
 Fibroma 1 (2%)
 Fibrous Histiocytoma 1 (2%)
 Liposarcoma 1 (2%)

MUSCULOSKELETAL SYSTEM

Bone (50)
 Squamous Cell Carcinoma, Metastatic, Tongue 1 (2%)
 Skeletal Muscle (1)
 Fibrous Histiocytoma, Metastatic, Skin 1 (100%)

NERVOUS SYSTEM

None

RESPIRATORY SYSTEM

Lung (50)
 Carcinoma, Metastatic, Mammary Gland 1 (2%)
 Fibrous Histiocytoma, Metastatic, Skin 1 (2%)
 Schwannoma Malignant, Metastatic, Heart 1 (2%)

SPECIAL SENSES SYSTEM

None

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PETRPT05
Date: 11/25/02
Time: 12:20:55

Route: GAVAGE

SPRAGUE-DAWLEY RATS FEMALE 100 NG/
KG/STOP

URINARY SYSTEM

Kidney (50)
Fibrous Histiocytoma, Metastatic, Skin 1 (2%)

SYSTEMIC LESIONS

Multiple Organs *(50)
Adenolipoma 1 (2%)
Lymphoma Malignant 1 (2%)

* Number of animals with any tissue examined microscopically

NTP Experiment-Test: 96007-03 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
 Study Type: CHRONIC TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
 Route: GAVAGE

Report: PEIRPT05
 Date: 11/25/02
 Time: 12:20:55

SPRAGUE-DAWLEY RATS FEMALE 100 MG/
 KG/STOP

TUMOR SUMMARY

Total Animals with Primary Neoplasms (b)	46
Total Primary Neoplasms	98
Total Animals with Benign Neoplasms	41
Total Benign Neoplasms	74
Total Animals with Malignant Neoplasms	19
Total Malignant Neoplasms	24
Total Animals with Metastatic Neoplasms	5
Total Metastatic Neoplasms	19
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

NTP
LAB: Battelle Columbus
EXPERIMENT: 96007 TEST: 03
TEST TYPE: CHRONIC
CONT: NO1-ES-75411
PATHOLOGIST: SELLS, DONALD

STATISTICAL ANALYSIS OF PRIMARY TUMORS
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

CAGES FROM 0000 TO LAST CAGE
ROUTE: GAVAGE

REPORT: PEIRPT08
DATE: 11/25/02
TIME: 12:49:39
PAGE: 1
NTP C#: 96007G
CAS: 1746-01-6

CONTROL VS TREATED GRPS.

REASONS FOR REMOVAL: 25018 Dosing Accident
25019 Moribund Sacrifice
25020 Natural Death
25021 Terminal Sacrifice

REMOVAL DATE RANGE: ALL

TREATMENT GROUPS:
INCLUDE 001 0 NG/KG
INCLUDE 002 3 NG/KG
INCLUDE 003 10 NG/KG
INCLUDE 004 22 NG/KG
INCLUDE 005 46 NG/KG
INCLUDE 006 100 NG/KG

NTP
LAB: Battelle Columbus
EXPERIMENT: 96007 TEST: 03
TEST TYPE: CHRONIC
CONT: N01-ES-75411
PATHOLOGIST: SELLS, DONALD
Rats (SPRAGUE-DAWLEY)

STATISTICAL ANALYSIS OF PRIMARY TUMORS
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
CAGES FROM 0000 TO LAST CAGE
ROUTE: GAVAGE

REPORT: PETRPT08
DATE: 11/25/02
TIME: 12:49:39
NTP C#: 96007G
CAS: 1746-01-6

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 THE NUMBER OF ANIMALS NECROPSIED.

Adrenal Cortex
Adrenal Medulla
Brain
Heart
Islets, Pancreatic
Kidney
Liver
Lung
Ovary
Pancreas
Parathyroid Gland
Pituitary Gland
Spleen
Thyroid Gland
Urinary Bladder

NTP
LAB: Battelle Columbus
EXPERIMENT: 96007 TEST: 03
TEST TYPE: CHRONIC
CONT: N01-ES-75411
PATHOLOGIST: SELLS, DONALD

STATISTICAL ANALYSIS OF PRIMARY TUMORS
TOXIC EQUIVALENCY FACTOR EVALUATION (TECD)
CAGES FROM 0000 TO LAST CAGE
ROUTE: GAVAGE

REPORT: PEIRPT08
DATE: 11/25/02
TIME: 12:49:39
NTP C#: 96007G
CAS: 1746-01-6

SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS
IN THE ANALYSIS OF TOXIC EQUIVALENCY FACTOR EVALUATION

Female Rats

Organ	Morphology
Liver	Cholangiocarcinoma Hepatocellular Adenoma Cystic Keratinizing Epithelioma Carcinoma
Lung	Carcinoma or Adenoma Fibroadenoma
Mammary Gland	Fibroma, Fibroadenoma or Adenoma Fibroadenoma, Carcinoma, or Adenoma
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva)	Squamous Cell Carcinoma Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma Carcinoma
Oral Mucosa	Carcinoma or Adenoma
Pancreas	Adenoma Adenoma
Pituitary Gland: Pars Distalis or Unspecified Site	Adenoma
Pituitary Gland: Pars Intermedia	Adenoma
Thyroid Gland: C-Cell	Carcinoma or Adenoma
Uterus	Polyp Stromal Squamous Cell Carcinoma
All Organs	Benign Tumors Malignant Tumors Malignant and Benign Tumors

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Adrenal Cortex Adenoma				Females		
				22 NG/KG	46 NG/KG	100 NG/KG

TUMOR RATES	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	1/53 (2%)	0/54 (0%)	2/53 (4%)	2/53 (4%)	1/53 (2%)	1/53 (2%)
POLY-3 RATE (b)	1/39.55	0/34.61	2/38.75	2/34.53	1/39.00	1/42.90
POLY-3 PERCENT (g)	2.5%	0.0%	5.2%	5.8%	2.6%	2.3%
TERMINAL (d)	1/25 (4%)	0/21 (0%)	2/23 (9%)	1/19 (5%)	1/22 (5%)	0/21 (0%)
FIRST INCIDENCE	731 (T)	---	731 (T)	626	731 (T)	648
STATISTICAL TESTS						
LIFE TABLE						
POLY 3	P=0.609N	P=0.535N	P=0.471	P=0.403	P=0.734	P=0.744
POLY 1.5	P=0.549N	P=0.527N	P=0.493	P=0.453	P=0.758	P=0.743N
POLY 6	P=0.567N	P=0.514N	P=0.490	P=0.472	P=0.759	P=0.745N
LOGISTIC REGRESSION	P=0.542N	P=0.539N	P=0.494	P=0.430	P=0.755	P=0.747N
COCH-ARM / FISHERS	P=0.560N	(e)	P=0.471	P=0.433	P=0.734	P=0.749N
ORDER RESTRICTED	P=0.614N	P=0.495N	P=0.500	P=0.500	P=0.752N	P=0.752N
		(e)	(e)	(e)	(e)	(e)

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Adrenal Medulla Pheochromocytoma Benign				Females		
				22 NG/KG	46 NG/KG	100 NG/KG

TUMOR RATES	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	3/53 (6%)	2/54 (4%)	2/53 (4%)	3/53 (6%)	3/53 (6%)	3/53 (6%)
POLY-3 RATE (b)	2/39.55	2/34.61	2/38.75	3/34.16	3/39.09	3/43.18
POLY-3 PERCENT (g)	7.6%	5.8%	5.2%	8.8%	7.7%	7.0%
TERMINAL (d)	3/25 (12%)	2/21 (10%)	2/23 (9%)	3/19 (16%)	2/22 (9%)	0/21 (0%)
FIRST INCIDENCE	731 (T)	731 (T)	731 (T)	731 (T)	708	642
STATISTICAL TESTS						
LIFE TABLE						
POLY 3	P=0.414	P=0.581N	P=0.539N	P=0.532	P=0.604	P=0.606
POLY 1.5	P=0.542	P=0.561N	P=0.509N	P=0.594	P=0.658	P=0.622N
POLY 6	P=0.516	P=0.533N	P=0.512N	P=0.623	P=0.660	P=0.629N
LOGISTIC REGRESSION	P=0.550	P=0.590N	P=0.508N	P=0.557	P=0.653	P=0.628N
COCH-ARM / FISHERS	P=0.492	P=0.581N	P=0.539N	P=0.532	P=0.618	P=0.642N
ORDER RESTRICTED	P=0.436	P=0.491N	P=0.500N	P=0.661N	P=0.661N	P=0.661N
	P=0.688	(e)	(e)	(e)	(e)	(e)

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
------	---------	---------	----------	---------------------	----------	--------------

Adrenal Medulla
 Pheochromocytoma: Benign, Complex, Malignant, NOS

TUMOR RATES						
OVERALL (a)	3/53 (6%)	2/54 (4%)	2/53 (4%)	3/53 (6%)	3/53 (6%)	3/53 (6%)
POLY-3 RATE (b)	3/39.55	2/34.61	2/38.75	3/34.16	3/39.09	3/43.18
POLY-3 PERCENT (g)	7.6%	5.8%	5.2%	8.8%	7.7%	7.0%
TERMINAL (d)	3/25 (12%)	2/21 (10%)	2/23 (9%)	3/19 (16%)	2/22 (9%)	0/21 (0%)
FIRST INCIDENCE	731 (T)	731 (T)	731 (T)	731 (T)	708	642
STATISTICAL TESTS						

LIFE TABLE						
POLY 3	P=0.414	P=0.581N	P=0.539N	P=0.532	P=0.604	P=0.606
POLY 1.5	P=0.542	P=0.561N	P=0.509N	P=0.594	P=0.658	P=0.622N
	P=0.516	P=0.533N	P=0.512N	P=0.623	P=0.660	P=0.629N
	P=0.550	P=0.590N	P=0.508N	P=0.557	P=0.653	P=0.628N
	P=0.492	P=0.581N	P=0.539N	P=0.532	P=0.618	P=0.642N
	P=0.436	P=0.491N	P=0.500N	P=0.661N	P=0.661N	P=0.661N
	P=0.688	(e)	(e)	(e)	(e)	(e)

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
------	---------	---------	----------	---------------------	----------	--------------

Islets, Pancreatic
 Adenoma

TUMOR RATES						
OVERALL (a)	1/51 (2%)	0/54 (0%)	2/53 (4%)	0/53 (0%)	0/52 (0%)	0/52 (0%)
POLY-3 RATE (b)	1/38.86	0/34.61	2/38.75	0/34.16	0/38.45	0/41.64
POLY-3 PERCENT (g)	2.6%	0.0%	5.2%	0.0%	0.0%	0.0%
TERMINAL (d)	1/25 (4%)	0/21 (0%)	2/23 (9%)	0/19 (0%)	0/22 (0%)	0/21 (0%)
FIRST INCIDENCE	731 (T)	---	731 (T)	---	---	---
STATISTICAL TESTS						

LIFE TABLE						
POLY 3	P=0.248N	P=0.535N	P=0.471	P=0.555N	P=0.525N	P=0.535N
POLY 1.5	P=0.205N	P=0.523N	P=0.499	P=0.526N	P=0.502N	P=0.486N
	P=0.218N	P=0.509N	P=0.499	P=0.512N	P=0.500N	P=0.486N
	P=0.196N	P=0.537N	P=0.497	P=0.542N	P=0.506N	P=0.493N
	P=0.248N	(e)	P=0.471	(e)	(e)	(e)
	P=0.236N	P=0.486N	P=0.515	P=0.490N	P=0.495N	P=0.495N
	P=0.245N	(e)	(e)	(e)	(e)	(e)

Islets, Pancreatic Carcinoma or Adenoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
TUMOR RATES						
OVERALL (a)	2/51 (4%)	0/54 (0%)	2/53 (4%)	0/53 (0%)	0/52 (0%)	0/52 (0%)
POLY-3 RATE (b)	2/39.17	0/34.61	2/38.75	0/34.16	0/38.45	0/41.64
POLY-3 PERCENT (g)	5.1%	0.0%	5.2%	0.0%	0.0%	0.0%
TERMINAL (d)	1/25 (4%)	0/21 (0%)	2/23 (9%)	0/19 (0%)	0/22 (0%)	0/21 (0%)
FIRST INCIDENCE	645	---	731 (T)	---	---	---
STATISTICAL TESTS						
LIFE TABLE						
POLY 3	P=0.149N	P=0.302N	P=0.662	P=0.318N	P=0.260N	P=0.265N
POLY 1.5	P=0.115N	P=0.265N	P=0.691	P=0.268N	P=0.241N	P=0.223N
POLY 6	P=0.126N	P=0.248N	P=0.692	P=0.252N	P=0.238N	P=0.223N
LOGISTIC REGRESSION	P=0.107N	P=0.285N	P=0.687	P=0.291N	P=0.246N	P=0.232N
COCH-ARM / FISHERS	P=0.133N	P=0.263N	P=0.693	P=0.267N	P=0.239N	P=0.224N
ORDER RESTRICTED	P=0.144N	P=0.234N	P=0.676N	P=0.238N	P=0.243N	P=0.243N
	P=0.053N	(e)	(e)	(e)	(e)	(e)

Kidney: Renal Tubule Nephroblastoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
TUMOR RATES						
OVERALL (a)	0/53 (0%)	2/54 (4%)	1/53 (2%)	0/53 (0%)	0/53 (0%)	0/53 (0%)
POLY-3 RATE (b)	0/39.55	2/36.54	1/39.71	0/34.16	0/39.00	0/42.60
POLY-3 PERCENT (g)	0.0%	5.5%	2.5%	0.0%	0.0%	0.0%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	0/22 (0%)	0/21 (0%)
FIRST INCIDENCE	---	200	240	---	---	---
STATISTICAL TESTS						
LIFE TABLE						
POLY 3	P=0.212N	P=0.248	P=0.492	(e)	(e)	(e)
POLY 1.5	P=0.218N	P=0.219	P=0.501	(e)	(e)	(e)
POLY 6	P=0.215N	P=0.230	P=0.498	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.224N	P=0.208	P=0.502	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.374N	P=0.189	P=0.663	(e)	(e)	(e)
ORDER RESTRICTED	P=0.215N	P=0.252	P=0.500	(e)	(e)	(e)
	P=0.243N	(e)	(e)	(e)	(e)	(e)

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
				Females		

Liver
 Cholangiocarcinoma

TUMOR RATES	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	0/53 (0%)	0/54 (0%)	0/53 (0%)	1/53 (2%)	4/53 (8%)	25/53 (47%)
POLY-3 RATE (b)	0/39.55	0/34.61	0/38.75	1/34.63	4/39.00	25/45.58
POLY-3 PERCENT (g)	0.0%	0.0%	0.0%	2.9%	10.3%	54.9%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	4/22 (18%)	13/21 (62%)
FIRST INCIDENCE				592	731 (T)	610

STATISTICAL TESTS	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
LIFE TABLE						
POLY 3	P<0.001 **	(e)	(e)	P=0.462	P=0.046 *	P<0.001 **
POLY 1.5	P<0.001 **	(e)	(e)	P=0.474	P=0.057	P<0.001 **
POLY 6	P<0.001 **	(e)	(e)	P=0.484	P=0.059	P<0.001 **
LOGISTIC REGRESSION	P<0.001 **	(e)	(e)	P=0.461	P=0.055	P<0.001 **
COCH-ARM / FISHERS	P<0.001 **	(e)	(e)	P=0.508	P=0.046 *	P<0.001 **
ORDER RESTRICTED	P<0.001 **	(e)	(e)	P=0.500	P=0.059	P<0.001 **

Liver
 Hepatocellular Adenoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
				Females		

TUMOR RATES	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	0/53 (0%)	0/54 (0%)	0/53 (0%)	0/53 (0%)	3/53 (6%)	11/53 (21%)
POLY-3 RATE (b)	0/39.55	0/34.61	0/38.75	0/34.16	3/39.33	11/43.71
POLY-3 PERCENT (g)	0.0%	0.0%	0.0%	0.0%	7.6%	25.2%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	1/22 (5%)	6/21 (29%)
FIRST INCIDENCE					673	561

STATISTICAL TESTS	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
LIFE TABLE						
POLY 3	P<0.001 **	(e)	(e)	(e)	P=0.114	P<0.001 **
POLY 1.5	P<0.001 **	(e)	(e)	(e)	P=0.117	P<0.001 **
POLY 6	P<0.001 **	(e)	(e)	(e)	P=0.118	P<0.001 **
LOGISTIC REGRESSION	P<0.001 **	(e)	(e)	(e)	P=0.115	P<0.001 **
COCH-ARM / FISHERS	P<0.001 **	(e)	(e)	(e)	P=0.115	P<0.001 **
ORDER RESTRICTED	P<0.001 **	(e)	(e)	(e)	P=0.121	P<0.001 **

Mammary Gland Carcinoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Overall (a)	4/53 (8%)	8/54 (15%)	4/53 (8%)	2/53 (4%)	2/53 (4%)	0/53 (0%)
Poly-3 Rate (b)	4/40.42	8/37.03	4/39.08	2/35.28	2/39.22	0/42.60
Poly-3 Percent (g)	9.9%	21.6%	10.2%	5.7%	5.1%	0.0%
Terminal (d)	2/25 (8%)	4/21 (19%)	1/23 (4%)	0/19 (0%)	1/22 (5%)	0/21 (0%)
First Incidence	469	241	659	338	673	

Mammary Gland Carcinoma or Adenoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Overall (a)	6/53 (11%)	8/54 (15%)	5/53 (9%)	2/53 (4%)	2/53 (4%)	1/53 (2%)
Poly-3 Rate (b)	6/40.77	8/37.03	5/39.08	2/35.28	2/39.22	1/42.60
Poly-3 Percent (g)	14.7%	21.6%	12.8%	5.7%	5.1%	2.4%
Terminal (d)	3/25 (12%)	4/21 (19%)	2/23 (9%)	0/19 (0%)	1/22 (5%)	1/21 (5%)
First Incidence	469	241	659	338	673	731 (†)

STATISTICAL TESTS

TEST	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
LIFE TABLE	P=0.008N**	P=0.127	P=0.616	P=0.439N	P=0.377N	P=0.077N
POLY 3	P=0.004N**	P=0.132	P=0.626	P=0.401N	P=0.350N	P=0.053N
POLY 1.5	P=0.004N**	P=0.155	P=0.624	P=0.374N	P=0.345N	P=0.054N
LOGISTIC REGRESSION	P=0.004N**	P=0.109	P=0.627	P=0.436N	P=0.360N	P=0.057N
COCH-ARM / FISHERS	P=0.006N**	P=0.184	P=0.633	P=0.327N	P=0.340N	P=0.060N
ORDER RESTRICTED	P=0.005N**	P=0.189	P=0.642N	P=0.339N	P=0.339N	P=0.059N
	(e)	(e)	(e)	(e)	(e)	(e)

STATISTICAL TESTS

TEST	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
LIFE TABLE	P=0.011N*	P=0.278	P=0.538N	P=0.232N	P=0.168N	P=0.077N
POLY 3	P=0.005N**	P=0.310	P=0.530N	P=0.182N	P=0.143N	P=0.048N*
POLY 1.5	P=0.006N**	P=0.350	P=0.528N	P=0.160N	P=0.139N	P=0.048N*
LOGISTIC REGRESSION	P=0.005N**	P=0.266	P=0.536N	P=0.214N	P=0.151N	P=0.053N
COCH-ARM / FISHERS	P=0.007N**	P=0.385	P=0.515N	P=0.137N	P=0.137N	P=0.051N
ORDER RESTRICTED	P=0.009N**	P=0.402	P=0.500N	P=0.135N	P=0.135N	P=0.056N
	(e)	(e)	(e)	(e)	(e)	(e)

Mammary Gland
 Fibroadenoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	33/53 (62%)	40/54 (74%)	34/53 (64%)	29/53 (55%)	36/53 (68%)
POLY-3 RATE (b)	33/46.50	40/48.95	34/45.82	29/41.25	36/48.31
POLY-3 PERCENT (g)	71.0%	81.7%	74.2%	70.3%	74.5%
TERMINAL (d)	16/25 (64%)	16/21 (76%)	16/23 (70%)	12/19 (63%)	15/22 (68%)
FIRST INCIDENCE	185	241	236	453	141
STATISTICAL TESTS					
LIFE TABLE	P=0.021N*	P=0.048 *	P=0.404	P=0.338	P=0.256
POLY 3	P<0.001N**	P=0.147	P=0.452	P=0.570N	P=0.435
POLY 1.5	P<0.001N**	P=0.129	P=0.418	P=0.468N	P=0.401
POLY 6	P=0.002N**	P=0.183	P=0.498	P=0.559	P=0.453
LOGISTIC REGRESSION	P=0.002N**	P=0.104	P=0.445	P=0.424N	P=0.337
COCH-ARM / FISHERS	P=0.009N**	P=0.135	P=0.500	P=0.277N	P=0.342
ORDER RESTRICTED	P=0.002N**	(e)	(e)	(e)	(e)

Mammary Gland
 Fibroma, Fibroadenoma or Adenoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	35/53 (66%)	40/54 (74%)	35/53 (66%)	29/53 (55%)	36/53 (68%)
POLY-3 RATE (b)	35/46.86	40/48.95	35/45.82	29/41.25	36/48.31
POLY-3 PERCENT (g)	74.7%	81.7%	76.4%	70.3%	74.5%
TERMINAL (d)	17/25 (68%)	16/21 (76%)	17/23 (74%)	12/19 (63%)	15/22 (68%)
FIRST INCIDENCE	185	241	236	453	141
STATISTICAL TESTS					
LIFE TABLE	P=0.013N*	P=0.079	P=0.454	P=0.435	P=0.352
POLY 3	P<0.001N**	P=0.269	P=0.522	P=0.407N	P=0.589N
POLY 1.5	P<0.001N**	P=0.244	P=0.493	P=0.308N	P=0.572
POLY 6	P<0.001N**	P=0.311	P=0.554	P=0.500N	P=0.591N
LOGISTIC REGRESSION	P=0.001N**	P=0.192	P=0.523	P=0.275N	P=0.495
COCH-ARM / FISHERS	P=0.004N**	P=0.243	P=0.581N	P=0.160N	P=0.500
ORDER RESTRICTED	P<0.001N**	(e)	(e)	(e)	(e)

Mammary Gland
 Fibroma, Fibroadenoma, Carcinoma, or Adenoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	35/53 (66%)	43/54 (80%)	37/53 (70%)	31/53 (58%)	37/53 (70%)	24/53 (45%)
POLY-3 RATE (b)	35/46.86	43/49.90	37/46.14	31/42.36	37/48.53	24/47.04
POLY-3 PERCENT (g)	74.7%	86.2%	80.2%	73.2%	76.2%	51.0%
TERMINAL (d)	17/25 (68%)	17/21 (81%)	17/23 (74%)	12/19 (63%)	15/22 (68%)	12/21 (57%)
FIRST INCIDENCE	185	241	236	338	141	396

STATISTICAL TESTS

LIFE TABLE	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
POLY 3	P=0.007N**	P=0.034 *	P=0.344	P=0.318	P=0.303	P=0.109N
POLY 1.5	P<0.001N**	P=0.107	P=0.343	P=0.533N	P=0.526	P=0.010N*
POLY 6	P<0.001N**	P=0.089	P=0.314	P=0.441N	P=0.488	P=0.011N*
LOGISTIC REGRESSION	P<0.001N**	P=0.135	P=0.389	P=0.606	P=0.546	P=0.015N*
COCH-ARM / FISHERS	P<0.001N**	P=0.062	P=0.349	P=0.411N	P=0.412	P=0.016N*
ORDER RESTRICTED	P<0.001N**	P=0.086	P=0.418	P=0.274N	P=0.418	P=0.025N*
		(e)	(e)	(e)	(e)	(e)

Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva)
 Squamous Cell Carcinoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	1/53 (2%)	2/54 (4%)	1/53 (2%)	0/53 (0%)	4/53 (8%)	10/53 (19%)
POLY-3 RATE (b)	1/40.42	2/34.91	1/39.25	0/34.16	4/39.40	10/45.45
POLY-3 PERCENT (g)	2.5%	5.7%	2.6%	0.0%	10.2%	22.0%
TERMINAL (d)	0/25 (0%)	1/21 (5%)	0/23 (0%)	0/19 (0%)	1/22 (5%)	2/21 (10%)
FIRST INCIDENCE	366	647	578	---	659	546

STATISTICAL TESTS

LIFE TABLE	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
POLY 3	P<0.001 **	P=0.444	P=0.757N	P=0.496N	P=0.166	P=0.009 **
POLY 1.5	P<0.001 **	P=0.449	P=0.755	P=0.533N	P=0.169	P=0.007 **
POLY 6	P<0.001 **	P=0.471	P=0.753	P=0.520N	P=0.173	P=0.006 **
LOGISTIC REGRESSION	P<0.001 **	P=0.428	P=0.756	P=0.549N	P=0.165	P=0.007 **
COCH-ARM / FISHERS	P<0.001 **	P=0.527	P=0.725N	P=0.436N	P=0.180	P=0.002 **
ORDER RESTRICTED	P<0.001 **	P=0.507	P=0.752N	P=0.500N	P=0.181	P=0.004 **
		(e)	(e)	(e)	(e)	(e)

Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva)
 Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
TUMOR RATES	#	#	#	#	#	#
OVERALL (a)	1/53 (2%)	2/54 (4%)	1/53 (2%)	0/53 (0%)	4/53 (8%)	10/53 (19%)
POLY-3 RATE (b)	1/40.42	2/34.91	1/39.25	0/34.16	4/39.40	10/45.45
POLY-3 PERCENT (g)	2.5%	5.7%	2.6%	0.0%	10.2%	22.0%
TERMINAL (d)	0/25 (0%)	1/21 (5%)	0/23 (0%)	0/19 (0%)	1/22 (5%)	2/21 (10%)
FIRST INCIDENCE	366	647	578	---	659	546
STATISTICAL TESTS						
LIFE TABLE	P<0.001 **	P=0.444	P=0.757N	P=0.496N	P=0.166	P=0.009 **
POLY 3	P<0.001 **	P=0.449	P=0.755	P=0.533N	P=0.169	P=0.007 **
POLY 1.5	P<0.001 **	P=0.471	P=0.753	P=0.520N	P=0.173	P=0.006 **
POLY 6	P<0.001 **	P=0.428	P=0.756	P=0.549N	P=0.165	P=0.007 **
LOGISTIC REGRESSION	P<0.001 **	P=0.527	P=0.725N	P=0.436N	P=0.180	P=0.002 **
COCH ARM / FISHERS	P<0.001 **	P=0.507	P=0.752N	P=0.500N	P=0.181	P=0.004 **
ORDER RESTRICTED	P<0.001 **	(e)	(e)	(e)	(e)	(e)

Oral Mucosa
 Squamous Cell Carcinoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
TUMOR RATES	#	#	#	#	#	#
OVERALL (a)	1/53 (2%)	2/54 (4%)	1/53 (2%)	0/53 (0%)	4/53 (8%)	10/53 (19%)
POLY-3 RATE (b)	1/40.42	2/34.91	1/39.25	0/34.16	4/39.40	10/45.45
POLY-3 PERCENT (g)	2.5%	5.7%	2.6%	0.0%	10.2%	22.0%
TERMINAL (d)	0/25 (0%)	1/21 (5%)	0/23 (0%)	0/19 (0%)	1/22 (5%)	2/21 (10%)
FIRST INCIDENCE	366	647	578	---	659	546
STATISTICAL TESTS						
LIFE TABLE	P<0.001 **	P=0.444	P=0.757N	P=0.496N	P=0.166	P=0.009 **
POLY 3	P<0.001 **	P=0.449	P=0.755	P=0.533N	P=0.169	P=0.007 **
POLY 1.5	P<0.001 **	P=0.471	P=0.753	P=0.520N	P=0.173	P=0.006 **
POLY 6	P<0.001 **	P=0.428	P=0.756	P=0.549N	P=0.165	P=0.007 **
LOGISTIC REGRESSION	P<0.001 **	P=0.527	P=0.725N	P=0.436N	P=0.180	P=0.002 **
COCH ARM / FISHERS	P<0.001 **	P=0.507	P=0.752N	P=0.500N	P=0.181	P=0.004 **
ORDER RESTRICTED	P<0.001 **	(e)	(e)	(e)	(e)	(e)

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
				Females		
				22 NG/KG		

Pituitary Gland: Pars Distalis or Unspecified Site Adenoma

TUMOR RATES	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	25/53 (47%)	20/54 (37%)	26/52 (50%)	15/53 (28%)	20/53 (38%)	11/52 (21%)
POLY-3 RATE (b)	25/42.82	20/36.20	26/40.49	15/36.38	20/42.25	11/44.01
POLY-3 PERCENT (g)	58.4%	55.3%	64.2%	41.2%	47.3%	25.0%
TERMINAL (d)	15/25 (60%)	16/21 (76%)	15/23 (65%)	9/19 (47%)	10/22 (46%)	4/21 (19%)
FIRST INCIDENCE	474	604	550	545	444	604

STATISTICAL TESTS	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
LIFE TABLE	P=0.004N**	P=0.542N	P=0.397	P=0.253N	P=0.356N	P=0.016N*
POLY 3	P<0.001N**	P=0.478N	P=0.369	P=0.087N	P=0.202N	P<0.001N**
POLY 1.5	P<0.001N**	P=0.334N	P=0.372	P=0.056N	P=0.203N	P<0.001N**
LOGISTIC REGRESSION	P<0.001N**	P=0.545	P=0.363	P=0.146N	P=0.212N	P<0.001N**
COCH-ARM / FISHERS	P<0.001N**	P=0.503N	P=0.420	P=0.102N	P=0.216N	P<0.001N**
ORDER RESTRICTED	P<0.001N**	P=0.193N	P=0.462	P=0.035N*	P=0.216N	P=0.004N**
		(e)	(e)	(e)	(e)	(e)

Pituitary Gland: Pars Intermedia Adenoma

TUMOR RATES	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	2/53 (4%)	0/54 (0%)	0/52 (0%)	0/53 (0%)	0/53 (0%)	0/52 (0%)
POLY-3 RATE (b)	2/39.60	0/34.61	0/38.01	0/34.16	0/39.00	0/42.44
POLY-3 PERCENT (g)	5.1%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/25 (4%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	0/22 (0%)	0/21 (0%)
FIRST INCIDENCE	717					

STATISTICAL TESTS	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
LIFE TABLE	P=0.259N	P=0.277N	P=0.245N	P=0.311N	P=0.272N	P=0.268N
POLY 3	P=0.226N	P=0.268N	P=0.246N	P=0.271N	P=0.240N	P=0.222N
POLY 1.5	P=0.235N	P=0.253N	P=0.248N	P=0.257N	P=0.239N	P=0.225N
LOGISTIC REGRESSION	P=0.216N	P=0.284N	P=0.244N	P=0.290N	P=0.244N	P=0.226N
COCH-ARM / FISHERS	P=0.243N	P=0.286N	P=0.242N	P=0.303N	P=0.254N	P=0.246N
ORDER RESTRICTED	P=0.250N	P=0.243N	P=0.252N	P=0.248N	P=0.248N	P=0.252N
	P=0.007N**	(e)	(e)	(e)	(e)	(e)

Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY) Terminal Sacrifice at 105 weeks

Dose 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

Skin
 Fibroma

TUMOR RATES

	#	#	#	#	#	#
OVERALL (a)	1/53 (2%)	0/54 (0%)	2/53 (4%)	0/53 (0%)	0/53 (0%)	1/53 (2%)
POLY-3 RATE (b)	1/40.13	0/34.61	2/39.56	0/34.16	0/39.00	1/42.65
POLY-3 PERCENT (g)	2.5%	0.0%	5.1%	0.0%	0.0%	2.3%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	0/22 (0%)	0/21 (0%)
FIRST INCIDENCE	548		578			717

STATISTICAL TESTS

	P=0.605N	P=0.505N	P=0.509	P=0.515N	P=0.490N	P=0.747N
LIFE TABLE	P=0.612N	P=0.529N	P=0.495	P=0.532N	P=0.506N	P=0.747N
POLY 3	P=0.628N	P=0.516N	P=0.491	P=0.519N	P=0.503N	P=0.748N
POLY 1.5	P=0.601N	P=0.544N	P=0.499	P=0.548N	P=0.511N	P=0.755N
LOGISTIC REGRESSION	P=0.653	P=0.475N	P=0.511	P=0.479N	P=0.497N	P=0.753
COCH-ARM / FISHERS	P=0.650N	P=0.495N	P=0.500	P=0.500N	P=0.500N	P=0.752N
ORDER RESTRICTED	(e)	(e)	(e)	(e)	(e)	(e)

Dose 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

Skin
 Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma,
 or Fibrous Histiocytoma

TUMOR RATES

	#	#	#	#	#	#
OVERALL (a)	1/53 (2%)	0/54 (0%)	3/53 (6%)	1/53 (2%)	0/53 (0%)	1/53 (2%)
POLY-3 RATE (b)	1/40.13	0/34.61	3/39.97	1/34.16	0/39.00	1/42.65
POLY-3 PERCENT (g)	2.5%	0.0%	7.5%	2.9%	0.0%	2.3%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	1/19 (5%)	0/22 (0%)	0/21 (0%)
FIRST INCIDENCE	548		578	731 (T)		717

STATISTICAL TESTS

	P=0.451N	P=0.505N	P=0.313	P=0.721	P=0.490N	P=0.747N
LIFE TABLE	P=0.439N	P=0.529N	P=0.303	P=0.724	P=0.506N	P=0.747N
POLY 3	P=0.458N	P=0.516N	P=0.298	P=0.740	P=0.503N	P=0.748N
POLY 1.5	P=0.430N	P=0.544N	P=0.309	P=0.704	P=0.511N	P=0.755N
LOGISTIC REGRESSION	P=0.482N	P=0.475N	P=0.314	P=0.755	P=0.497N	P=0.753
COCH-ARM / FISHERS	P=0.493N	P=0.495N	P=0.309	P=0.752N	P=0.500N	P=0.752N
ORDER RESTRICTED	(e)	(e)	(e)	(e)	(e)	(e)

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
------	---------	---------	----------	---------------------	----------	--------------

Skin
 Schwannoma Malignant

TUMOR RATES	#	#	#	#	#	#
OVERALL (a)	1/53 (2%)	0/54 (0%)	0/53 (0%)	2/53 (4%)	0/53 (0%)	1/53 (2%)
POLY-3 RATE (b)	1/39, 67	0/34, 61	0/38, 75	2/35, 78	0/39, 00	1/43, 05
POLY-3 PERCENT (g)	2.5%	0.0%	0.0%	5.6%	0.0%	2.3%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	0/22 (0%)	0/21 (0%)
FIRST INCIDENCE	701	---	---	380	---	599
STATISTICAL TESTS						
LIFE TABLE	P=0.559	P=0.539N	P=0.500N	P=0.459	P=0.515N	P=0.747N
POLY 3	P=0.576	P=0.527N	P=0.505N	P=0.464	P=0.503N	P=0.743N
POLY 1.5	P=0.563	P=0.515N	P=0.506N	P=0.479	P=0.502N	P=0.745N
POLY 6	P=0.577	P=0.541N	P=0.505N	P=0.443	P=0.507N	P=0.748N
LOGISTIC REGRESSION	P=0.441	P=0.536N	P=0.504N	P=0.552	P=0.505N	P=0.763
COCH-ARM / FISHERS	P=0.519	P=0.495N	P=0.500N	P=0.500	P=0.500N	P=0.752N
ORDER RESTRICTED	P=0.501	(e)	(e)	(e)	(e)	(e)

Stomach, Forestomach
 Squamous Cell Carcinoma or Papilloma Squamous

TUMOR RATES	#	#	#	#	#	#
OVERALL (a)	1/53 (2%)	0/54 (0%)	0/53 (0%)	0/53 (0%)	2/53 (4%)	1/53 (2%)
POLY-3 RATE (b)	1/39, 86	0/34, 61	0/38, 75	0/34, 16	2/39, 21	1/42, 60
POLY-3 PERCENT (g)	2.5%	0.0%	0.0%	0.0%	5.1%	2.4%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	0/22 (0%)	1/21 (5%)
FIRST INCIDENCE	646	---	---	---	701	731 (T)
STATISTICAL TESTS						
LIFE TABLE	P=0.274	P=0.570N	P=0.523N	P=0.586N	P=0.472	P=0.738
POLY 3	P=0.326	P=0.528N	P=0.506N	P=0.531N	P=0.494	P=0.746N
POLY 1.5	P=0.310	P=0.515N	P=0.506N	P=0.518N	P=0.497	P=0.747N
POLY 6	P=0.328	P=0.542N	P=0.506N	P=0.547N	P=0.488	P=0.754N
LOGISTIC REGRESSION	P=0.299	P=0.508N	P=0.502N	P=0.511N	P=0.495	P=0.749N
COCH-ARM / FISHERS	P=0.259	P=0.495N	P=0.500N	P=0.500N	P=0.500	P=0.752N
ORDER RESTRICTED	P=0.249	(e)	(e)	(e)	(e)	(e)

Thyroid Gland: C-Cell Adenoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
------	---------	---------	----------	---------------------	----------	--------------

TUMOR RATES

Overall (a)	20/52 (38%)	15/54 (28%)	17/53 (32%)	16/51 (31%)	13/53 (25%)	11/52 (21%)
POLY-3 RATE (b)	20/42.85	15/37.10	17/39.42	16/37.06	13/41.12	11/43.05
POLY-3 PERCENT (b)	46.7%	40.4%	43.1%	43.2%	31.6%	25.6%
TERMINAL (d)	10/25 (40%)	10/21 (48%)	13/23 (57%)	8/19 (42%)	8/22 (36%)	6/21 (29%)
FIRST INCIDENCE	474	462	626	338	486	638

STATISTICAL TESTS

LIFE TABLE	P=0.048N*	P=0.422N	P=0.430N	P=0.551	P=0.180N	P=0.091N
POLY 3	P=0.010N*	P=0.366N	P=0.459N	P=0.464N	P=0.111N	P=0.030N*
POLY 1.5	P=0.015N*	P=0.015N*	P=0.413N	P=0.382N	P=0.099N	P=0.028N*
LOGISTIC REGRESSION	P=0.014N*	P=0.499N	P=0.533N	P=0.579N	P=0.139N	P=0.043N*
COCH-ARM / FISHERS	P=0.047N*	P=0.286N	P=0.338N	P=0.385N	P=0.093N	P=0.028N*
ORDER RESTRICTED	P=0.021N*	P=0.168N	P=0.316N	P=0.292N	P=0.092N	P=0.043N*

Thyroid Gland: C-Cell Carcinoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
------	---------	---------	----------	---------------------	----------	--------------

TUMOR RATES

Overall (a)	1/52 (2%)	1/54 (2%)	0/53 (0%)	0/51 (0%)	2/53 (4%)	0/52 (0%)
POLY-3 RATE (b)	1/38.90	1/35.04	0/38.75	0/33.58	2/39.00	0/41.66
POLY-3 PERCENT (b)	2.6%	2.9%	0.0%	0.0%	5.1%	0.0%
TERMINAL (d)	1/25 (4%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	2/22 (9%)	0/21 (0%)
FIRST INCIDENCE	731 (T)	604	---	---	731 (T)	---

STATISTICAL TESTS

LIFE TABLE	P=0.506N	P=0.712	P=0.517N	P=0.555N	P=0.455	P=0.535N
POLY 3	P=0.468N	P=0.738	P=0.501N	P=0.529N	P=0.501	P=0.486N
POLY 1.5	P=0.475N	P=0.750	P=0.502N	P=0.519N	P=0.504	P=0.487N
LOGISTIC REGRESSION	P=0.472N	P=0.724	P=0.501N	P=0.543N	P=0.493	P=0.492N
COCH-ARM / FISHERS	P=0.474N	P=0.749	P=0.495N	P=0.505N	P=0.455	P=0.492N
ORDER RESTRICTED	P=0.511N	P=0.743N	P=0.495N	P=0.505N	P=0.507	P=0.500N

Date: 11/25/02
 Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
 Terminal Sacrifice at 105 weeks

EXPERIMENT: 96007 TEST: 03

TOXIC EQUIVALENCY FACTOR EVALUATION

Thyroid Gland: C-Cell
 Carcinoma or Adenoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
------	---------	---------	----------	---------------------	----------	--------------

TUMOR RATES	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
OVERALL (a)	21/52 (40%)	15/54 (28%)	17/53 (32%)	16/51 (31%)	14/53 (26%)	11/52 (21%)
POLY-3 RATE (b)	21/42.85	15/37.10	17/39.42	16/37.06	14/41.12	11/43.05
POLY-3 PERCENT (g)	49.0%	40.4%	43.1%	43.2%	34.0%	25.6%
TERMINAL (d)	11/25 (44%)	10/21 (48%)	13/23 (57%)	8/19 (42%)	9/22 (41%)	6/21 (29%)
FIRST INCIDENCE	4/74	4/62	6/26	3/38	4/86	6/38

STATISTICAL TESTS	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
LIFE TABLE	P=0.044N*	P=0.354N	P=0.358N	P=0.534N	P=0.188N	P=0.066N
POLY 3	P=0.008N**	P=0.288N	P=0.374N	P=0.380N	P=0.115N	P=0.017N*
POLY 1.5	P=0.013N*	P=0.202N	P=0.333N	P=0.304N	P=0.101N	P=0.016N*
LOGISTIC REGRESSION	P=0.008N**	P=0.415N	P=0.446N	P=0.495N	P=0.145N	P=0.025N*
COCH-ARM / FISHERS	P=0.012N*	P=0.225N	P=0.264N	P=0.316N	P=0.095N	P=0.016N*
ORDER RESTRICTED	P=0.043N*	P=0.122N	P=0.247N	P=0.227N	P=0.095N	P=0.027N*
	P=0.011N*	(e)	(e)	(e)	(e)	(e)

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
Uterus Carcinoma						

TUMOR RATES	#	#	#	#	#	#
OVERALL (a)	0/53 (0%)	2/54 (4%)	0/53 (0%)	1/53 (2%)	2/53 (4%)	1/53 (2%)
POLY-3 RATE (b)	0/39.55	2/34.61	0/38.75	1/34.16	2/39.00	1/42.66
POLY-3 PERCENT (g)	0.0%	5.8%	0.0%	2.9%	5.1%	2.3%
TERMINAL (d)	0/25 (0%)	2/21 (10%)	0/23 (0%)	1/19 (5%)	2/22 (9%)	0/21 (0%)
FIRST INCIDENCE		7/31 (T)		7/31 (T)	7/31 (T)	7/16

STATISTICAL TESTS	#	#	#	#	#	#
LIFE TABLE	P=0.421	P=0.208	(e)	P=0.445	P=0.210	P=0.492
POLY 3	P=0.489	P=0.221	(e)	P=0.471	P=0.233	P=0.515
POLY 1.5	P=0.485	P=0.195	(e)	P=0.483	P=0.235	P=0.513
POLY 6	P=0.476	P=0.200	(e)	P=0.456	P=0.229	P=0.511
LOGISTIC REGRESSION	P=0.443	P=0.252	(e)	P=0.445	P=0.210	P=0.501
COCH-ARM / FISHERS	P=0.441	(e)	(e)	P=0.500	P=0.248	P=0.500
ORDER RESTRICTED	P=0.246	(e)	(e)	(e)	(e)	(e)

Uterus
 Polyp Stromal

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
------	---------	---------	----------	---------------------	----------	--------------

TUMOR RATES

OVERALL (a)	11/53 (21%)	7/54 (13%)	4/53 (8%)	11/53 (21%)	10/53 (19%)	8/53 (15%)
POLY-3 RATE (b)	11/40.11	7/35.74	4/39.04	11/36.29	10/40.43	8/44.05
POLY-3 PERCENT (g)	27.4%	19.6%	10.3%	30.3%	24.7%	18.2%
TERMINAL (d)	8/25 (32%)	5/21 (24%)	2/23 (9%)	6/19 (32%)	5/22 (23%)	3/21 (14%)
FIRST INCIDENCE	645	526	659	557	590	598

LIFE TABLE

POLY 3	P=0.531	P=0.361N	P=0.064N	P=0.314	P=0.589	P=0.400N
POLY 1.5	P=0.404N	P=0.296N	P=0.045N*	P=0.490	P=0.492N	P=0.223N
LOGISTIC REGRESSION	P=0.452N	P=0.257N	P=0.048N*	P=0.531	P=0.496N	P=0.240N
COCH-ARM / FISHERS	P=0.386N	P=0.342N	P=0.043N*	P=0.445	P=0.491N	P=0.225N
ORDER RESTRICTED	P=0.439N	P=0.359N	P=0.045N*	P=0.395	P=0.527N	P=0.253N
	P=0.497	P=0.207N	P=0.046N*	P=0.395	P=0.527N	P=0.253N
	P=0.245N	(e)	(e)	P=0.594N	P=0.500N	P=0.307N
	(e)	(e)	(e)	(e)	(e)	(e)

Uterus
 Squamous Cell Carcinoma

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
------	---------	---------	----------	---------------------	----------	--------------

TUMOR RATES

OVERALL (a)	0/53 (0%)	0/54 (0%)	0/53 (0%)	0/53 (0%)	5/53 (9%)	0/53 (0%)
POLY-3 RATE (b)	0/39.55	0/34.61	0/38.75	0/34.16	5/40.55	0/42.60
POLY-3 PERCENT (g)	0.0%	0.0%	0.0%	0.0%	12.3%	0.0%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	0/22 (0%)	0/21 (0%)
FIRST INCIDENCE					589	

LIFE TABLE

POLY 3	P=0.300	(e)	(e)	(e)	P=0.035 *	(e)
POLY 1.5	P=0.337	(e)	(e)	(e)	P=0.032 *	(e)
LOGISTIC REGRESSION	P=0.318	(e)	(e)	(e)	P=0.031 *	(e)
COCH-ARM / FISHERS	P=0.328	(e)	(e)	(e)	P=0.033 *	(e)
ORDER RESTRICTED	P=0.259	(e)	(e)	(e)	P=0.033 *	(e)
	P=0.247	(e)	(e)	(e)	P=0.028 *	(e)
	P=0.033 *	(e)	(e)	(e)	(e)	(e)

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
All Organs						
Hemangiosarcoma						

TUMOR RATES	#	#	#	#	#	#
OVERALL (a)	0/53 (0%)	0/54 (0%)	0/53 (0%)	0/53 (0%)	2/53 (4%)	0/53 (0%)
POLY-3 RATE (b)	0/39.55	0/34.61	0/38.75	0/34.16	2/39.00	0/42.60
POLY-3 PERCENT (g)	0.0%	0.0%	0.0%	0.0%	5.1%	0.0%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	2/22 (9%)	0/21 (0%)
FIRST INCIDENCE					731 (T)	
STATISTICAL TESTS						
LIFE TABLE	P=0.446	(e)	(e)	(e)	P=0.210	(e)
POLY 3	P=0.544	(e)	(e)	(e)	P=0.233	(e)
POLY 1.5	P=0.527	(e)	(e)	(e)	P=0.229	(e)
POLY 6	P=0.542	(e)	(e)	(e)	P=0.210	(e)
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.248	(e)
COCH-ARM / FISHERS	P=0.461	(e)	(e)	(e)	(e)	(e)
ORDER RESTRICTED	P=0.183	(e)	(e)	(e)		
Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG

All Organs
 Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed,
 NOS, or Undifferentiated Cell Type

TUMOR RATES	#	#	#	#	#	#
OVERALL (a)	0/53 (0%)	1/54 (2%)	1/53 (2%)	0/53 (0%)	1/53 (2%)	2/53 (4%)
POLY-3 RATE (b)	0/39.55	1/35.31	1/39.12	0/34.16	1/39.64	2/42.60
POLY-3 PERCENT (g)	0.0%	2.8%	2.6%	0.0%	2.5%	4.7%
TERMINAL (d)	0/25 (0%)	0/21 (0%)	0/23 (0%)	0/19 (0%)	0/22 (0%)	2/21 (10%)
FIRST INCIDENCE		490	626		518	731 (T)
STATISTICAL TESTS						
LIFE TABLE	P=0.170	P=0.491	P=0.484	(e)	P=0.505	P=0.200
POLY 3	P=0.172	P=0.477	P=0.498	(e)	P=0.500	P=0.254
POLY 1.5	P=0.166	P=0.488	P=0.496	(e)	P=0.500	P=0.252
POLY 6	P=0.169	P=0.467	P=0.500	(e)	P=0.499	P=0.247
LOGISTIC REGRESSION	P=0.138	P=0.536	P=0.500	(e)	P=0.504	P=0.200
COCH-ARM / FISHERS	P=0.145	P=0.505	P=0.500	(e)	P=0.500	P=0.248
ORDER RESTRICTED	P=0.107	(e)	(e)	(e)	(e)	(e)

All Organs
 Benign Tumors

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
				Females		

TUMOR RATES

OVERALL (a)	POLY-3 RATE (b)	TERMINAL (d)	FIRST INCIDENCE	STATISTICAL TESTS
45/53 (85%)	45/48.82	49/54 (91%)	45/53 (85%)	
92.2%	92.2%	49/50.46	45/47.09	
23/25 (92%)	97.1%	21/21 (100%)	95.6%	
185	241	22/23 (96%)	22/23 (96%)	
			338	
			40/53 (75%)	
			40/44.36	
			90.2%	
			17/19 (90%)	
			141	
			46/53 (87%)	
			46/49.52	
			92.9%	
			21/22 (96%)	
			141	
			41/53 (77%)	
			41/49.97	
			82.1%	
			17/21 (81%)	
			396	

LIFE TABLE

POLY 3	P=0.155N	P=0.069	P=0.432	P=0.268	P=0.312	P=0.491N
POLY 1.5	P=0.002N**	P=0.232	P=0.383	P=0.511N	P=0.610	P=0.095N
	P=0.005N**	P=0.211	P=0.368	P=0.349N	P=0.575	P=0.112N
	P=0.003N**	P=0.301	P=0.440	P=0.657N	P=0.619	P=0.105N
	P=0.003N**	P=0.129	P=0.451	P=0.309N	P=0.487	P=0.099N
	P=0.111N	P=0.266	P=0.607N	P=0.165N	P=0.500	P=0.229N
	P=0.005N**	(e)	(e)	(e)	(e)	(e)

All Organs
 Malignant Tumors

Dose	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
				Females		

TUMOR RATES

OVERALL (a)	POLY-3 RATE (b)	TERMINAL (d)	FIRST INCIDENCE	STATISTICAL TESTS
13/53 (25%)	13/43.94	19/54 (35%)	13/53 (25%)	
29.6%	29.6%	19/41.93	13/42.97	
4/25 (16%)	45.3%	7/21 (33%)	30.3%	
169	200	3/23 (13%)	3/23 (13%)	
			240	
			11/53 (21%)	
			11/38.84	
			28.3%	
			3/19 (16%)	
			338	
			24/53 (45%)	
			24/42.50	
			56.5%	
			12/22 (55%)	
			518	
			34/53 (64%)	
			34/48.63	
			69.9%	
			14/21 (67%)	
			546	

LIFE TABLE

POLY 3	P<0.001 **	P=0.090	P=0.533	P=0.549	P=0.022 *	P<0.001 **
POLY 1.5	P<0.001 **	P=0.093	P=0.566	P=0.547N	P=0.008 **	P<0.001 **
	P<0.001 **	P=0.121	P=0.554	P=0.493N	P=0.010 **	P<0.001 **
	P<0.001 **	P=0.067	P=0.579	P=0.581	P=0.006 **	P<0.001 **
	P<0.001 **	P=0.211	P=0.572N	P=0.355N	P=0.019 *	P<0.001 **
	P<0.001 **	P=0.160	P=0.589N	P=0.408N	P=0.020 *	P<0.001 **
	(e)	(e)	(e)	(e)	(e)	(e)

Date: 11/25/02
 EXPERIMENT: 96007 TEST: 03
 TOXIC EQUIVALENCY FACTOR EVALUATION
 Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
 Terminal Sacrifice at 105 weeks

Dose	0 NG/KG	3 NG/KG	10 NG/KG	Females 22 NG/KG	46 NG/KG	100 NG/KG
------	---------	---------	----------	---------------------	----------	--------------

TUMOR RATES	#	#	#	#	#	#
OVERALL (a)	47/53 (89%)	54/54 (100%)	48/53 (91%)	44/53 (83%)	50/53 (94%)	50/53 (94%)
POLY-3 RATE (b)	47/50.68	54/54.00	48/49.12	44/46.61	50/51.10	50/51.78
POLY-3 PERCENT (g)	92.7%	100.0%	97.7%	94.4%	97.9%	96.6%
TERMINAL (d)	23/25 (92%)	21/21 (100%)	22/23 (96%)	18/19 (95%)	21/22 (96%)	20/21 (95%)
FIRST INCIDENCE	169	200	236	338	141	396
STATISTICAL TESTS						
LIFE TABLE	P=0.436N	P=0.037 *	P=0.376	P=0.184	P=0.233	P=0.256
POLY 3	P=0.560	P=0.046 *	P=0.223	P=0.535	P=0.205	P=0.317
POLY 1.5	P=0.526	P=0.027 *	P=0.191	P=0.650	P=0.168	P=0.286
POLY 6	P=0.571	P=0.088	P=0.314	P=0.464	P=0.298	P=0.360
LOGISTIC REGRESSION	P=0.387N	P=0.014 *	P=0.358	P=0.423N	P=0.230	P=0.346
COCH-ARM / FISHERS	P=0.342	P=0.013 *	P=0.500	P=0.289N	P=0.244	P=0.244
ORDER RESTRICTED	P=0.109	(e)	(e)	(e)	(e)	(e)

(a) Number of tumor-bearing animals / number of animals examined at site.
 (b) Number of tumor-bearing animals at terminal kill.
 (d) Observed incidence at terminal incidence are the p-values associated with the trend
 (f) Beneath the control incidence are the p-values corresponding to
 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.
 Logistic regression is an alternative
 method for analyzing the incidence of non-fatal tumors. The Cochran-Armitage
 and Fishers 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.
 (g) Poly-3 adjusted lifetime tumor incidence.
 (I) Terminal sacrifice
 (F) Interim 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).

NTP
LAB: Battelle Columbus
EXPERIMENT: 96007 TEST: 03
TEST TYPE: CHRONIC
CONT: NO1-ES-75411
PATHOLOGIST: SELLS, DONALD

STATISTICAL ANALYSIS OF PRIMARY TUMORS
TOXIC EQUIVALENCY FACTOR EVALUATION (TEFD)

CAGES FROM 0000 TO LAST CAGE
ROUTE: GAVAGE

CONTROL VS HIGH DOSE AND STOP GRP.

REASONS FOR REMOVAL:

25018 Dosing Accident
25019 Moribund Sacrifice
25020 Natural Death
25021 Terminal Sacrifice

REMOVAL DATE RANGE:

ALL

TREATMENT GROUPS:

INCLUDE 001	0 NG/KG	NG/KG
INCLUDE 006	100	NG/KG
INCLUDE 007	100 NG/	KG/STOP

REPORT: PEIRPT08
DATE: 11/25/02
TIME: 12:47:11
PAGE: 1
NTP C#: 96007G
CAS: 1746-01-6

NTP
LAB: Battelle Columbus
EXPERIMENT: 96007 TEST: 03
TEST TYPE: CHRONIC
CONT: N01-ES-75411
PATHOLOGIST: SELLS, DONALD
Rats (SPRAGUE-DAWLEY)

STATISTICAL ANALYSIS OF PRIMARY TUMORS
TOXIC EQUIVALENCY FACTOR EVALUATION (TEQDD)

CAGES FROM 0000 TO LAST CAGE
ROUTE: GAVAGE

REPORT: PEIRPPT08
DATE: 11/25/02
TIME: 12:47:11
NTP #: 96007G
CAS: 1746-01-6

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 THE NUMBER OF ANIMALS NECROPSIED.

-
- Adrenal Cortex
- Adrenal Medulla
- Heart
- Islets, Pancreatic
- Liver
- Lung
- Pancreas
- Pituitary Gland
- Spleen
- Thymus
- Thyroid Gland

NTP
LAB: Battelle Columbus
EXPERIMENT: 96007 TEST: 03
TEST TYPE: CHRONIC
CONT: N01-ES-75411
PATHOLOGIST: SELLS, DONALD

STATISTICAL ANALYSIS OF PRIMARY TUMORS
TOXIC EQUIVALENCY FACTOR EVALUATION (TQDD)
CAGES FROM 0000 TO LAST CAGE
ROUTE: GAVAGE

REPORT: PEIRPT08
DATE: 11/25/02
TIME: 12:47:11
NTP C#: 96007G
CAS: 1746-01-6

SUMMARY OF STATISTICALLY SIGNIFICANT ($P \leq .05$) RESULTS
IN THE ANALYSIS OF TOXIC EQUIVALENCY FACTOR EVALUATION
=====

Female Rats

Organ

Morphology

Adrenal Medulla

Pheochromocytoma Benign
Pheochromocytoma: Benign, Complex, Malignant, NOS

Heart
Islets, Pancreatic

Schwannoma Malignant
Carcinoma or Adenoma

Liver

Cholangiocarcinoma

Hepatocellular Adenoma

Cystic Keratinizing Epithelioma

Lung

Adenoma

Carcinoma

Carcinoma or Adenoma

Fibroadenoma

Fibroma, Fibroadenoma or Adenoma

Fibroma, Fibroadenoma, Carcinoma, or Adenoma

Squamous Cell Carcinoma

Squamous Cell Carcinoma

Squamous Cell Carcinoma

Squamous Cell Carcinoma

Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma

Carcinoma

Carcinoma or Adenoma

Dose 0 NG/KG Females 100 NG/KG

Adrenal Medulla
 Pheochromocytoma Benign

TUMOR RATES

OVERALL (a) 3/53 (6%) 4/103 (4%)
 POLY-3 RATE (b) 3/39.55 4/81.45
 POLY-3 PERCENT (g) 7.6% 4.9%
 TERMINAL (d) 3/25 (12%) 0/42 (0%)
 FIRST INCIDENCE 731 (T) 642

STATISTICAL TESTS

LIFE TABLE P=0.499N P=0.499N
 POLY 3 P=0.414N P=0.378N
 POLY 1.5 P=0.418N P=0.383N
 LOGISTIC REGRESSION P=0.417N P=0.382N
 COCH-ARM / FISHERS P=0.443N P=0.443N
 ORDER RESTRICTED P=0.460N P=0.444N
 P<0.001 ** (e)

Dose 0 NG/KG Females 100 NG/KG

Adrenal Medulla
 Pheochromocytoma: Benign, Complex, Malignant, NOS

TUMOR RATES

OVERALL (a) 3/53 (6%) 5/103 (5%)
 POLY-3 RATE (b) 3/39.55 5/81.45
 POLY-3 PERCENT (g) 7.6% 6.1%
 TERMINAL (d) 3/25 (12%) 1/42 (2%)
 FIRST INCIDENCE 731 (T) 642

STATISTICAL TESTS

LIFE TABLE P=0.609N P=0.609N
 POLY 3 P=0.508N P=0.484N
 POLY 1.5 P=0.513N P=0.489N
 LOGISTIC REGRESSION P=0.513N P=0.489N
 COCH-ARM / FISHERS P=0.553N P=0.553N
 ORDER RESTRICTED P=0.566N P=0.550N
 P<0.001 ** (e)

Dose 0 NG/KG Females 100 NG/KG

Heart
 Schwannoma Malignant

TUMOR RATES

OVERALL (a) 0/53 (0%) 3/102 (3%)
 POLY-3 RATE (b) 0/39.55 3/80.62
 POLY-3 PERCENT (g) 0.0% 3.7%
 TERMINAL (d) 0/25 (0%) 1/42 (2%)
 FIRST INCIDENCE 484

STATISTICAL TESTS

LIFE TABLE

POLY 3 P=0.259 P=0.259
 POLY 1.5 P=0.264 P=0.211

LOGISTIC REGRESSION

POLY 6 P=0.260 P=0.210
 COCH-ARM / FISHERS P=0.251 P=0.208
 ORDER RESTRICTED P=0.259 P=0.251
 P<0.001 ** P=0.282 (e)

Dose 0 NG/KG Females 100 NG/KG

Islets, Pancreatic
 Carcinoma or Adenoma

TUMOR RATES

OVERALL (a) 2/51 (4%) 0/101 (0%)
 POLY-3 RATE (b) 2/39.17 0/79.40
 POLY-3 PERCENT (g) 5.1% 0.0%
 TERMINAL (d) 1/25 (4%) 0/42 (0%)
 FIRST INCIDENCE 645

STATISTICAL TESTS

LIFE TABLE

POLY 3 P=0.128N P=0.128N
 POLY 1.5 P=0.104N P=0.063N

LOGISTIC REGRESSION

POLY 6 P=0.107N P=0.062N
 COCH-ARM / FISHERS P=0.101N P=0.066N
 ORDER RESTRICTED P=0.106N P=0.101N
 P<0.001 ** P=0.111N (e)

Dose 0 NG/KG Females 100 NG/KG

Liver
 Cholangiocarcinoma

TUMOR RATES

OVERALL (a)	0/53 (0%)	27/103 (26%)
POLY-3 RATE (b)	0/39.55	27/83.74
POLY-3 PERCENT (g)	0.0%	32.2%
TERMINAL (c)	0/25 (0%)	14/42 (33%)
FIRST INCIDENCE		610

STATISTICAL TESTS

LIFE TABLE

POLY 3	P<0.001 **	P<0.001 **
POLY 1.5	P<0.001 **	P<0.001 **
POLY 6	P<0.001 **	P<0.001 **

LOGISTIC REGRESSION
 COCH-ARM / FISHERS
 ORDER RESTRICTED

Dose 0 NG/KG Females 100 NG/KG

Liver
 Hepatocellular Adenoma

TUMOR RATES

OVERALL (a)	0/53 (0%)	13/103 (13%)
POLY-3 RATE (b)	0/39.55	13/82.00
POLY-3 PERCENT (g)	0.0%	15.9%
TERMINAL (d)	0/25 (0%)	6/42 (14%)
FIRST INCIDENCE		561

STATISTICAL TESTS

LIFE TABLE

POLY 3	P=0.008 **	P=0.008 **
POLY 1.5	P=0.015 *	P=0.007 **
POLY 6	P=0.014 *	P=0.006 **

LOGISTIC REGRESSION
 COCH-ARM / FISHERS
 ORDER RESTRICTED

Dose 0 NG/KG Females 100 NG/KG

Lung
 Cystic Keratinizing Epithelioma

Dose	0 NG/KG	Females	100 NG/KG
TUMOR RATES			
OVERALL (a)	0/53 (0%)		9/102 (9%)
POLY-3 RATE (b)	0/39.55		9/80.88
POLY-3 PERCENT (g)	0.0%		11.1%
TERMINAL (d)	0/25 (0%)		4/42 (10%)
FIRST INCIDENCE			6/10
STATISTICAL TESTS			
LIFE TABLE			
POLY 3	P=0.029 *		P=0.029 *
POLY 1.5	P=0.045 *		P=0.026 *
	P=0.045 *		P=0.026 *
LOGISTIC REGRESSION	P=0.044 *		P=0.025 *
COCH-ARM / FISHERS	P=0.033 *		P=0.033 *
ORDER RESTRICTED	P=0.031 *		P=0.020 *
	P<0.001 **	(e)	

Dose 0 NG/KG Females 100 NG/KG

Mammary Gland
 Adenoma

TUMOR RATES			
OVERALL (a)	#		#
POLY-3 RATE (b)	2/53 (4%)		1/103 (1%)
POLY-3 PERCENT (g)	2/39.90		1/80.75
TERMINAL (d)	5.0%		1.2%
FIRST INCIDENCE	1/25 (4%)		1/42 (2%)
	631		731 (T)
STATISTICAL TESTS			
LIFE TABLE			
POLY 3	P=0.308N		P=0.308N
POLY 1.5	P=0.256N		P=0.203N
	P=0.257N		P=0.204N
POLY 6	P=0.262N		P=0.210N
LOGISTIC REGRESSION	P=0.265N		P=0.265N
COCH-ARM / FISHERS	P=0.277N		P=0.265N
ORDER RESTRICTED	P<0.001 **		P=0.266N
		(e)	

Mammary Gland Carcinoma

Dose 0 NG/KG

Females

100 NG/KG

TUMOR RATES

	#	#
OVERALL (a)	4/53 (8%)	1/103 (1%)
POLY-3 RATE (b)	4/40.42	1/81.36
POLY-3 PERCENT (g)	9.9%	1.2%
TERMINAL (d)	2/25 (8%)	0/42 (0%)
FIRST INCIDENCE	469	537

STATISTICAL TESTS

LIFE TABLE

POLY 3

POLY 1.5

POLY 6

LOGISTIC REGRESSION

COCH-ARM / FISHERS

ORDER RESTRICTED

P=0.047N*
 P=0.045N*
 P=0.046N*
 P=0.047N*
 P=0.045N*
 P=0.042N*
 P<0.001 **

P=0.047N*
 P=0.025N*
 P=0.025N*
 P=0.026N*
 P=0.045N*
 P=0.046N*
 (e)

Dose 0 NG/KG

Females

100 NG/KG

Mammary Gland Carcinoma or Adenoma

TUMOR RATES

	#	#
OVERALL (a)	6/53 (11%)	2/103 (2%)
POLY-3 RATE (b)	6/40.77	2/81.36
POLY-3 PERCENT (g)	14.7%	2.5%
TERMINAL (d)	3/25 (12%)	1/42 (2%)
FIRST INCIDENCE	469	537

STATISTICAL TESTS

LIFE TABLE

POLY 3

POLY 1.5

POLY 6

LOGISTIC REGRESSION

COCH-ARM / FISHERS

ORDER RESTRICTED

P=0.022N*
 P=0.019N*
 P=0.019N*
 P=0.020N*
 P=0.016N*
 P=0.016N*
 P<0.001 **

P=0.022N*
 P=0.009N**
 P=0.009N**
 P=0.010N*
 P=0.016N*
 P=0.019N*
 (e)

Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY) Terminal Sacrifice at 105 weeks

Dose	0 NG/KG	Females	100
			NG/KG

Mammary Gland
Fibroadenoma

TUMOR RATES	#	#
OVERALL (a)	33/53 (62%)	56/103 (54%)
POLY-3 RATE (b)	33/46.50	56/91.62
POLY-3 PERCENT (g)	71.0%	61.1%
TERMINAL (d)	16/25 (64%)	25/42 (60%)
FIRST INCIDENCE	185	345
STATISTICAL TESTS		
LIFE TABLE		
POLY 3	P=0.397N	P=0.397N
	P=0.177N	P=0.144N
POLY 1.5	P=0.183N	P=0.150N
	P=0.198N	P=0.165N
LOGISTIC REGRESSION	P=0.178N	P=0.178N
COCH-ARM / FISHERS	P=0.220N	P=0.220N
ORDER RESTRICTED	P<0.001 **	(e)

Dose	0 NG/KG	Females	100
			NG/KG

Mammary Gland
Fibroma, Fibroadenoma or Adenoma

TUMOR RATES	#	#
OVERALL (a)	35/53 (66%)	56/103 (54%)
POLY-3 RATE (b)	35/46.86	56/91.62
POLY-3 PERCENT (g)	74.7%	61.1%
TERMINAL (d)	17/25 (68%)	25/42 (60%)
FIRST INCIDENCE	185	345
STATISTICAL TESTS		
LIFE TABLE		
POLY 3	P=0.275N	P=0.275N
	P=0.086N	P=0.061N
POLY 1.5	P=0.090N	P=0.064N
	P=0.103N	P=0.076N
LOGISTIC REGRESSION	P=0.082N	P=0.082N
COCH-ARM / FISHERS	P=0.110N	P=0.109N
ORDER RESTRICTED	P<0.001 **	(e)

Mammary Gland
 Fibroma, Fibroadenoma, Carcinoma, or Adenoma

Dose	0 NG/KG	Females	100 NG/KG
TUMOR RATES			
OVERALL (a)	35/53 (66%)	57/103 (55%)	
POLY-3 RATE (b)	35/46.86	57/92.22	
POLY-3 PERCENT (g)	74.7%	61.8%	
TERMINAL (d)	17/25 (68%)	25/42 (60%)	
FIRST INCIDENCE	185	345	
STATISTICAL TESTS			
LIFE TABLE			
POLY 3	P=0.303N	P=0.303N	
POLY 1.5	P=0.099N	P=0.072N	
POLY 6	P=0.105N	P=0.077N	
LOGISTIC REGRESSION	P=0.114N	P=0.085N	
COCH-ARM / FISHERS	P=0.104N	P=0.104N	
ORDER RESTRICTED	P=0.132N	P=0.132N	
	P<0.001 **	(e)	
Dose			
	0 NG/KG	Females	100 NG/KG

Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva)
 Squamous Cell Carcinoma

TUMOR RATES	#	#
OVERALL (a)	1/53 (2%)	15/103 (15%)
POLY-3 RATE (b)	1/40.42	15/85.73
POLY-3 PERCENT (g)	2.5%	17.5%
TERMINAL (d)	0/25 (0%)	2/42 (5%)
FIRST INCIDENCE	366	520
STATISTICAL TESTS		
LIFE TABLE		
POLY 3	P=0.021 *	P=0.021 *
POLY 1.5	P=0.028 *	P=0.015 *
POLY 6	P=0.026 *	P=0.013 *
LOGISTIC REGRESSION	P=0.030 *	P=0.015 *
COCH-ARM / FISHERS	P=0.009 **	P=0.009 **
ORDER RESTRICTED	P=0.014 *	P=0.009 **
	P<0.001 **	(e)

Dose 0 NG/KG Females 100 NG/KG

Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva)
 Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma

TUMOR RATES

	#	#
OVERALL (a)	1/53 (2%)	15/103 (15%)
POLY-3 RATE (b)	1/40.42	15/85.73
POLY-3 PERCENT (g)	2.5%	17.5%
TERMINAL (d)	0/25 (0%)	2/42 (5%)
FIRST INCIDENCE	366	520

STATISTICAL TESTS

LIFE TABLE

POLY 3	P=0.021 *	P=0.021 *
POLY 1.5	P=0.028 *	P=0.015 *
	P=0.026 *	P=0.013 *
	P=0.030 *	P=0.015 *
LOGISTIC REGRESSION	P=0.009 **	P=0.009 **
COCH-ARM / FISHERS	P=0.014 *	P=0.009 **
ORDER RESTRICTED	P<0.001 **	P=0.009 **

(e)

Dose 0 NG/KG Females 100 NG/KG

Oral Mucosa
 Squamous Cell Carcinoma

TUMOR RATES

	#	#
OVERALL (a)	1/53 (2%)	15/103 (15%)
POLY-3 RATE (b)	1/40.42	15/85.73
POLY-3 PERCENT (g)	2.5%	17.5%
TERMINAL (d)	0/25 (0%)	2/42 (5%)
FIRST INCIDENCE	366	520

STATISTICAL TESTS

LIFE TABLE

POLY 3	P=0.021 *	P=0.021 *
POLY 1.5	P=0.028 *	P=0.015 *
	P=0.026 *	P=0.013 *
	P=0.030 *	P=0.015 *
LOGISTIC REGRESSION	P=0.009 **	P=0.009 **
COCH-ARM / FISHERS	P=0.014 *	P=0.009 **
ORDER RESTRICTED	P<0.001 **	P=0.009 **

(e)

Date: 11/25/02
 Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
 Terminal Sacrifice at 105 weeks

EXPERIMENT: 96007 TEST: 03

TOXIC EQUIVALENCY FACTOR EVALUATION

Dose: 0 NG/KG Females 100 NG/KG

Pancreas Carcinoma

TUMOR RATES
 OVERALL (a) 0/51 (0%) 3/100 (3%)
 POLY-3 RATE (b) 0/38.86 3/78.94
 POLY-3 PERCENT (g) 0.0% 3.8%
 TERMINAL (d) 0/25 (0%) 2/42 (5%)
 FIRST INCIDENCE 641

STATISTICAL TESTS
 LIFE TABLE P=0.240 P=0.240
 POLY 3 P=0.263 P=0.209
 POLY 1.5 P=0.263 P=0.205
 POLY 6 P=0.258 P=0.267
 LOGISTIC REGRESSION P=0.267 P=0.287
 COCH-ARM / FISHERS P=0.263
 ORDER RESTRICTED P<0.001 ** (e)

Dose: 0 NG/KG Females 100 NG/KG

Pancreas Carcinoma or Adenoma

TUMOR RATES
 OVERALL (a) 0/51 (0%) 4/100 (4%)
 POLY-3 RATE (b) 0/38.86 4/78.94
 POLY-3 PERCENT (g) 0.0% 5.1%
 TERMINAL (d) 0/25 (0%) 3/42 (7%)
 FIRST INCIDENCE 641

STATISTICAL TESTS
 LIFE TABLE P=0.157 P=0.157
 POLY 3 P=0.192 P=0.144
 POLY 1.5 P=0.192 P=0.145
 POLY 6 P=0.186 P=0.140
 LOGISTIC REGRESSION P=0.180 P=0.180
 COCH-ARM / FISHERS P=0.181 P=0.188
 ORDER RESTRICTED P<0.001 ** (e)

Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
 Terminal Sacrifice at 105 weeks

 Dose 0 NG/KG Females 100 NG/KG

Pituitary Gland: Pars Distalis or Unspecified Site
 Adenoma

TUMOR RATES

 OVERALL (a) 25/53 (47%) 30/102 (29%)
 POLY-3 RATE (b) 25/42.82 30/84.00
 POLY-3 PERCENT (g) 58.4% 35.7%
 TERMINAL (d) 15/25 (60%) 13/42 (31%)
 FIRST INCIDENCE 4/74 584

STATISTICAL TESTS

 LIFE TABLE
 POLY 3 P=0.062N P=0.062N
 P=0.015N* P=0.008N**
 POLY 1.5 P=0.017N* P=0.009N**
 POLY 6 P=0.018N* P=0.010N*
 LOGISTIC REGRESSION P=0.009N** P=0.009N**
 COCH-ARM / FISHERS P=0.022N* P=0.023N*
 ORDER RESTRICTED P<0.001 ** (e)

Dose 0 NG/KG Females 100 NG/KG

Pituitary Gland: Pars Intermedia
 Adenoma

TUMOR RATES

 OVERALL (a) 2/53 (4%) 0/102 (0%)
 POLY-3 RATE (b) 2/39.60 0/80.59
 POLY-3 PERCENT (g) 5.1% 0.0%
 TERMINAL (d) 1/25 (4%) 0/42 (0%)
 FIRST INCIDENCE 7/17

STATISTICAL TESTS

 LIFE TABLE
 POLY 3 P=0.125N P=0.125N
 P=0.104N P=0.064N
 POLY 1.5 P=0.105N P=0.065N
 POLY 6 P=0.105N P=0.065N
 LOGISTIC REGRESSION P=0.111N P=0.111N
 COCH-ARM / FISHERS P=0.110N P=0.115N
 ORDER RESTRICTED P<0.001 ** (e)

Date: 11/25/02
 Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
 Terminal Sacrifice at 105 weeks

EXPERIMENT: 96007 TEST: 03
 TOXIC EQUIVALENCY FACTOR EVALUATION

Dose	0 NG/KG	Females	100 NG/KG
------	---------	---------	-----------

Skin
 Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma,
 or Fibrous Histiocytoma

TUMOR RATES	#	#
OVERALL (a)	1/53 (2%)	3/103 (3%)
POLY-3 RATE (b)	1/40.13	3/81.65
POLY-3 PERCENT (g)	2.5%	3.7%
TERMINAL (d)	0/25 (0%)	1/42 (2%)
FIRST INCIDENCE	548	394
STATISTICAL TESTS		
LIFE TABLE	P=0.563	P=0.563
POLY 3	P=0.537	P=0.507
POLY 1.5	P=0.537	P=0.507
POLY 6	P=0.530	P=0.500
LOGISTIC REGRESSION	P=0.509	P=0.509
COCH-ARM / FISHERS	P=0.560	P=0.581
ORDER RESTRICTED	P<0.001 **	(e)

Dose	0 NG/KG	Females	100 NG/KG
------	---------	---------	-----------

Thyroid Gland: C-Cell
 Adenoma

TUMOR RATES	#	#
OVERALL (a)	20/52 (38%)	24/101 (24%)
POLY-3 RATE (b)	20/42.85	24/81.60
POLY-3 PERCENT (g)	46.7%	29.4%
TERMINAL (d)	10/25 (40%)	13/42 (31%)
FIRST INCIDENCE	474	584
STATISTICAL TESTS		
LIFE TABLE	P=0.094N	P=0.094N
POLY 3	P=0.051N	P=0.033N*
POLY 1.5	P=0.046N*	P=0.029N*
POLY 6	P=0.067N	P=0.047N*
LOGISTIC REGRESSION	P=0.027N*	P=0.027N*
COCH-ARM / FISHERS	P=0.043N*	P=0.044N*
ORDER RESTRICTED	P<0.001 **	(e)

Date: 11/25/02
 Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
 Terminal Sacrifice at 105 weeks

EXPERIMENT: 96007 TEST: 03
 TOXIC EQUIVALENCY FACTOR EVALUATION

Uterus
 Polyp Stromal

Dose

0 NG/KG Females 100 NG/KG

TUMOR RATES

	#	#
OVERALL (a)	11/53 (21%)	12/103 (12%)
POLY-3 RATE (b)	11/40.11	12/82.21
POLY-3 PERCENT (g)	27.4%	14.6%
TERMINAL (d)	8/25 (32%)	6/42 (14%)
FIRST INCIDENCE	645	598

STATISTICAL TESTS

P=0.157N	P=0.157N
P=0.088N	P=0.060N
P=0.093N	P=0.065N
P=0.089N	P=0.062N
P=0.081N	P=0.081N
P=0.100N	P=0.102N
P<0.001 **	(e)

LIFE TABLE

POLY 3

POLY 1.5

POLY 6

LOGISTIC REGRESSION

COCH-ARM / FISHERS

ORDER RESTRICTED

Dose

0 NG/KG Females 100 NG/KG

Uterus Squamous Cell Carcinoma

TUMOR RATES

	#	#
OVERALL (a)	0/53 (0%)	2/103 (2%)
POLY-3 RATE (b)	0/39.55	2/80.75
POLY-3 PERCENT (g)	0.0%	2.5%
TERMINAL (d)	0/25 (0%)	2/42 (5%)
FIRST INCIDENCE		731 (T)

STATISTICAL TESTS

LIFE TABLE

POLY 3

POLY 1.5

POLY 6

LOGISTIC REGRESSION

COCH-ARM / FISHERS

ORDER RESTRICTED

Dose 0 NG/KG Females 100 NG/KG

All Organs
 Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed,
 NOS, or Undifferentiated Cell Type

TUMOR RATES

	#	#
OVERALL (a)	0/53 (0%)	3/103 (3%)
POLY-3 RATE (b)	0/39.55	3/81.65
POLY-3 PERCENT (g)	0.0%	3.7%
TERMINAL (d)	0/25 (0%)	2/42 (5%)
FIRST INCIDENCE		345

STATISTICAL TESTS

	P-value	P-value
LIFE TABLE	P=0.242	P=0.242
POLY 3	P=0.267	P=0.213
POLY 1.5	P=0.266	P=0.212
POLY 6	P=0.263	P=0.209
LOGISTIC REGRESSION	P=0.229	P=0.229
COCH-ARM / FISHERS	P=0.261	P=0.229
ORDER RESTRICTED	P<0.001 **	P=0.285

Dose 0 NG/KG Females 100 NG/KG

All Organs
 Benign Tumors

TUMOR RATES

	#	#
OVERALL (a)	45/53 (85%)	82/103 (80%)
POLY-3 RATE (b)	45/48.82	82/95.84
POLY-3 PERCENT (g)	92.2%	85.6%
TERMINAL (d)	23/25 (92%)	35/42 (83%)
FIRST INCIDENCE	185	345

STATISTICAL TESTS

	P-value	P-value
LIFE TABLE	P=0.537N	P=0.537N
POLY 3	P=0.182N	P=0.145N
POLY 1.5	P=0.193N	P=0.157N
POLY 6	P=0.197N	P=0.160N
LOGISTIC REGRESSION	P=0.140N	P=0.140N
COCH-ARM / FISHERS	P=0.278N	P=0.282N
ORDER RESTRICTED	P<0.001 **	(e)

Date: 11/25/02
 Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
 Terminal Sacrifice at 105 weeks

EXPERIMENT: 96007 TEST: 03 TOXIC EQUIVALENCY FACTOR EVALUATION

Dose 0 NG/KG Females 100 NG/KG

All Organs
 Malignant Tumors

TUMOR RATES	#	#
OVERALL (a)	13/53 (25%)	53/103 (51%)
POLY-3 RATE (b)	13/43.94	53/91.48
POLY-3 PERCENT (g)	29.6%	57.9%
TERMINAL (d)	4/25 (16%)	23/42 (55%)
FIRST INCIDENCE	169	345
STATISTICAL TESTS		
LIFE TABLE	P=0.003 **	P=0.003 **
POLY 3	P=0.003 **	P<0.001 **
POLY 1.5	P=0.003 **	P<0.001 **
POLY 6	P=0.003 **	P<0.001 **
LOGISTIC REGRESSION	P<0.001 **	P<0.001 **
COCH-ARM / FISHERS	P<0.001 **	P<0.001 **
ORDER RESTRICTED	P<0.001 **	(e)

Dose 0 NG/KG Females 100 NG/KG

All Organs
 Malignant and Benign Tumors

TUMOR RATES	#	#
OVERALL (a)	47/53 (89%)	96/103 (93%)
POLY-3 RATE (b)	47/50.68	96/100.4
POLY-3 PERCENT (g)	92.7%	95.6%
TERMINAL (d)	23/25 (92%)	39/42 (93%)
FIRST INCIDENCE	169	345
STATISTICAL TESTS		
LIFE TABLE	P=0.261	P=0.261
POLY 3	P=0.342	P=0.302
POLY 1.5	P=0.293	P=0.253
POLY 6	P=0.408	P=0.370
LOGISTIC REGRESSION	P=0.346	P=0.346
COCH-ARM / FISHERS	P=0.254	P=0.249
ORDER RESTRICTED	P<0.001 **	(e)

(a) Number of tumor-bearing animals / number of animals examined at site.
 (b) Number of tumor-bearing animals / Poly-3 number

- (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.
- Logistic regression is an alternative method for analyzing the incidence of non-fatal tumors. The Cochran-Armitage and Fishers 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.
 - (g) Poly-3 adjusted lifetime tumor incidence.
 - (I) Interim sacrifice
 - (R) Terminal sacrifice
- # Tumor rates based on number of animals necropsied.
- * To the right of any statistical result, indicates significance at $(P \leq 0.05)$.
 - ** To the right of any statistical result, indicates significance at $(P \leq 0.01)$.

NTP
LAB: Battelle Columbus
EXPERIMENT: 96007 TEST: 03
TEST TYPE: CHRONIC
CONT: N01-ES-75411
PATHOLOGIST: SELLS, DONALD

STATISTICAL ANALYSIS OF PRIMARY TUMORS
TOXIC EQUIVALENCY FACTOR EVALUATION (TEFD)
CAGES FROM 0000 TO LAST CAGE
ROUTE: GAVAGE

REPORT: PEIRPT08
DATE: 11/25/02
TIME: 12:47:08
PAGE: 1
NTP C#: 96007G
CAS: 1746-01-6

CONTROL VS STOP GRP.

REASONS FOR REMOVAL:
25018 Dosing Accident
25019 Moribund Sacrifice
25020 Natural Death
25021 Terminal Sacrifice

REMOVAL DATE RANGE: ALL
TREATMENT GROUPS:
INCLUDE 001 0 MG/KG
INCLUDE 007 100 MG/ KG/STOP

NTP
LAB: Battelle Columbus
EXPERIMENT: 96007 TEST: 03
TEST TYPE: CHRONIC
CONT: N01-ES-75411
PATHOLOGIST: SELLS, DONALD
Rats (SPRAGUE-DAWLEY)

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 THE NUMBER OF ANIMALS NECROPSIED.

STATISTICAL ANALYSIS OF PRIMARY TUMORS
TOXIC EQUIVALENCY FACTOR EVALUATION (TEQDD)

CAGES FROM 0000 TO LAST CAGE
ROUTE: GAVAGE

Adrenal Cortex
Adrenal Medulla
Heart
Islets, Pancreatic
Liver
Pancreas
Pituitary Gland
Spleen
Thymus
Thyroid Gland

REPORT: PEIRPT08
DATE: 11/25/02
TIME: 12:47:08
NTP C#: 96007G
CAS: 1746-01-6

NTP
LAB: Battelle Columbus
EXPERIMENT: 96007 TEST: 03
TEST TYPE: CHRONIC
CONT: N01-ES-75411
PATHOLOGIST: SELLS, DONALD

STATISTICAL ANALYSIS OF PRIMARY TUMORS
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
CAGES FROM 0000 TO LAST CAGE
ROUTE: GAVAGE

REPORT: PETRPT08
DATE: 11/25/02
TIME: 12:47:08
NTP C#: 96007G
CAS: 1746-01-6

SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS
IN THE ANALYSIS OF TOXIC EQUIVALENCY FACTOR EVALUATION
=====

Female Rats

Organ

Morphology

Adrenal Medulla

Pheochromocytoma Benign
Pheochromocytoma: Benign, Complex, Malignant, NOS

Heart
Islets, Pancreatic

Schwannoma Malignant
Carcinoma or Adenoma
Cholangiocarcinoma

Liver

Hepatocellular Adenoma
Adenoma
Carcinoma

Carcinoma or Adenoma
Fibroadenoma

Mammary Gland

Fibroma, Fibroadenoma or Adenoma
Fibroma, Fibroadenoma, Carcinoma, or Adenoma

Oral Cavity (Oral Mucosa, Tongue, Pharynx, Gingiva)

Squamous Cell Carcinoma
Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma
Squamous Cell Carcinoma

Oral Mucosa

Adenoma

Pituitary Gland: Pars Distalis or Unspecified Site

Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Fibrous Histiocytoma

Pituitary Gland: Pars Intermedia

Adenoma

Skin

Adenoma
Carcinoma or Adenoma
Carcinoma

Thyroid Gland: C-Cell

PolyP Stromal
Squamous Cell Carcinoma
Benign Tumors
Malignant Tumors

Uterus

Malignant and Benign Tumors

All Organs

Malignant and Benign Tumors

=====

Dose 0 NG/KG

Females

100 NG/
 KG/STOP

Adrenal Medulla
 Pheochromocytoma Benign

TUMOR RATES

OVERALL (a) 3/53 (6%)
 POLY-3 RATE (b) 3/39.55
 POLY-3 PERCENT (g) 7.6%
 TERMINAL (d) 3/25 (12%)
 FIRST INCIDENCE 731 (T)

1/50 (2%)
 1/38.27
 2.6%
 0/21 (0%)
 702

STATISTICAL TESTS

LIFE TABLE

POLY 3 P=0.350N
 POLY 1.5 P=0.319N
 POLY 6 P=0.320N

P=0.350N
 P=0.319N
 P=0.320N

LOGISTIC REGRESSION

COCH-ARM / FISHERS P=0.321N
 P=0.325N
 ORDER RESTRICTED P=0.326N
 P<0.001 **

P=0.321N
 P=0.325N
 P=0.331N
 (e)

Dose

0 NG/KG

Females

100 NG/
 KG/STOP

Adrenal Medulla
 Pheochromocytoma: Benign, Complex, Malignant, NOS

TUMOR RATES

OVERALL (a) 3/53 (6%)
 POLY-3 RATE (b) 3/39.55
 POLY-3 PERCENT (g) 7.6%
 TERMINAL (d) 3/25 (12%)
 FIRST INCIDENCE 731 (T)

2/50 (4%)
 2/38.27
 5.2%
 1/21 (5%)
 702

STATISTICAL TESTS

LIFE TABLE

POLY 3 P=0.560N
 POLY 1.5 P=0.518N
 POLY 6 P=0.519N

P=0.560N
 P=0.518N
 P=0.519N

LOGISTIC REGRESSION

COCH-ARM / FISHERS P=0.522N
 P=0.528N
 ORDER RESTRICTED P=0.527N
 P<0.001 **

P=0.522N
 P=0.528N
 P=0.528N
 (e)

Dose 0 NG/KG Females 100 NG/KG/STOP

Heart Schwannoma Malignant

TUMOR RATES
 OVERALL (a) 0/53 (0%) 3/50 (6%)
 POLY-3 RATE (b) 0/39.55 3/38.98
 TERMINAL (d) 0.0% 7.7%
 FIRST INCIDENCE 0/25 (0%) 1/21 (5%)
 484

STATISTICAL TESTS
 LIFE TABLE
 POLY 3 P=0.115 P=0.115
 POLY 1.5 P=0.116 P=0.116
 POLY 6 P=0.116 P=0.115
 LOGISTIC REGRESSION P=0.115 P=0.110
 COCH-ARM / FISHERS P=0.111 P=0.110
 ORDER RESTRICTED P<0.001 **
 (e)

Dose 0 NG/KG Females 100 NG/KG/STOP

Islets, Pancreatic Carcinoma or Adenoma

TUMOR RATES
 OVERALL (a) 2/51 (4%) 0/49 (0%)
 POLY-3 RATE (b) 2/39.17 0/37.76
 TERMINAL (d) 5.1% 0.0%
 FIRST INCIDENCE 1/25 (4%) 0/21 (0%)
 645

STATISTICAL TESTS
 LIFE TABLE
 POLY 3 P=0.275N P=0.275N
 POLY 1.5 P=0.249N P=0.249N
 POLY 6 P=0.247N P=0.247N
 LOGISTIC REGRESSION P=0.255N P=0.255N
 COCH-ARM / FISHERS P=0.244N P=0.244N
 ORDER RESTRICTED P=0.246N P=0.258N
 P<0.001 **
 (e)

Date: 11/25/02
 EXPERIMENT: 96007 TEST: 03
 TOXIC EQUIVALENCY FACTOR EVALUATION
 Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
 Terminal Sacrifice at 105 weeks

Dose: 0 NG/KG
 Females
 100 NG/
 KG/STOP

Liver
 Cholangiocarcinoma

TUMOR RATES
 OVERALL (a) 0/53 (0%) 2/50 (4%)
 POLY-3 RATE (b) 0/39.55 2/38.16
 POLY-3 PERCENT (g) 0.0% 5.2%
 TERMINAL (d) 0/25 (0%) 1/21 (5%)
 FIRST INCIDENCE 729
 STATISTICAL TESTS
 LIFE TABLE P=0.207 P=0.207
 POLY 3 P=0.233 P=0.232
 POLY 1.5 P=0.233 P=0.233
 POLY 6 P=0.231 P=0.231
 LOGISTIC REGRESSION P=0.221 P=0.221
 COCH-ARM / FISHERS P=0.225 P=0.233
 ORDER RESTRICTED P<0.001 ** (e)

Dose: 0 NG/KG
 Females
 100 NG/
 KG/STOP

Liver
 Hepatocellular Adenoma

TUMOR RATES
 OVERALL (a) 0/53 (0%) 2/50 (4%)
 POLY-3 RATE (b) 0/39.55 2/38.29
 POLY-3 PERCENT (g) 0.0% 5.2%
 TERMINAL (d) 0/25 (0%) 0/21 (0%)
 FIRST INCIDENCE 702
 STATISTICAL TESTS
 LIFE TABLE P=0.239 P=0.239
 POLY 3 P=0.233 P=0.233
 POLY 1.5 P=0.233 P=0.233
 POLY 6 P=0.232 P=0.232
 LOGISTIC REGRESSION P=0.226 P=0.226
 COCH-ARM / FISHERS P=0.225 P=0.233
 ORDER RESTRICTED P<0.001 ** (e)

Dose 0 NG/KG Females 100 NG/KG/STOP

Mammary Gland
 Adenoma

TUMOR RATES # #
 OVERALL (a) 2/53 (4%) 0/50 (0%)
 POLY-3 RATE (b) 2/39.90 0/38.16
 POLY-3 PERCENT (g) 5.0% 0.0%
 TERMINAL (d) 1/25 (4%) 0/21 (0%)
 FIRST INCIDENCE 631

STATISTICAL TESTS
 LIFE TABLE P=0.271N P=0.271N
 POLY 3 P=0.252N P=0.252N
 POLY 1.5 P=0.251N P=0.250N
 LOGISTIC REGRESSION P=0.258N P=0.257N
 COCH-ARM / FISHERS P=0.246N P=0.246N
 ORDER RESTRICTED P=0.251N P=0.262N
 P<0.001 ** (e)

Dose 0 NG/KG Females 100 NG/KG/STOP

Mammary Gland
 Carcinoma

TUMOR RATES # #
 OVERALL (a) 4/53 (8%) 1/50 (2%)
 POLY-3 RATE (b) 4/40.42 1/38.76
 POLY-3 PERCENT (g) 9.9% 2.6%
 TERMINAL (d) 2/25 (8%) 0/21 (0%)
 FIRST INCIDENCE 469 537

STATISTICAL TESTS
 LIFE TABLE P=0.208N P=0.208N
 POLY 3 P=0.193N P=0.192N
 POLY 1.5 P=0.193N P=0.193N
 LOGISTIC REGRESSION P=0.196N P=0.196N
 COCH-ARM / FISHERS P=0.200N P=0.200N
 ORDER RESTRICTED P=0.198N P=0.200N
 P<0.001 ** (e)

Dose 0 NG/KG Females 100 NG/KG/STOP

Mammary Gland
 Carcinoma or Adenoma

TUMOR RATES # #

OVERALL (a) 6/53 (11%) 1/50 (2%)
 POLY-3 RATE (b) 6/40.77 1/38.76
 POLY-3 PERCENT (g) 14.7% 2.6%
 TERMINAL (c) 3/25 (12%) 0/21 (0%)
 FIRST INCIDENCE 469 537

STATISTICAL TESTS

LIFE TABLE P=0.080N P=0.080N
 POLY 3 P=0.064N P=0.064N
 POLY 1.5 P=0.064N P=0.063N
 POLY 6 P=0.067N P=0.066N
 LOGISTIC REGRESSION P=0.068N P=0.068N
 COCH-ARM / FISHERS P=0.069N P=0.066N
 ORDER RESTRICTED P<0.001 ** (e)

Dose 0 NG/KG Females 100 NG/KG/STOP

Mammary Gland
 Fibroadenoma

TUMOR RATES # #

OVERALL (a) 33/53 (62%) 32/50 (64%)
 POLY-3 RATE (b) 33/46.50 32/44.58
 POLY-3 PERCENT (g) 71.0% 71.8%
 TERMINAL (c) 16/25 (64%) 13/21 (62%)
 FIRST INCIDENCE 185 345

STATISTICAL TESTS

LIFE TABLE P=0.410 P=0.410
 POLY 3 P=0.563 P=0.562
 POLY 1.5 P=0.551 P=0.551
 POLY 6 P=0.565 P=0.565
 LOGISTIC REGRESSION P=0.544 P=0.544
 COCH-ARM / FISHERS P=0.509 P=0.509
 ORDER RESTRICTED P<0.001 ** (e)

Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
Terminal Sacrifice at 105 weeks

Dose

0 NG/KG

Females

100 NG/
KG/STOP

Mammary Gland
Fibroma, Fibroadenoma or Adenoma

TUMOR RATES

#

#

OVERALL (a)

35/53 (66%)

32/50 (64%)

POLY-3 RATE (b)

35/46.86

32/44.58

POLY-3 PERCENT (g)

74.7%

71.8%

TERMINAL (d)

17/25 (68%)

13/21 (62%)

FIRST INCIDENCE

185

345

STATISTICAL TESTS

LIFE TABLE

P=0.518

P=0.518

POLY 3

P=0.470N

P=0.470N

POLY 1.5

P=0.470N

P=0.469N

POLY 6

P=0.489N

P=0.489N

LOGISTIC REGRESSION

P=0.457N

P=0.457N

COCH-ARM / FISHERS

P=0.496N

P=0.496N

ORDER RESTRICTED

P<0.001 **

(e)

Dose

0 NG/KG

Females

100 NG/
KG/STOP

Mammary Gland
Fibroma, Fibroadenoma, Carcinoma, or Adenoma

TUMOR RATES

#

#

OVERALL (a)

35/53 (66%)

33/50 (66%)

POLY-3 RATE (b)

35/46.86

33/45.18

POLY-3 PERCENT (g)

74.7%

73.0%

TERMINAL (d)

17/25 (68%)

13/21 (62%)

FIRST INCIDENCE

185

345

STATISTICAL TESTS

LIFE TABLE

P=0.462

P=0.462

POLY 3

P=0.525N

P=0.525N

POLY 1.5

P=0.540N

P=0.539N

POLY 6

P=0.525N

P=0.525N

LOGISTIC REGRESSION

P=0.547N

P=0.547N

COCH-ARM / FISHERS

P=0.581N

P=0.581N

ORDER RESTRICTED

P<0.001 **

(e)

Dose 0 NG/KG Females 100 NG/KG/STOP

Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva)
 Squamous Cell Carcinoma

TUMOR RATES
 OVERALL (a) # 1/53 (2%) # 5/50 (10%)
 POLY-3 RATE (b) 1/40.42 5/40.28
 POLY-3 PERCENT (g) 2.5% 12.4%
 TERMINAL (d) 0/25 (0%) 0/21 (0%)
 FIRST INCIDENCE 366 520

STATISTICAL TESTS
 LIFE TABLE P=0.109 P=0.109
 POLY 3 P=0.099 P=0.099
 POLY 1.5 P=0.097 P=0.097
 POLY 6 P=0.102 P=0.102
 LOGISTIC REGRESSION P=0.070 P=0.070
 COCH-ARM / FISHERS P=0.091 P=0.090
 ORDER RESTRICTED P<0.001 ** (e)

Dose 0 NG/KG Females 100 NG/KG/STOP

Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva)
 Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma

TUMOR RATES
 OVERALL (a) # 1/53 (2%) # 5/50 (10%)
 POLY-3 RATE (b) 1/40.42 5/40.28
 POLY-3 PERCENT (g) 2.5% 12.4%
 TERMINAL (d) 0/25 (0%) 0/21 (0%)
 FIRST INCIDENCE 366 520

STATISTICAL TESTS
 LIFE TABLE P=0.109 P=0.109
 POLY 3 P=0.099 P=0.099
 POLY 1.5 P=0.097 P=0.097
 POLY 6 P=0.102 P=0.102
 LOGISTIC REGRESSION P=0.070 P=0.070
 COCH-ARM / FISHERS P=0.091 P=0.090
 ORDER RESTRICTED P<0.001 ** (e)

Pituitary Gland: Pars Intermedia
 Adenoma

Dose	0 NG/KG	100 NG/ KG/STOP	Females
TUMOR RATES			
OVERALL (a)	2/53 (4%)	0/50 (0%)	
POLY-3 RATE (b)	2/39 .60	0/38 .16	
POLY-3 PERCENT (g)	5.1%	0.0%	
TERMINAL (d)	1/25 (4%)	0/21 (0%)	
FIRST INCIDENCE	717		
STATISTICAL TESTS			
LIFE TABLE			
POLY 3	P=0.263N	P=0.263N	
POLY 1.5	P=0.249N	P=0.249N	
POLY 6	P=0.253N	P=0.252N	
LOGISTIC REGRESSION	P=0.250N	P=0.250N	
COCH-ARM / FISHERS	P=0.251N	P=0.262N	
ORDER RESTRICTED	P<0.001 **	(e)	
Dose			
	0 NG/KG	100 NG/ KG/STOP	Females

Skin
 Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma,
 or Fibrous Histiocytoma

TUMOR RATES	#	#
OVERALL (a)	1/53 (2%)	2/50 (4%)
POLY-3 RATE (b)	1/40 .13	2/39 .00
POLY-3 PERCENT (g)	2.5%	5.1%
TERMINAL (d)	0/25 (0%)	1/21 (5%)
FIRST INCIDENCE	548	394
STATISTICAL TESTS		
LIFE TABLE		
POLY 3	P=0.483	P=0.483
POLY 1.5	P=0.493	P=0.493
POLY 6	P=0.491	P=0.491
LOGISTIC REGRESSION	P=0.447	P=0.447
COCH-ARM / FISHERS	P=0.480	P=0.478
ORDER RESTRICTED	P<0.001 **	(e)

Dose

0 NG/KG

Females

100 NG/
 KG/STOP

Thyroid Gland: C-Cell
 Adenoma

TUMOR RATES

OVERALL (a)
 POLY-3 RATE (b)
 POLY-3 PERCENT (g)
 TERMINAL (d)
 FIRST INCIDENCE

20/52 (38%)
 20/42.85
 46.7%
 10/25 (40%)
 4/74

13/49 (27%)
 13/38.54
 33.7%
 7/21 (33%)
 584

STATISTICAL TESTS

LIFE TABLE

POLY 3
 POLY 1.5
 POLY 6

P=0.211N
 P=0.166N
 P=0.145N
 P=0.208N
 P=0.121N
 P=0.143N
 P<0.001 **

P=0.211N
 P=0.166N
 P=0.145N
 P=0.208N
 P=0.121N
 P=0.143N
 (e)

LOGISTIC REGRESSION
 COCH-ARM / FISHERS
 ORDER RESTRICTED

Dose

0 NG/KG

Females

100 NG/
 KG/STOP

Thyroid Gland: C-Cell
 Carcinoma or Adenoma

TUMOR RATES

OVERALL (a)
 POLY-3 RATE (b)
 POLY-3 PERCENT (g)
 TERMINAL (d)
 FIRST INCIDENCE

21/52 (40%)
 21/42.85
 49.0%
 11/25 (44%)
 4/74

14/49 (29%)
 14/38.54
 36.3%
 8/21 (38%)
 584

STATISTICAL TESTS

LIFE TABLE

POLY 3
 POLY 1.5
 POLY 6

P=0.223N
 P=0.174N
 P=0.151N
 P=0.219N
 P=0.124N
 P=0.150N
 P<0.001 **

P=0.223N
 P=0.173N
 P=0.151N
 P=0.219N
 P=0.124N
 P=0.150N
 (e)

LOGISTIC REGRESSION
 COCH-ARM / FISHERS
 ORDER RESTRICTED

Date: 11/25/02

EXPERIMENT: 96007 TEST: 03

TOXIC EQUIVALENCY FACTOR EVALUATION

Page 11

Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
Terminal Sacrifice at 105 weeks

Dose 0 NG/KG Females 100 NG/KG/STOP

Uterus Carcinoma

TUMOR RATES

	#	#
OVERALL (a)	0/53 (0%)	2/50 (4%)
POLY-3 RATE (b)	0/39.55	2/38.16
POLY-3 PERCENT (g)	0.0%	5.2%
TERMINAL (d)	0/25 (0%)	2/21 (10%)
FIRST INCIDENCE		731 (T)

STATISTICAL TESTS

LIFE TABLE
 POLY 3 P=0.200
 POLY 1.5 P=0.233
 POLY 6 P=0.233
 LOGISTIC REGRESSION P=0.231
 COCH-ARM / FISHERS (e) P=0.200
 ORDER RESTRICTED P=0.225
 P<0.001 **

Dose 0 NG/KG Females 100 NG/KG/STOP

Uterus Polyp Stromal

TUMOR RATES

	#	#
OVERALL (a)	11/53 (21%)	4/50 (8%)
POLY-3 RATE (b)	11/40.11	4/38.16
POLY-3 PERCENT (g)	27.4%	10.5%
TERMINAL (d)	8/25 (32%)	3/21 (14%)
FIRST INCIDENCE	645	729

STATISTICAL TESTS

LIFE TABLE
 POLY 3 P=0.083N
 POLY 1.5 P=0.050N
 POLY 6 P=0.051N
 LOGISTIC REGRESSION P=0.053N
 COCH-ARM / FISHERS P=0.051N
 ORDER RESTRICTED P=0.060N
 P=0.001 ** (e)

Uterus
 Squamous Cell Carcinoma

Dose 0 NG/KG Females 100 NG/KG/STOP

TUMOR RATES
 OVERALL (a) # 0/53 (0%) # 2/50 (4%)
 POLY-3 RATE (b) 0/39.55 2/38.16
 POLY-3 PERCENT (g) 0.0% 5.2%
 TERMINAL (d) 0/25 (0%) 2/21 (10%)
 FIRST INCIDENCE 731 (T)

STATISTICAL TESTS
 LIFE TABLE
 POLY 3 P=0.200 P=0.200
 POLY 3 P=0.233 P=0.232
 POLY 1.5 P=0.233 P=0.233
 POLY 6 P=0.231 P=0.231
 LOGISTIC REGRESSION (e)
 COCH-ARM / FISHERS P=0.225 P=0.200
 ORDER RESTRICTED P<0.001 ** P=0.233 (e)

Dose 0 NG/KG Females 100 NG/KG/STOP

All Organs Benign Tumors

TUMOR RATES
 OVERALL (a) # 45/53 (85%) # 41/50 (82%)
 POLY-3 RATE (b) 45/48.82 41/45.87
 POLY-3 PERCENT (g) 92.2% 89.4%
 TERMINAL (d) 23/25 (92%) 18/21 (86%)
 FIRST INCIDENCE 185 345

STATISTICAL TESTS
 LIFE TABLE
 POLY 3 P=0.518 P=0.518
 POLY 3 P=0.456N P=0.455N
 POLY 1.5 P=0.434N P=0.434N
 POLY 6 P=0.490N P=0.490N
 LOGISTIC REGRESSION P=0.347N P=0.347N
 COCH-ARM / FISHERS P=0.448N P=0.447N
 ORDER RESTRICTED P<0.001 ** P=0.447N (e)

Date: 11/25/02
 Statistical Analysis of Primary Tumors in Rats (SPRAGUE-DAWLEY)
 Terminal Sacrifice at 105 weeks

EXPERIMENT: 96007 TEST: 03
 TOXIC EQUIVALENCY FACTOR EVALUATION

Dose 0 NG/KG Females 100 NG/KG/STOP

All Organs
 Malignant Tumors

TUMOR RATES
 OVERALL (a) 13/53 (25%) 19/50 (38%)
 POLY-3 RATE (b) 13/43.94 19/42.85
 POLY-3 PERCENT (g) 29.6% 44.3%
 TERMINAL (d) 4/25 (16%) 9/21 (43%)
 FIRST INCIDENCE 169 345
 STATISTICAL TESTS
 LIFE TABLE P=0.111 P=0.111
 POLY 3 P=0.110 P=0.110
 POLY 1.5 P=0.110 P=0.110
 POLY 6 P=0.103 P=0.102
 LOGISTIC REGRESSION P=0.094 P=0.094
 COCH-ARM / FISHERS P=0.103 P=0.103
 ORDER RESTRICTED P<0.001 ** (e)

Dose 0 NG/KG Females 100 NG/KG/STOP

All Organs
 Malignant and Benign Tumors

TUMOR RATES
 OVERALL (a) 47/53 (89%) 46/50 (92%)
 POLY-3 RATE (b) 47/50.68 46/48.66
 POLY-3 PERCENT (g) 92.7% 94.5%
 TERMINAL (d) 23/25 (92%) 19/21 (91%)
 FIRST INCIDENCE 169 345
 STATISTICAL TESTS
 LIFE TABLE P=0.352 P=0.352
 POLY 3 P=0.523 P=0.522
 POLY 1.5 P=0.451 P=0.451
 POLY 6 P=0.609 P=0.609
 LOGISTIC REGRESSION P=0.441 P=0.441
 COCH-ARM / FISHERS P=0.407 P=0.408
 ORDER RESTRICTED P<0.001 ** (e)

(a) Number of tumor-bearing animals / number of animals examined at site.
 (b) Number of tumor-bearing animals / Poly-3 number

- (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. Logistic regression is an alternative method for analyzing the incidence of non-fatal tumors. The Cochran-Armitage and Fishers 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.
- (g) Poly-3 adjusted lifetime tumor incidence.
- (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).

NTP Experiment-Pest: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
WITH AVERAGE SEVERITY GRADES (b)
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
Date: 11/25/02
Time: 11:49:34

14 WEEK SSAC

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25017 Scheduled Sacrifice

Removal Date Range: 09/02/98 - 09/03/98

Treatment Groups:	Include	0 NG/KG
	Include 001	0 NG/KG
	Include 002	3 NG/KG
	Include 003	10 NG/KG
	Include 004	22 NG/KG
	Include 005	46 NG/KG
	Include 006	100 NG/KG

a Number of animals examined microscopically at site and number of animals with lesion
b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PRRPT18
 Date: 11/25/02
 Time: 11:49:34

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

DISPOSITION SUMMARY

Animals Initially In Study	98	98	98	98	98	98
Scheduled Sacrifice	16	16	16	16	16	16
Early Deaths						
Survivors						
Animals Examined Microscopically	10	10	10	10	10	10

ALIMENTARY SYSTEM

Liver	(10)	(10)	(10)	(10)	(10)	(10)
Fatty Change, Diffuse						
Inflammation	10 [1.1]	10 [1.0]	8 [1.0]	10 [1.1]	10 [1.2]	2 [1.0]
Mixed Cell Focus		2		1	1	10 [1.2]
Pigmentation						2
Hepatocyte, Hypertrophy	1 [1.0]	1 [1.0]	4 [1.3]	7 [1.0]	10 [1.7]	1 [1.0]
Hepatocyte, Multinucleated	1 [1.0]					10 [2.3]
Pancreas						3 [1.0]
Inflammation, Chronic Active	(10)	(10)	(10)	(10)	(10)	(10)
Acinus, Atrophy						2 [1.5]
						2 [1.5]

CARDIOVASCULAR SYSTEM

None

ENDOCRINE SYSTEM

Adrenal Cortex	(10)	(10)	(10)	(10)	(10)	(10)
Hypertrophy	1 [1.0]	2 [1.0]	2 [1.5]	1 [2.0]	1 [1.0]	1 [1.0]
Thyroid Gland	(10)	(10)	(10)	(10)	(10)	(10)
Follicular Cell, Hypertrophy		1 [1.0]	3 [3.0]	4 [2.5]	4 [2.8]	9 [2.1]

GENERAL BODY SYSTEM

None

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 11:49:34

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
GENITAL SYSTEM						
Ovary	(10)					(10)
Atrophy	2 [3.0]	(1)				1 [3.0]
Uterus	(10)					(10)
Metaplasia, Squamous	1 [1.0]					
Endometrium, Hyperplasia, Cystic	5 [3.4]					4 [3.8]
HEMATOPOIETIC SYSTEM						
Spleen	(10)					(10)
Pigmentation	10 [1.2]	(10)	(10)	(10)	(10)	10 [1.2]
Thymus	(10)	1 [1.0]				(10)
Atrophy					4 [1.3]	10 [1.6]
INTEGUMENTARY SYSTEM						
None						
MUSCULOSKELETAL SYSTEM						
None						
NERVOUS SYSTEM						
None						
RESPIRATORY SYSTEM						
Lung	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Chronic					1 [1.0]	
SPECIAL SENSES SYSTEM						
None						

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
WITH AVERAGE SEVERITY GRADES(b)
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
Date: 11/25/02
Time: 11:49:34

SPRAGUE-DAWLEY RATS FEMALE	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
----------------------------	---------	---------	----------	----------	----------	-----------

URINARY SYSTEM

None

- a Number of animals examined microscopically at site and number of animals with lesion
- b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

END OF REPORT

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
WITH AVERAGE SEVERITY GRADES (b)
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)
31 WEEK SSAC

Report: PEIRPT18
Date: 11/25/02
Time: 12:05:37

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25017 Scheduled Sacrifice

Removal Date Range: 12/30/98 - 12/31/98

Treatment Groups:

Include 001	0	NG/KG
Include 002	3	NG/KG
Include 003	10	NG/KG
Include 004	22	NG/KG
Include 005	46	NG/KG
Include 006	100	NG/KG

- a Number of animals examined microscopically at site and number of animals with lesion
- b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES [b]
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PIRPPT18
 Date: 11/25/02
 Time: 12:05:37

SPRAGUE-DAWLEY RATS FEMALE
 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

DISPOSITION SUMMARY

Animals Initially In Study	98	98	98	98	98	98
Scheduled Sacrifice	16	16	16	16	16	16
Early Deaths						
Survivors	10	10	10	10	10	10
Animals Examined Microscopically	10	10	10	10	10	10

ALIMENTARY SYSTEM

Liver	(10)	(10)	(10)	(10)	(10)	(10)
Angiectasis		1 [2.0]			1 [2.0]	
Fatty Change, Diffuse						6 [1.0]
Hepatodysplastic Nodule	9 [1.0]	1 [1.3]	10 [1.3]	10 [1.5]	10 [1.5]	10 [1.8]
Inflammation	1 [2.0]	3	3	2	3	3
Mitotic Alteration	1	4	1		1	7
Mixed Cell Focus, Multiple	2					1 [1.0]
Necrosis		1 [1.0]	8 [1.0]	9 [1.0]	10 [1.0]	10 [2.1]
Pigmentation						1 [2.0]
Toxic Hepatopathy						10 [2.7]
Bile Duct, Hyperplasia		2 [1.0]	3 [1.0]	6 [1.2]	9 [1.3]	10 [2.7]
Hepatocyte, Hypertrophy					5 [1.0]	9 [2.0]
Hepatocyte, Multinucleated						1 [1.0]
Oval Cell, Hyperplasia						(10)
Pancreas	(10)	(10)	(10)	(10)	(10)	(10)
Acinus, Atrophy						5 [1.0]
Acinus, Vacuolization	2 [1.0]		1 [1.0]		1 [1.0]	
Cytoplasmic						

CARDIOVASCULAR SYSTEM

None						
------	--	--	--	--	--	--

ENDOCRINE SYSTEM

Adrenal Cortex	(10)	(10)	(10)	(10)	(10)	(10)
Degeneration, Cystic					1 [2.0]	1 [2.0]
Hyperplasia		2 [1.5]	3 [1.3]	3 [1.3]	3 [1.3]	3 [1.3]
Hypertrophy						

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 12:05:37

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
SPRAGUE-DAWLEY RATS FEMALE						
ENDOCRINE SYSTEM - CONT						
Necrosis						
Thyroid Gland						
Follicular Cell, Hypertrophy	(10)	(10)	(10)	1 [1.0]	(10)	(10)
		3 [1.7]	3 [1.7]	3 [1.3]	4 [1.3]	6 [1.8]
GENERAL BODY SYSTEM						
None						
GENITAL SYSTEM						
Ovary	(10)					(10)
Atrophy	9 [3.9]					7 [4.0]
Uterus	(10)	(1)				(10)
Inflammation, Suppurative		1 [2.0]				
Metaplasia, Squamous						
Endometrium, Hyperplasia, Cystic	8 [1.5]					4 [1.0]
	1 [3.0]	1 [4.0]				2 [4.0]
HEMATOPOIETIC SYSTEM						
Spleen	(10)					(10)
Pigmentation	10 [1.2]					10 [1.2]
Thymus	(10)	(10)				(10)
Atrophy	2 [2.0]	1 [1.0]	5 [1.6]	6 [1.8]	7 [2.0]	10 [3.1]
INTEGUMENTARY SYSTEM						
None						
MUSCULOSKELETAL SYSTEM						
None						
NERVOUS SYSTEM						
None						

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES [b]
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 12:05:37

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

RESPIRATORY SYSTEM

Lung Infiltration Cellular, Histocyte (10) 2 [1.0] (10) 3 [1.0] (10) 1 [1.0] (10) 1 [1.0] (10) 1 [1.0]

SPECIAL SENSES SYSTEM

None

URINARY SYSTEM

None

- a Number of animals examined microscopically at site and number of animals with lesion
- b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

END OF REPORT

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
WITH AVERAGE SEVERITY GRADES [b]
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

53 WEEK SSAC

Report: PETRPT18
Date: 11/25/02
Time: 12:18:35

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25017 Scheduled Sacrifice

Removal Date Range: 06/03/99 - 06/04/99

Treatment Groups:	Include	0 NG/KG
	001	3 NG/KG
	002	10 NG/KG
	003	22 NG/KG
	004	46 NG/KG
	005	100 NG/KG
	006	

a Number of animals examined microscopically at site and number of animals with lesion
b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 12:18:35

SPRAGUE-DAWLEY RATS FEMALE	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
----------------------------	---------	---------	----------	----------	----------	-----------

DISPOSITION SUMMARY

Animals Initially In Study	98	98	98	98	98	98
Scheduled Sacrifice	13	12	13	13	13	13
Early Deaths						
Survivors						
Animals Examined Microscopically	8	8	8	8	8	8

ALIMENTARY SYSTEM

Liver	(8)	(8)	(8)	(8)	(8)	(8)
Basophilic Focus		1	1			2
Cholangiofibrosis					1	1
Clear Cell Focus	2				1	1
Fatty Change, Diffuse						1
Hepatodiaphragmatic Nodule					2	6
Inflammation				1		
Mixed Cell Focus	8	8	8	8	8	8
Pigmentation						
Toxic Hepatopathy						
Bile Duct, Cyst						
Bile Duct, Fibrosis						
Bile Duct, Hyperplasia						
Hepatocyte, Hypertrophy						
Hepatocyte, Multinucleated						
Pancreas	(8)	(8)	(8)	(8)	(8)	(8)
Inflammation, Chronic Active						
Acinus, Atrophy						
Acinus, Vacuolization						
Cytoplasmic						

CARDIOVASCULAR SYSTEM

None

ENDOCRINE SYSTEM

Adrenal Cortex

(8) (8) (8) (8) (8) (8)

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TQDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 12:18:35

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
ENDOCRINE SYSTEM - CONT						
Degeneration, Cystic	1 [1.0]	1 [1.0]	1 [2.0]	2 [2.0]	3 [1.7]	1 [1.0]
Hyperplasia	1 [1.0]	3 [2.0]	4 [1.3]	4 [1.5]	5 [1.0]	2 [1.5]
Hypertrophy	5 [1.6]	1 [1.0]				7 [2.0]
Vacuolization Cytoplasmic				(1)		(7)
Pituitary Gland	(8)					
Cyst	1 [3.0]					
Thyroid Gland	(8)	(8)	(8)	(8)	(8)	(8)
Follicular Cell, Hypertrophy	4 [2.0]	1 [1.0]	2 [1.0]	2 [1.5]	3 [1.0]	5 [1.6]

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Ovary	(8)					(7)
Atrophy	8 [4.0]					5 [4.0]
Uterus	(8)			(1)		(8)
Metaplasia, Squamous	7 [2.4]					4 [1.5]
Cervix, Cyst, Squamous	1 [3.0]					
Endometrium, Hyperplasia, Cystic	5 [2.0]			1 [4.0]		2 [2.5]

HEMATOPOIETIC SYSTEM

Spleen	(8)					(8)
Hyperplasia, Focal, Lymphoid	1 [2.0]					8 [1.8]
Pigmentation	8 [1.8]					(8)
Thymus	(8)					(8)
Atrophy	4 [2.0]	(8)	(7)	(8)	(8)	8 [3.4]
		2 [2.0]	3 [2.3]	7 [2.3]		8 [3.4]

INTEGUMENTARY SYSTEM

Mammary Gland	(8)	(2)		(2)		(8)
Cyst	3 [2.0]					

MUSCULOSKELETAL SYSTEM

None

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 12:18:35

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

NERVOUS SYSTEM

None

RESPIRATORY SYSTEM

Lung (8) (8) (8) (8) (8) (8)
 Infiltration Cellular, Histiocyte 3 [1.0] 1 [1.0] 2 [1.0] 1 [1.0] 4 [1.3] 3 [1.0]

SPECIAL SENSES SYSTEM

None

URINARY SYSTEM

Kidney (2) (1)
 Cyst 1 [2.0] 1 [3.0]
 Inflammation, Chronic Active 1 [2.0] 1 [2.0]
 Nephropathy 1 [3.0] 1 [2.0]
 Pelvis, Dilatation (1) (1)
 Ureter 1 [3.0] 1 [3.0]
 Mineralization (1) (1)
 Transitional Epithelium, Hyperplasia 1 [3.0] 1 [3.0]
 Urinary Bladder 1 [2.0] 1 [2.0]
 Inflammation 1 [2.0] 1 [2.0]
 Transitional Epithelium, Hyperplasia 1 [2.0] 1 [2.0]

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

END OF REPORT

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
WITH AVERAGE SEVERITY GRADES (b)
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
Date: 11/25/02
Time: 13:18:27

FINAL#1/RAFS

Facility: Battelle Columbus Laboratory

Chemical CAS #: 1746-01-6

Lock Date: 06/28/01

Cage Range: All

Reasons For Removal: 25018 Dosing Accident
25020 Natural Death

25019 Moribund Sacrifice
25021 Terminal Sacrifice

Removal Date Range: All

Treatment Groups:	Include	0 NG/KG
	Include 001	0 NG/KG
	Include 002	3 NG/KG
	Include 003	10 NG/KG
	Include 004	22 NG/KG
	Include 005	46 NG/KG
	Include 006	100 NG/KG
	Include 007	100 NG/ KG/STOP

- a Number of animals examined microscopically at site and number of animals with lesion
- b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES [b]
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 13:18:27

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

DISPOSITION SUMMARY

Disposition	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
Animals Initially In Study	98	98	98	98	98	98
Early Deaths	19	27	15	19	17	17
Moribund Sacrifice	9	6	10	15	14	15
Natural Death			5			
Dosing Accident						
Survivors	25	21	23	19	22	21
Terminal Sacrifice						
Animals Examined Microscopically	53	54	53	53	53	53

ALIMENTARY SYSTEM

Esophagus	(52)	(54)	(53)	(52)	(53)	(53)
Hemorrhage			1 [4.0]			
Perforation			2			
Muscularis, Inflammation	1 [2.0]	2 [2.5]	1 [2.0]	1 [2.0]	2 [1.5]	(53)
Periesophageal Tissue, Inflammation			3 [2.7]			
Intestine Large, Colon	(52)	(53)	(53)	(53)	(53)	(51)
Parasite Metazoan	1	2	1			2
Intestine Large, Rectum	(52)	(54)	(53)	(52)	(53)	(53)
Parasite Metazoan	6	4			2	1
Intestine Small, Duodenum	(53)	(54)	(53)	(52)	(53)	(53)
Cyst						1 [2.0]
Ulcer		1 [3.0]				
Epithelium, Hyperplasia			1 [1.0]			
Liver	(53)	(54)	(53)	(53)	(53)	(53)
Angiectasis	2 [1.5]	1 [1.0]	1 [1.0]		3 [1.7]	(53)
Basophilic Focus	8	6	8	7	3	5
Basophilic Focus, Multiple	4	3	5	1	2	5
Cholangiofibrosis	1 [1.0]	1 [1.0]	2 [1.5]		1 [2.5]	31 [2.4]
Clear Cell Focus	4	1	1	2	1	1
Clear Cell Focus, Multiple	1					1
Congestion	2 [1.0]					1
Cytoplasmic Alteration						2 [2.0]
Degeneration, Cystic						4 [2.3]
Eosinophilic Focus	8	6	7	2 [1.0]	5	2
Eosinophilic Focus, Multiple	3	8	14	10	22	42
Fatty Change, Diffuse	2 [1.5]	2 [1.0]	12 [1.1]	17 [1.3]	30 [1.2]	48 [1.9]
Fatty Change, Focal	1 [2.0]	2 [1.0]	4 [1.5]	4 [1.8]	1 [1.0]	2 [2.0]
Hematopoietic Cell Proliferation			2 [1.0]	4 [1.5]	2 [2.0]	2 [2.0]
Hemorrhage					1 [3.0]	

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal; 2-mild; 3-moderate; 4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (PCDD)

Report: PRIRP118
 Date: 11/25/02
 Time: 13:18:27

ALIMENTARY SYSTEM - CONT	SPRAGUE-DAWLEY RATS FEMALE						100 NG/KG
	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG	
Hepatodiaphragmatic Node	33 [1.1]	46 [1.2]	47 [1.1]	50 [1.4]	52 [1.2]	49 [1.3]	
Inflammation				1 [2.0]	1 [2.0]		
Mitotic Alteration	4	8	8	23	2	4	
Mixed Cell Focus	26	11	21	8	28	17	
Mixed Cell Focus, Multiple	1 [2.0]	4 [2.3]	4 [2.0]	8 [2.3]	10 [1.9]	17 [2.5]	
Necrosis	4 [1.0]	9 [1.2]	34 [1.4]	48 [1.7]	52 [2.0]	53 [2.2]	
Pigmentation				3	7	36	
Regeneration							
Thrombosis							
Toxic Hepatopathy							
Artery, Inflammation, Chronic Active		2 [1.0]	8 [1.3]	30 [1.2]	45 [1.8]	53 [3.5]	
Bile Duct, Cyst	3 [3.3]	1 [3.0]	2 [2.0]	2 [1.5]		2 [2.0]	
Bile Duct, Fibrosis		2 [2.0]	2 [2.0]	1 [2.0]	3 [1.3]	21 [2.9]	
Bile Duct, Hyperplasia		4 [1.5]	7 [1.1]	22 [1.3]	40 [1.4]	4 [1.8]	
Centrilobular, Degeneration	5 [1.6]	2 [2.0]	19 [1.2]	4 [2.3]	3 [2.0]	53 [2.1]	
Hepatocyte, Hypertrophy	2 [2.5]		19 [1.2]	19 [1.2]	41 [2.0]	5 [2.0]	
Hepatocyte, Multinucleated			16 [1.2]	26 [1.2]	36 [1.4]	52 [3.2]	
Hepatocyte, Centrilobular, Atrophy					1 [2.0]	51 [1.8]	
Oval Cell, Hyperplasia		4 [1.0]	3 [1.3]	20 [1.3]	38 [1.5]	53 [2.3]	
Portal, Fibrosis					5 [1.8]	27 [2.0]	
Mesentery	(2)	(2)	(1)	(1)	(6)	(8)	
Metaplasia, Osseous	1 [2.0]	1 [3.0]	14 [1.6]	13 [1.6]	4 [2.3]	7 [2.7]	
Artery, Inflammation, Chronic Active		1 [3.0]	1 [3.0]	1 [3.0]	1 [3.0]	1 [3.0]	
Fat, Necrosis							
Vein, Thrombosis	1 [3.0]	(9)	(16)	(16)	(22)	(29)	
Oral Mucosa	(2)	7 [1.4]	14 [1.6]	13 [1.6]	15 [2.2]	16 [2.3]	
Gingival, Hyperplasia, Squamous	1 [4.0]	(54)	(52)	(53)	(52)	(51)	
Pancreas	(51)						
Hemorrhage							
Inflammation, Acute							
Inflammation, Chronic Active							
Necrosis							
Acinus, Atrophy	1 [1.0]	2 [1.5]	2 [1.5]	1 [4.0]	3 [1.3]	6 [2.0]	
Acinus, Hyperplasia	2 [2.5]		4 [1.5]	1 [3.0]	4 [1.5]	1 [2.0]	
Acinus, Vacuolization	1 [2.0]			1 [2.0]	2 [2.5]	9 [2.2]	
Cytoplasmic							
Artery, Inflammation, Chronic Active		1 [3.0]	1 [2.0]	2 [2.5]	15 [1.1]	42 [1.8]	
Salivary Glands	(51)	(54)	(52)	(50)	(51)	(52)	
Atrophy							
Inflammation							
Mineralization							
Stomach, Fore stomach	1 [3.0]	(54)	(53)	(53)	(53)	(53)	
Cyst, Squamous	(53)		1 [2.0]				
Edema							

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES [b]
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PRIRPT18
 Date: 11/25/02
 Time: 13:18:27

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

ALIMENTARY SYSTEM - CONT

Erosion	1 [1.0]	1 [1.0]	1 [2.0]	1 [3.0]	1 [2.0]	3 [2.0]
Hyperkeratosis	3 [1.3]	4 [1.5]	4 [1.8]	2 [2.0]	7 [2.1]	11 [1.7]
Inflammation	1 [3.0]	1 [2.0]	2 [1.5]	1 [2.0]	2 [1.5]	5 [1.8]
Mineralization						
Necrosis						
Ulcer	2 [2.5]	1 [2.0]		1 [1.0]	1 [2.0]	1 [1.0]
Stomach, Glandular	(53)	(54)	(53)	(53)	(53)	(53)
Diverticulum	1 [3.0]		1			4 [2.5]
Erosion						
Metaplasia				1 [2.0]	1 [2.0]	2 [2.5]
Mineralization	3 [1.3]				3 [1.7]	2 [2.5]
Ulcer						
Tooth	(16)	(16)	(12)	(13)	(14)	(18)
Periodontal Tissue, Fibrosis	1 [2.0]					
Periodontal Tissue, Inflammation	15 [1.7]	16 [1.2]	12 [1.3]	13 [1.4]	14 [1.6]	18 [1.6]

CARDIOVASCULAR SYSTEM

Blood Vessel	(53)	(54)	(53)	(53)	(53)	(53)
Thrombosis			1 [4.0]			
Aorta, Mineralization	1 [3.0]	1 [2.0]	(53)	(52)	1 [2.0]	(52)
Heart	(53)	(54)	(53)		(53)	(52)
Cardiomyopathy	10 [1.2]	12 [1.0]	22 [1.0]	25 [1.1]	32 [1.1]	36 [1.3]
Mineralization	1 [2.0]				1 [2.0]	1 [1.0]
Artery, Inflammation						
Artery, Mineralization		1 [2.0]				
Artery, Thrombosis						1 [2.0]

ENDOCRINE SYSTEM

Adrenal Cortex	(53)	(54)	(53)	(53)	(53)	(53)
Angiectasis	11 [1.5]	21 [1.9]	18 [1.6]	17 [1.8]	17 [1.6]	11 [1.7]
Atrophy	2 [2.5]		4 [1.5]	5 [2.6]	5 [1.4]	27 [2.4]
Degeneration, Cystic	11 [2.5]	15 [2.1]	21 [2.1]	18 [2.3]	17 [2.2]	17 [2.3]
Hyperplasia	16 [2.0]	16 [2.2]	18 [2.4]	25 [2.3]	29 [2.3]	30 [2.5]
Hypertrophy	41 [2.1]	43 [2.0]	46 [2.0]	40 [2.2]	45 [2.1]	47 [2.4]
Inflammation, Chronic Active	1 [2.0]					
Inflammation, Suppurative	1 [1.0]	1 [3.0]	2 [1.5]	1 [3.0]	3 [2.7]	1 [2.0]
Mineralization						1 [3.0]
Necrosis						

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (PCDD)

Report: PEIRP118
 Date: 11/25/02
 Time: 13:18:27

	SPRAGUE-DAWLEY RATS FEMALE						100 NG/KG
	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG	
ENDOCRINE SYSTEM - CONT							
Thrombosis							
Vacuolization Cytoplasmic	11 [1.4]	7 [1.3]	12 [1.3]	1 [2.0]	18 [1.7]	15 [2.1]	
Adrenal Medulla	(53)	(54)	(53)	21 [1.6]	(53)	(53)	
Angiectasis		1 [2.0]	2 [2.0]	1 [2.0]	7 [1.6]	9 [1.9]	
Hyperplasia	19 [1.8]	10 [2.0]	18 [2.0]	1 [2.0]	10 [2.4]		
Inflammation, Suppurative							
Islets, Pancreatic	(51)	(54)	(53)	(53)	(52)	(52)	
Hyperplasia			1 [4.0]	1 [4.0]			
Parathyroid Gland	(46)	(47)	(47)	1 [4.0]	(45)	(45)	
Fibrosis			1 [3.0]	(44)			
Hyperplasia	1 [2.0]	(54)	(52)		(53)	(52)	
Pituitary Gland	(53)	18 [2.6]	25 [2.3]	20 [2.1]	21 [1.9]	9 [2.1]	
Angiectasis	25 [2.3]	1 [2.0]	1 [2.0]				
Acyplia Cellular	1 [2.0]	1 [3.0]	1 [1.0]	4 [1.5]	3 [2.0]	1 [2.0]	
Cyst	1 [1.0]						
Cytoplasmic Alteration							
Developmental Malformation							
Inflammation, Chronic							
Vacuolization Cytoplasmic							
Pars Distalis, Hyperplasia	19 [2.1]	3 [1.7]	1 [2.0]	2 [1.5]	2 [2.5]	19 [1.7]	
Pars Intermedia, Hyperplasia	2 [2.5]	19 [2.1]	16 [2.3]	21 [2.1]	1 [2.0]	1 [3.0]	
Thyroid Gland	(52)	(54)	(53)	(51)	(53)	(52)	
Angiectasis		1 [2.0]	1 [1.0]	1 [2.0]	4 [2.0]	1 [1.0]	
Cyst	1 [3.0]			1 [2.0]		1 [2.0]	
Inflammation, Chronic Active							
Inflammation, Suppurative							
C-Cell, Hyperplasia	19 [1.8]	17 [2.2]	1 [2.0]	19 [2.3]	16 [1.9]	23 [1.9]	
Follicular Cell, Hyperplasia	2 [2.5]	2 [2.0]	22 [2.1]	2 [2.0]			
Follicular Cell, Hypertrophy	3 [2.3]	4 [1.5]	4 [2.0]	7 [1.1]	10 [1.2]	17 [1.2]	

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Clitoral Gland	(50)	(52)	(53)	(52)	(51)	(53)
Hyperplasia, Basal Cell	1 [2.0]		1 [2.0]			
Inflammation	41 [1.6]	40 [1.7]	35 [1.7]	34 [1.6]	28 [1.7]	26 [1.3]
Duct, Cyst	34 [2.2]	37 [2.1]	41 [2.2]	42 [2.0]	41 [2.2]	48 [2.3]
Ovary	(51)	(53)	(53)	(53)	(53)	(53)

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment--Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES [b]
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PRRPT18
 Date: 11/25/02
 Time: 13:18:27

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
GENITAL SYSTEM - CONT						
Atrophy	49 [4.0]	46 [4.0]	50 [4.0]	44 [4.0]	50 [4.0]	31 [3.9]
Congestion				1 [2.0]	14 [2.2]	13 [2.5]
Cyst	14 [2.5]	16 [1.9]	13 [2.4]	15 [2.2]	1 [2.0]	1 [3.0]
Fibrosis			1 [3.0]	1 [3.0]	1 [4.0]	1 [3.0]
Inflammation, Chronic Active						1 [3.0]
Inflammation, Suppurative						1 [3.0]
Artery, Inflammation, Chronic Active						1 [3.0]
Corpus Luteum, Cyst		1 [3.0]				
Periovarian Tissue, Inflammation, Suppurative					1 [2.0]	
Oviduct	(2)	(1)	(2)		(1)	(1)
Inflammation	2 [3.0]	1 [3.0]	1 [2.0]		1 [4.0]	1 [4.0]
Necrosis						
Epithelium, Hyperplasia						
Uterus	(52)	(53)	(53)	(53)	(53)	(53)
Adenomyosis					1 [2.0]	1 [3.0]
Cyst						1 [3.0]
Hemorrhage	1 [2.0]					1 [3.0]
Inflammation, Chronic Active		2 [3.0]	3 [2.7]	9 [2.1]	3 [3.3]	1 [3.0]
Inflammation, Suppurative	7 [1.9]	6 [1.8]	12 [2.4]	23 [2.5]	11 [2.3]	1 [4.0]
Metaplasia, Squamous	29 [2.0]	31 [2.0]	28 [2.5]	1 [4.0]	32 [2.5]	17 [1.7]
Necrosis						
Ulcer						
Cervix, Hyperplasia, Stromal		1 [4.0]	1 [2.0]		1 [4.0]	1 [4.0]
Cervix, Inflammation, Suppurative						1 [3.0]
Endometrium, Adenomyosis						
Endometrium, Hyperplasia, Cystic	30 [2.0]	33 [1.9]	1 [3.0]	27 [2.4]	31 [2.0]	19 [2.1]
Epithelium, Hyperplasia				1 [3.0]		
Serosa, Inflammation, Chronic Active		(1)	(1)	(3)	(3)	(1)
Vagina						
Cyst				1 [2.0]		
Hyperplasia, Stromal		1 [3.0]				
Inflammation					2 [4.0]	
Necrosis					1 [4.0]	
HEMATOPOIETIC SYSTEM						
Bone Marrow	(53)	(54)	(53)	(53)	(53)	(53)
Atrophy						1 [4.0]
Hyperplasia	36 [3.0]	41 [3.2]	32 [3.2]	35 [3.1]	37 [2.9]	43 [2.8]
Lymph Node	(2)	(6)	(3)	(5)	(6)	(9)
Deep Cervical, Hemorrhage					1 [3.0]	
Inguinal, Ectasia						1 [2.0]

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (PCDD)

Report: PEIRP118
 Date: 11/25/02
 Time: 13:18:27

HEMATOPOIETIC SYSTEM - CONT	SPRAGUE-DAWLEY RATS FEMALE						100 NG/KG
	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG	
Lumbar, Ectasia	1 [3.0]	2 [2.0]	1 [3.0]	2 [2.0]	1 [2.0]	1 [2.0]	6 [2.7]
Lumbar, Hemorrhage		2 [3.0]		1 [2.0]	1 [2.0]	1 [2.0]	2 [2.0]
Lumbar, Hyperplasia, Plasma Cell				1 [3.0]	1 [3.0]	1 [2.0]	16 [2.3]
Lumbar, Pigmentation				1 [3.0]	1 [3.0]	1 [2.0]	1 [2.0]
Mediastinal, Congestion							
Mediastinal, Ectasia							
Mediastinal, Hemorrhage		1 [3.0]		1 [2.0]	1 [2.0]	1 [2.0]	3 [2.0]
Mediastinal, Hyperplasia							5 [2.2]
Mediastinal, Hyperplasia, Lymphoid		1 [2.0]	1 [2.0]		1 [2.0]	1 [2.0]	1 [2.0]
Mediastinal, Hyperplasia, Plasma Cell							
Mediastinal, Pigmentation							
Renal, Ectasia							
Renal, Hyperplasia, Histiocytic		1 [3.0]	1 [2.0]				1 [2.0]
Lymph Node, Mandibular		1 [2.0]					
Congestion	(51)	(54)	(52)	(50)	(51)	(52)	(52)
Ectasia	1 [2.0]						
Hyperplasia, Lymphoid		3 [2.0]	3 [2.0]	22 [2.3]	1 [2.0]	6 [2.7]	2 [2.5]
Hyperplasia, Plasma Cell	25 [2.1]	31 [2.1]	23 [2.4]	15 [2.3]	16 [2.3]	1 [2.0]	1 [2.0]
Inflammation, Suppurative							
Lymph Node, Mesenteric	(52)	(53)	(53)	(53)	(53)	(51)	(51)
Atrophy		1 [3.0]		1 [2.0]			1 [2.0]
Ectasia							
Hemorrhage							
Hyperplasia, Histiocytic	1 [2.0]						
Hyperplasia, Plasma Cell							
Spleen	(51)	(54)	(53)	(53)	(52)	(52)	(52)
Hematopoietic Cell Proliferation	46 [1.5]	50 [1.6]	38 [1.3]	42 [1.6]	44 [1.5]	43 [1.5]	4 [2.0]
Hyperplasia, Lymphoid	1 [2.0]						
Necrosis							
Pigmentation	45 [1.5]	49 [1.4]	1 [3.0]	51 [1.5]	49 [1.6]	47 [1.4]	1 [2.0]
Lymphoid Follicle, Atrophy	4 [2.3]	(52)	1 [2.0]	(49)	1 [2.0]	1 [2.0]	(42)
Thymus	(51)						
Atrophy	36 [2.6]	41 [2.7]	44 [3.0]	41 [3.1]	44 [3.6]	42 [3.9]	1 [2.0]
Cyst							
Hemorrhage							
Inflammation, Chronic Active	1 [3.0]		1 [3.0]				

INTEGUMENTARY SYSTEM

Mammary Gland	(53)	(54)	(53)	(53)	(53)	(53)	(53)
Cyst	4 [2.5]	3 [2.7]		1 [3.0]	1 [2.0]	1 [2.0]	

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES [b]
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRP18
 Date: 11/25/02
 Time: 13:18:27

SPRAGUE-DAWLEY RATS FEMALE 0 NG/KG 3 NG/KG 10 NG/KG 22 NG/KG 46 NG/KG 100 NG/KG

INTEGUMENTARY SYSTEM - CONT

Hyperplasia	25 [1.4]	21 [1.4]	24 [1.5]	22 [1.4]	18 [1.2]	16 [1.5]
Inflammation, Chronic Active	1 [2.0]	1 [2.0]	1 [2.0]	1 [2.0]	1 [3.0]	1 [3.0]
Inflammation, Granulomatous	(53)	(54)	(53)	(53)	(53)	(53)
Skin	1					2
Cyst Epithelial Inclusion			1 [3.0]		1 [2.0]	
Hemorrhage			1 [2.0]		2 [3.0]	
Hyperplasia, Squamous			1 [3.0]		1 [3.0]	
Inflammation, Chronic Active			1 [3.0]		1 [2.0]	
Necrosis			1 [3.0]			
Ulcer					1 [2.0]	
Epidermis, Inflammation						1 [2.0]

MUSCULOSKELETAL SYSTEM

Bone	(53)	(54)	(53)	(53)	(53)	(53)
Fracture						1
Maxilla, Inflammation, Focal, Suppurative		1 [2.0]	(1)	(2)	1 [3.0]	1 [3.0]
Skeletal Muscle					1 [3.0]	
Hemorrhage						
Inflammation, Chronic Active						

NERVOUS SYSTEM

Brain	(53)	(54)	(53)	(53)	(53)	(53)
Hemorrhage			1 [3.0]			
Hydrocephalus		1 [2.0]	1 [2.0]		1 [3.0]	
Inflammation, Suppurative			1 [2.0]		2 [1.0]	
Mineralization		1 [2.0]	1 [1.0]		1 [3.0]	
Vacuolization Cytoplasmic, Focal			1 [1.0]		1 [3.0]	
Artery, Thrombosis						
Cerebellum, Developmental Malformation	1 [3.0]		1 [3.0]			
Cerebellum, Necrosis		1 [2.0]	(1)			
Glial Cell, Hyperplasia			1 [2.0]			
Spinal Cord			1 [2.0]			
Gliosis			(1)			1 [2.0]

RESPIRATORY SYSTEM

Lung	(53)	(54)	(53)	(52)	(53)	(52)
Congestion			2 [2.5]			

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRP118
 Date: 11/25/02
 Time: 13:18:27

RESPIRATORY SYSTEM - CONT	SPRAGUE-DAWLEY RATS FEMALE					100 NG/KG
	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	
Edema						
Hemorrhage						
Infiltration Cellular, Histioocyte	41 [1.9]	1 [2.0]	2 [2.0]		1 [2.0]	2 [2.5]
Inflammation, Chronic Active		46 [1.8]	43 [1.8]	43 [1.6]	49 [1.8]	50 [2.0]
Inflammation, Granulomatous						1 [3.0]
Inflammation, Suppurative	2 [1.0]	1 [2.0]	2 [2.5]	2 [1.0]	2 [1.5]	
Metaplasia, Squamous	1 [1.0]					
Mineralization	1 [2.0]				5 [2.2]	6 [2.2]
Necrosis					1 [1.0]	1 [2.0]
Pigmentation						1 [4.0]
Alveolar Epithelium, Hyperplasia	12 [1.1]	1 [1.0]				
Alveolar Epithelium, Metaplasia, Bronchiolar	2 [1.0]	19 [1.6]	33 [1.5]	35 [1.4]	45 [1.7]	46 [2.0]
Bronchiole, Dilatation			1 [2.0]			
Serosa, Inflammation, Focal, Suppurative						
Nose						
Cyst, Squamous	(53)	(54)	(53)	(53)	(53)	(53)
Inflammation						
Goblet Cell, Septum, Hyperplasia	2 [2.5]			3 [1.7]	1 [3.0]	5 [2.0]
Nasolacrimal Duct, Inflammation						1 [2.0]
Nasolacrimal Duct, Respiratory Epithelium, Hyperplasia	2 [2.0]					
Nasopharyngeal Duct, Inflammation						
Nasopharyngeal Duct, Necrosis						
Olfactory Epithelium, Degeneration				1 [3.0]		1 [4.0]
Olfactory Epithelium, Inflammation				1 [3.0]		
Respiratory Epithelium, Cyst						
Respiratory Epithelium, Hyperplasia				1 [3.0]		1 [2.0]
Septum, Inflammation						
Squamous Epithelium, Inflammation, Suppurative	1 [1.0]					
Turbinates, Hyperplasia, Squamous						
Turbinates, Septum, Inflammation				1 [2.0]		1 [2.0]
Turbinates, Respiratory Epithelium, Hyperplasia				1 [2.0]		2 [2.5]

SPECIAL SENSES SYSTEM

Eye	(53)	(54)	(53)	(52)	(53)	(53)
Degeneration	1 [4.0]					
Hemorrhage	1 [2.0]					
Anterior Chamber, Inflammation, Suppurative						1 [4.0]

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 13:18:27

	0 NG/KG	3 NG/KG	10 NG/KG	22 NG/KG	46 NG/KG	100 NG/KG
SPECIAL SENSES SYSTEM - CONT						
Cornea, Inflammation, Suppurative			1 [1.0]		1 [4.0]	1 [4.0]
Lens, Degeneration	5 [2.0]	5 [2.2]	5 [2.2]	3 [2.3]	4 [2.3]	6 [2.3]
Retina, Atrophy			(53)	(52)	1 [3.0]	(53)
Retina, Degeneration	(53)	(54)	(53)	(52)	(53)	(53)
Harderian Gland	1 [2.0]					
Atrophy/ Focal Inflammation	12 [1.3]	3 [1.3]	2 [1.5]	2 [1.0]	8 [1.1]	6 [1.3]

	(53)	(54)	(53)	(53)	(53)	(53)
URINARY SYSTEM						
Kidney						
Calculus Gross Observation	1 [2.0]	1 [0.0]	1 [0.0]	3 [0.0]	2 [2.0]	1 [4.0]
Calculus Micro Observation Only	3 [1.3]	5 [1.4]	2 [1.0]		1 [1.0]	1 [1.0]
Casts Protein	2 [2.5]				1 [2.0]	1 [2.0]
Cyst		1 [2.0]				
Fibrosis			1 [3.0]			
Infarct	5 [1.2]	1 [1.0]	2 [2.0]	1 [2.0]	1 [2.0]	2 [3.0]
Inflammation, Chronic Active			2 [2.0]	1 [3.0]	1 [3.0]	2 [3.0]
Inflammation, Suppurative	40 [1.1]	39 [1.1]	30 [1.0]	32 [1.0]	42 [1.1]	42 [1.1]
Mineralization			1 [3.0]	1 [3.0]		
Necrosis	34 [1.2]	26 [1.1]	32 [1.3]	36 [1.4]	39 [1.4]	52 [2.2]
Nephropathy			1 [3.0]			
Papilla, Necrosis	2 [3.0]	1 [2.0]	1 [3.0]	1 [1.0]	2 [3.0]	2 [3.0]
Pelvis, Dilatation	2 [3.0]	1 [2.0]	1 [2.0]		4 [2.3]	1 [2.0]
Pelvis, Inflammation						
Renal Tubule, Degeneration	3 [2.3]	6 [1.7]	8 [1.8]	8 [1.3]	11 [2.0]	11 [1.8]
Transitional Epithelium, Hyperplasia	(1)					
Ureter	1 [2.0]					
Inflammation	1 [3.0]					
Transitional Epithelium, Hyperplasia	(52)	(53)	(53)	(52)	(53)	(53)
Urinary Bladder						
Calculus Micro Observation Only		1				
Hemorrhage	6 [1.5]	1 [3.0]	4 [1.5]		8 [2.0]	3 [1.7]
Inflammation		10 [1.3]			1 [3.0]	1 [3.0]
Metaplasia						
Squamous						
Transitional Epithelium, Hyperplasia	1 [2.0]	2 [2.0]	1 [2.0]		6 [2.2]	2 [2.5]

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES [b]
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 13:18:27

SPRAGUE-DAWLEY RATS FEMALE

100 NG/
 KG/STOP

DISPOSITION SUMMARY

Animals Initially In Study	50
Early Deaths	16
Moribund Sacrifice	13
Natural Death	21
Survivors	50
Terminal Sacrifice	
Animals Examined Microscopically	50

ALIMENTARY SYSTEM

Intestine Large, Colon	(49)
Parasite Metazoan	1 [1.0]
Intestine Large, Rectum	(50)
Parasite Metazoan	5
Intestine Small, Jejunum	(50)
Inflammation, Chronic	1 [2.0]
Liver	(50)
Angiectasis	4 [1.5]
Atypia Cellular	1 [1.0]
Basophilic Focus	7
Basophilic Focus, Multiple	9
Cholangiofibrosis	1 [2.0]
Clear Cell Focus	6
Clear Cell Focus, Multiple	2
Cytoplasmic Alteration	1 [1.0]
Eosinophilic Focus	6
Eosinophilic Focus, Multiple	21
Fatty Change, Diffuse	10 [1.4]
Fatty Change, Focal	8 [1.3]
Hematopoietic Cell Proliferation	2 [2.5]
Hepatodiphragmatic Nodule	1
Inflammation	43 [1.2]
Mixed Cell Focus	1
Mixed Cell Focus, Multiple	28
Necrosis	8 [1.8]
Pigmentation	45 [1.8]
Toxic Hepatopathy	16 [1.3]
Vacuolization Cytoplasmic	1 [1.0]
Bile Duct, Cyst	6 [2.3]
Bile Duct, Fibrosis	5 [1.2]

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 13:18:27

SPRAGUE-DAWLEY RATS FEMALE

100 NG/
 KG/STOP

ALIMENTARY SYSTEM - CONT	
Bile Duct, Hyperplasia	7 [1.3]
Hepatocyte, Hypertrophy	22 [1.7]
Hepatocyte, Multinucleated	32 [1.3]
Oval Cell, Hyperplasia	1 [1.0]
Portal, Fibrosis	1 [2.0]
Serosa, Inflammation, Chronic Active	1 [3.0]
Mesenterly Artery, Inflammation, Chronic Active	(1)
Oral Mucosa	1 [3.0]
Gingival, Hyperplasia, Squamous	(11)
Pancreas	8 [1.9]
Angiectasis	(49)
Basophilic Focus	1 [2.0]
Inflammation, Chronic Active	1 [1.0]
Acinus, Atrophy	4 [1.5]
Artery, Inflammation, Chronic Active	4 [1.8]
Salivary Glands	2 [2.5]
Atrophy	(49)
Fibrosis	2 [2.0]
Inflammation	1 [2.0]
Stomach, Forestomach	1 [1.0]
Hyperkeratosis	(50)
Hyperplasia, Squamous	1 [2.0]
Inflammation	5 [1.8]
Ulcer	4 [2.0]
Stomach, Glandular	4 [2.3]
Erosion	(50)
Tongue	1 [2.0]
Inflammation, Chronic Active	(1)
Tooth	1 [3.0]
Periodontal Tissue, Inflammation	(12)
	12 [1.6]

CARDIOVASCULAR SYSTEM

Heart	(50)
Cardiomyopathy	22 [1.4]
Inflammation	1 [2.0]
Atrium, Thrombosis	2 [3.0]
Epicardium, Inflammation, Chronic Active	1 [2.0]

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES (b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 13:18:27

SPRAGUE-DAWLEY RATS FEMALE
 100 NG/
 KG/STOP

ENDOCRINE SYSTEM	(50)
Adrenal Cortex	15 [1.9]
Angiectasis	4 [1.8]
Atrophy	17 [2.2]
Degeneration, Cystic	20 [2.6]
Hyperplasia	46 [2.1]
Hypertrophy	3 [3.0]
Necrosis	13 [1.3]
Vacuolization Cytoplasmic	(50)
Adrenal Medulla	15 [2.1]
Hyperplasia	(49)
Islets, Pancreatic	1 [2.0]
Pituitary Gland	(50)
Angiectasis	15 [2.1]
Cytoplasmic Alteration	1 [2.0]
Vacuolization Cytoplasmic	3 [1.7]
Pars Distalis, Hyperplasia	18 [1.8]
Thyroid Gland	(49)
Angiectasis	1 [2.0]
C-Cell, Hyperplasia	15 [1.9]
Follicular Cell, Hypertrophy	6 [1.5]

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

GENITAL SYSTEM	(49)
Clitoral Gland	1 [2.0]
Atrophy	1 [1.0]
Hyperplasia, Basal Cell	1 [3.0]
Hyperplasia, Squamous	35 [1.5]
Inflammation	35 [2.0]
Duct, Cyst	(49)
Ovary	45 [4.0]
Atrophy	16 [2.3]
Cyst	1 [3.0]
Inflammation, Granulomatous	(2)
Oviduct	2 [3.0]
Inflammation	

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES [b]
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PRIRPT18
 Date: 11/25/02
 Time: 13:18:27

SPRAGUE-DAWLEY RATS FEMALE

100 NG/
 KG/STOP

GENITAL SYSTEM - CONT

Uterus	(50)
Inflammation, Chronic Active	1 [3.0]
Inflammation, Suppurative	9 [2.7]
Metaplasia, Squamous	33 [2.1]
Cervix, Inflammation, Chronic Active	1 [3.0]
Endometrium, Hyperplasia, Cystic	32 [2.1]

HEMATOPOIETIC SYSTEM

Bone Marrow	(50)
Atrophy	1 [2.0]
Hyperplasia	36 [2.9]
Myelofibrosis	1 [2.0]
Lymph Node	(5)
Lumbar, Ectasia	2 [2.5]
Lumbar, Hyperplasia, Plasma Cell	2 [2.5]
Mediastinal, Hemorrhage	1 [2.0]
Mediastinal, Hyperplasia, Plasma Cell	1 [2.0]
Lymph Node, Mandibular	(49)
Ectasia	2 [2.0]
Hyperplasia, Lymphoid	2 [2.5]
Hyperplasia, Plasma Cell	30 [2.2]
Lymph Node, Mesenteric	(49)
Hyperplasia, Histiocytic	1 [3.0]
Spleen	(49)
Hematopoietic Cell Proliferation	42 [1.5]
Hyperplasia, Lymphoid	1 [2.0]
Hyperplasia, Lymphoid pigmentation	42 [1.6]
Lymphoid Follicle, Atrophy	1 [2.0]
Red Pulp, Atrophy	1 [2.0]
Thymus	(49)
Atrophy	45 [3.3]

INTEGUMENTARY SYSTEM

Mammary Gland	(50)
Cyst	4 [2.3]
Hyperplasia	19 [1.2]
Skin	(50)
Ulcer	1 [3.0]

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
 Study Type: CHRONIC
 Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
 WITH AVERAGE SEVERITY GRADES(b)
 TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
 Date: 11/25/02
 Time: 13:18:27

SPRAGUE-DAWLEY RATS FEMALE 100 NG/
 KG/STOP

MUSCULOSKELETAL SYSTEM

None

NERVOUS SYSTEM

Brain (50)
 Hemorrhage 1 [3.0]
 Inflammation, Suppurative 1 [2.0]

RESPIRATORY SYSTEM

Lung (50)
 Infiltration Cellular, Histiocyte 41 [2.0]
 Inflammation, Suppurative 1 [3.0]
 Metaplasia, Squamous 3 [1.3]
 Alveolar Epithelium, Bronchiolar Serosa, Inflammation, Suppurative 31 [1.3]
 1 [3.0]
 (50)
 Nose 1 [1.0]
 Inflammation, Goblet Cell, Respiratory Epithelium, Hyperplasia 1 [3.0]
 Nasolacrimal Duct, Inflammation 1 [3.0]
 Olfactory Epithelium, Degeneration 1 [3.0]
 Olfactory Epithelium, Inflammation 1 [3.0]
 Olfactory Epithelium, Glands, Hyperplasia 1 [2.0]
 Respiratory Epithelium, Cyst 1 [2.0]
 Respiratory Epithelium, Inflammation, Suppurative 1 [4.0]

SPECIAL SENSES SYSTEM

Eye (50)
 Retinal Detachment 1 [3.0]
 Bilateral, Cataract 1 [3.0]
 Retina, Atrophy 6 [1.8]
 Retina, Degeneration 1 [3.0]
 Harderian Gland (50)
 Hemorrhage 1 [2.0]
 Inflammation 9 [1.1]

a Number of animals examined microscopically at site and number of animals with lesion
 b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

NTP Experiment-Test: 96007-03
Study Type: CHRONIC
Route: GAVAGE

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
WITH AVERAGE SEVERITY GRADES [b]
TOXIC EQUIVALENCY FACTOR EVALUATION (TCDD)

Report: PEIRPT18
Date: 11/25/02
Time: 13:18:27

SPRAGUE-DAWLEY RATS FEMALE

100 NG/
KG/STOP

URINARY SYSTEM

Kidney	(50)
Accumulation, Hyaline Droplet	2 [2.5]
Cast Protein	1 [1.0]
Mineralization	42 [1.0]
Nephropathy	41 [1.4]
Papilla, Transitional Epithelium, Hyperplasia	1 [1.0]
Pelvis, dilatation	1 [2.0]
Transitional Epithelium, Hyperplasia	5 [1.4]
Urinary Bladder	(50)
Inflammation	2 [1.0]

- a Number of animals examined microscopically at site and number of animals with lesion
b Average severity grade (1-minimal;2-mild;3-moderate;4-marked)

END OF REPORT