A 03

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, N.C. 27709

RECEIVED
98 DEC 15 AM 11:31

FYI - 1298 - 1345

December 10, 1998

MR1-3519

Document Control Office (7407)
Attn: TSCA Section 8(e) (or FYI)
Rm G99 East Tower
OPPT/EPA
401 M St SW
Washington, DC 20460-0001

Contains No CBI

In compliance with the National Toxicology Program's (NTP) mission to keep our colleagues informed of the current NTP findings during on-going studies, a copy of the Pathology Working Group (PWG) report and the Summary Pathology Tables for the chronic inhalation studies on Gallium Arsenide (CAS No. 1303-00-0) 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.

All study data are subject to an NTP retrospective audit and the interpretation may be modified based on the findings. The technical report for this study is currently being prepared for presentation to the NTP Board of Scientific Counselors' Technical Reports Review Subcommittee with an anticipated peer-review date of 05/99.

The Summary Pathology Tables along with a wide variety of NTP information are 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 may be viewed electronically with access to the internet and a Web browser such as Netscape Navigator or Internet Explorer.

To locate the NTP home page, use the URL http://ntp-server.niehs.nih.gov/. The NTP individual animal and summary pathology tables, survival tables, and survival and growth curves may be accessed from the NTP homepage selecting "Testing Information and Study Results" and then choosing "Data of Completed Studies." 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
98 DEC 30 AM 11:04

FYI-98-001345

84990000006

Printed on Recycled Paper

A 04

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

Sincerely,

William Eastin

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

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

RECEIVED
98 DEC 1 AM 11:32

CHAIRPERSON'S REPORT
PATHOLOGY WORKING GROUP (PWG)
OF GALLIUM ARSENIDE (C62033B/05180-06)
ADMINISTERED BY INHALATION TO FISCHER
344 RATS AT BATTELLE, RICHLAND

Prepared by:

Paul K. Hildebrandt, D.V.M.
Diplomate, American College of
Veterinary Pathologists

PATHCO, Inc.
10075 Tyler Place, Suite 16
Ijamsville, MD 21754

Submitted to:

National Toxicology Program
Research Triangle Park, NC 27709

September 18, 1998

CONFLICT OF INTEREST STATEMENT:

Dr. Paul K. Hildebrandt, Chairperson for the Pathology Working Group of this study, has not been involved in testing or evaluation of Gallium Arsenide (C62033B/5180-06) for any clients other than NTP.

A 06

CHAIRPERSON'S REPORT
PATHOLOGY WORKING GROUP (PWG)
OF GALLIUM ARSENIDE (C62033B/05180-06)
ADMINISTERED BY INHALATION TO FISCHER 344 RATS
AT BATTELLE, RICHLAND

Date OF PWG:	September 3, 1998	
Site of PWG:	National Toxicology Program Research Triangle Park, NC	
PWG Participants:	Paul K. Hildebrandt, DVM, Chairperson	PATHCO
	Darlene Dixon, DVM, Ph.D	NIEHS
	Ronald Herbert, DVM, Ph.D	NIEHS
	Abraham Nyska, DVM	NIEHS
	Cynthia Shackelford, DVM, M.S., Ph.D	EPL
	Michael Jokinen, DVM	PAI
	Russell Cattley, VMD, Ph.D	CIIT
	Sondra Grumbein, DVM	Battelle Northwest
Study Pathologist:	Dr. Sondra Grumbein	
Reviewing Pathologist:	Dr. Cynthia Shackelford	

I. SUMMARY AND CONCLUSIONS

The administration of gallium arsenide to rats for up to two years resulted in: 1) pulmonary lesions in both males and females consisting of proteinosis, foci of chronic/active inflammation, alveolar epithelial hyperplasia, atypical hyperplasia of alveolar epithelium, metaplasia of alveolar epithelium, squamous epithelial metaplasia, and a high incidence of pulmonary tumors in female rats (alveolar bronchiolar adenomas and carcinomas); a higher incidence of adrenal pheochromocytomas in female high dose rats over that of controls; preputial gland tumors and hyperplasia occurring at a higher rate in treated male rats over that of controls; and a higher incidence of mononuclear cell leukemia in high dose female rats and treated male rats over that of controls; however, the incidences of mononuclear cell leukemia in males were within the range of historical controls for inhalation studies.

A 07

II. STUDY DESIGN

Male and female Fischer 344 rats were administered gallium arsenide via inhalation for two years at the following doses: 0 mg/m^3, 0.01 mg/m^3, 0.1 mg/m^3, and 1.0mg/m^3. The rats were exposed for 6 hours plus T_{90}/day, 5 days/week (exclusive of holidays) for 104 weeks.

III. ANIMAL DISPOSITION SUMMARY

A. Chronic Toxicity/Carcinogenicity Study

FEMALE RATS

	Control	0.01 mg/m^3	0.1 mg/m^3	1.0 mg/m^3
Animals Initially in Study	(50)	(50)	(50)	(50)
Early Deaths				
Natural Death	1	3	7	4
Moribund Sacrifice	30	30	23	35
Accidentally Killed				
Survivors - Terminal Sacrifice	19	17	20	11
Animals Examined Microscopically	50	50	50	50

MALE RATS

	Control	0.01 mg/m^3	0.1 mg/m^3	1.0 mg/m^3
Animals Initially in Study	(50)	(50)	(50)	(50)
Early Deaths				
Natural Death	7	8	3	4
Moribund Sacrifice	30	29	32	33
Accidentally Killed				
Survivors - Terminal Sacrifice	13	13	15	13
Animals Examined Microscopically	50	50	50	50

A 08

IV. CONDUCT OF THE PWG

Prior to the PWG, the chairperson reviewed the pathology incidence tables, the study pathologist's narrative report, the report prepared by the reviewing pathologist, microscopic slides of potential target organs, and selected lesions with discrepancies in diagnoses between the study pathologist (SP) and reviewing pathologist (RP). All tumors were also reviewed by the chairperson.

Potential target organs in the study were considered to be:

Male Rats	Female Rats
Lung	Lung
Adrenal Medulla	Adrenal Medulla
Larynx	Larynx
Nose	Nose
Preputial Gland	

In addition, the following organs/tissues were examined for all animals in all groups:

Forestomach, Glandular Stomach - Necrosis (Male)
Liver and Spleen - Mononuclear Cell Leukemia (Male and Female)

At the PWG the chairperson led a short discussion in the form of introductory remarks which included:

1) Study design
2) Survival data
3) Clinical signs
4) Body weights
5) Gross necropsy lesions
6) Findings reported in the 90-day subchronic study

The chairperson had photographed a number of lung and laryngeal lesions from treated and control rats in this study to demonstrate the types of lesions present as a result of exposure to gallium arsenide. Eighteen photomicrographs of lesions were shown to the PWG. These were viewed and appropriate terminology and diagnoses were discussed. Some photomicrographs of the gallium arsenide mouse lesions were also shown for review and comparison with the lesions observed in the rat study.

A 09

V. MICROSCOPIC EXAMINATION

A. Lung

A series of slides of the lungs from control and treated rats were presented to the PWG for evaluation and characterization of the pulmonary lesions present. The lesions in the lungs were diagnosed and characterized as follows.

Nonneoplastic lung lesions consisting of proteinosis, histiocytic cell infiltration, alveolar epithelial hyperplasia, atypical alveolar epithelial hyperplasia, alveolar epithelial metaplasia, squamous metaplasia, and acute and chronic inflammation were present in all dose groups of both sexes and the severity of these lesions increased in a dose related fashion.

Neoplastic lesions consisted of alveolar/bronchiolar adenomas and carcinomas and squamous cell carcinomas.

Proteinosis was characterized by the presence of a fine, granular to solid eosinophilic material diffusely dispersed within alveoli. In some rats, this protein material had a crisp eosinophilic, hyaline appearance. This material was free in most alveoli with little or no inflammatory reaction; some alveoli contained a few alveolar macrophages (histiocytes) which had phagocytized varying amounts of this material. This material was thought to be similar to the abundant surfactant material observed in the gallium arsenide repeated dose study that was confirmed by ultrastructure. The degree of proteinosis occurred in a dose related fashion.

Histiocytic cellular infiltrate was characterized by increased numbers of macrophages in alveolar spaces. These enlarged alveolar macrophages often contained varying amounts of eosinophilic material. Alveolar macrophages were increased in number near areas of eosinophilic material and adjacent to areas of chronic inflammation. The incidence and severity of histiocytic infiltrates were similar in the two higher doses, but much less in the 0.1 mg/m^3 dose group.

Chronic active inflammation was multifocal in distribution and distorted the pulmonary architecture in nearly all rats exposed to gallium arsenide. The inflammation tended to be subpleural, peripheral and/or along larger blood vessels and airways, and was characterized by collections of inflammatory cells (alveolar macrophages, multinucleated giant cells, and neutrophils), necrotic cell debris, and cholesterol clefts in alveolar spaces. Alveolar septa were thickened by dense eosinophilic fibrillar material that often coalesced to form extensive solid foci of fibrosis. Pleura overlying areas of inflammation was often thickened. The severity of inflammation increased with increasing exposure concentration. In control rats, similar lesions of minimal severity were seen at the tips of lung lobes; such lesions are common "background" findings in older rats.

Squamous metaplasia was present in a few lungs of both sexes. In a rare instance, squamous metaplasia was extensive and formed a squamous cyst. Squamous cell carcinoma was diagnosed in one female high dose rat and in one male control rat.

Alveolar epithelial metaplasia was present in or near some foci of chronic active inflammation in gallium arsenide-exposed rats. It was characterized by replacement of normal alveolar epithelium with ciliated columnar epithelial cells with basal nuclei. This lesion occurred in the 1.0 mg/m^3 and 0.1 mg/m^3 dose groups and in a few lungs of the 0.01 mg/m^3 dose group.

Alveolar epithelial hyperplasia was characterized by increased numbers of cuboidal Type II cells lining alveoli; the normal alveolar architecture was not obscured. Most hyperplasia was graded minimal or mild. Alveolar epithelial hyperplasia was not clearly related to exposure to gallium arsenide in females. In males, the incidence increased slightly with increased exposure concentration.

Atypical alveolar epithelial hyperplasia was diagnosed in a number of treated rats at the two higher doses of both sexes. This lesion often occurred at the edges of foci of chronic active inflammation and was characterized by proliferating alveolar epithelial cells which had abundant dense eosinophilic cytoplasm. Occasionally, the hyperplastic epithelial cells appeared somewhat spindle-shaped. The nuclei were round, larger than normal, with prominent nucleoli. The proliferating cells often filled or partially filled alveoli, yet the architecture of the lung was maintained. The atypical epithelial cells often rested on septae that were thicker than normal and seemed to progress to a fibrous stroma and gave a cirrhotic appearance. Atypical hyperplasia differed from alveolar epithelial hyperplasia of rats which was characterized by proliferating alveolar/bronchiolar epithelial cells that tended to have a more uniform and cuboidal appearance. When these atypical hyperplastic cells began to alter the normal lung architecture, the criteria for adenoma was considered to be fulfilled. When the proliferating cells became anaplastic with a generous number of mitotic figures, the diagnosis of carcinoma was rendered.

The PWG examined all lungs with a diagnosis of alveolar/bronchiolar adenoma and/or carcinoma, plus squamous cysts and squamous cell carcinomas. Several of these alveolar/bronchiolar carcinomas had considerable fibrous stroma giving a cirrhotic appearance. The majority of the pulmonary neoplasms were confirmed by the PWG although a few adenomas were downgraded to hyperplasia and an occasional carcinoma was downgraded to adenoma.

The PWG agreed that the incidence of pulmonary neoplasms in treated female rats was greater than that of the controls. In male rats, the incidence of pulmonary neoplasms lesions did not appear to be affected by compound administration.

B. Adrenal Medulla

An increase in the incidence of pheochromocytomas was reported for high dose female rats. The PWG examined a series of adrenal glands from control and high dose female rats, plus a few examples of typical pheochromocytomas, and typical medullary hyperplasia. The PWG reviewed the criteria for the diagnosis of pheochromocytoma and medullary hyperplasia. Basically, the criteria were those published by Hamlin and Banas.[1] There was some discrepancy between the SP, RP and chairperson regarding marked hyperplasia versus pheochromocytoma. These discrepancies were primarily the result of threshold regarding compression of adjacent tissue by the proliferating medullary cells which, when present, were diagnosed pheochromocytoma.

The PWG was of the opinion that several of the adrenals in which a discrepancy in diagnoses existed were, in fact, medullary hyperplasia rather than pheochromocytomas. The PWG instructed the chairperson to review all adrenals of male rats with a diagnosis of pheochromocytoma and re-evaluate these lesions utilizing the criteria of Hamlin and Banas.[1]

The re-evaluation results are presented in the Slide Review worksheets. The PWG recognized that there was an increased incidence of pheochromocytomas in high dose female rats over that of controls. There did not appear to be an increase in medullary hyperplasia, nor was there an increase in malignant pheochromocytomas. There did not appear to be any compound effect on adrenal proliferative lesions in male rats.

C. Larynx

A few lesions were diagnosed in the larynx of both control and treated rats of both sexes. These lesions were diagnosed as hyperplasia, squamous metaplasia, and chronic active inflammation. The majority of these lesions were minimal in degree of severity. Some discrepancy existed between the study pathologist and reviewing pathologist in these diagnoses, especially in the male high dose group, and in the diagnosis of squamous metaplasia in all dose groups of female rats.

Several sections of larynx were examined by the PWG. Minimal chronic active inflammation was present in the ventral pouch of the larynx. This inflammation was characterized by a few fragments of mineralized debris mixed with low numbers of macrophages and neutrophils. Occasionally, there was accompanying minimal epithelial hyperplasia or minimal squamous metaplasia. The majority of these lesions were in the middle section (section with ventral pouch) but, occasionally, this inflammatory process with hyperplasia and squamous metaplasia extended anteriorly and could be identified in the section with the root of the epiglottis (anterior section of larynx).

It was the opinion of the PWG that minimal lesions were present in the larynx, primarily in the middle section of the larynx which contained the ventral pouch. The discrepancies between the SP and RP were a matter of threshold between a minimal lesion and within normal limits for a two-year old rat. There was a question of how extensively the epiglottis was affected in rats that had a diagnosis of squamous metaplasia of the larynx. The PWG chairperson was instructed to review all laryngeal lesions of hyperplasia and squamous metaplasia to determine the extent of involvement in the root of the epiglottis.

The epiglottis lesions from this examination are presented in the Slide Review worksheets. The lesions in the epiglottis (root of the epiglottis) are considered to be identical to those of the ventral larynx (middle section with ventral pouch). It appears that the epiglottis lesion is an extension of the lesion from the ventral portion of the larynx and is usually less severe. There did appear to be a minimal increase in hyperplasia, chronic/active inflammation and squamous metaplasia in the lining epithelium of the larynx in high dose males over that of controls. In females, lesions were similar in all dose groups including controls.

D. Mononuclear Cell Leukemia

There were very few discrepancies between the SP, RP and chairperson regarding the diagnosis of mononuclear cell leukemia. The PWG recognized that a small increase in the incidence of mononuclear cell leukemia was present in high dose females over that of concurrent controls and over that of historical control data. Although an increase in mononuclear cell leukemia occurred in treated male rats over that of controls, the incidence was within historical control data.

E. Forestomach and Glandular Stomach

Necrosis of the forestomach and/or glandular stomach was diagnosed at a higher incidence in treated male rats over that of control male rats. The lesions were characterized by mucosal necrosis and ulceration accompanied by submucosal edema and acute inflammation. Necrosis extended into the submucosa. These types of lesions are often encountered in rats with mononuclear cell leukemia.

In checking individual animal data, it was noted that the majority of rats with necrosis (ulcers) of the stomach also had mononuclear cell leukemia or a large tumor of the pituitary. It was the PWG opinion that the stomach lesion in male rats was most likely associated with a debilitating condition such as mononuclear cell leukemia or large pituitary tumor rather than a direct compound effect.

A 13

F. Preputial Gland

An increase in adenomas and carcinomas of the preputial gland occurring in treated male rats over that of controls had been reported. The PWG examined the preputial gland tumors from high dose males and discrepancies in diagnosis of preputial gland lesions in other dose groups. The PWG agreed that these lesions were typical proliferative lesions of the prepuce in rats and that a higher incidence was present in treated dose groups over that of controls.

The PWG noted that preputial gland lesions were present in the treated gallium arsenide male mouse companion study. The PWG also acknowledged that a higher incidence of preputial gland lesions have been reported to occur in other rodent inhalation studies.

G. Nasal Lesions

Minimal hyaline degeneration was diagnosed in the nasal cavity of many rats of both sexes and in all dose groups including controls. Generally, this lesion consisted of a few olfactory epithelial cells in the dorsal meatus of nasal section two that had eosinophilic hyaline globules in the cytoplasm. Most of the lesions with these eosinophilic cells were very minimal in degree of severity and it was often a matter of threshold as to whether they were considered a lesion or were within normal limits. The PWG did not consider nasal lesions to be compound related.

H. Miscellaneous

Several interesting and unusual lesions were presented to the PWG for evaluation. Results of these are found in the Pathology Working Group Diagnosis (Appendix).

Paul K. Hildebrandt

Paul K. Hildebrandt, DVM
Diplomate, American College
of Veterinary Pathologists

A 14

REFERENCE

Hamlin II, Melvin H. and Banas, Deborah A. (1990). Adrenal Gland in "Pathology of the Fischer Rat". Boorman, Eustis, Elwell, Montgomery, Jr. and MacKenzie (eds). Academic Press, Inc., pp 501-518.

B 01

CHAIRPERSON'S REPORT
PATHOLOGY WORKING GROUP (PWG)
OF GALLIUM ARSENIDE (C62033B/05180-07)
ADMINISTERED BY INHALATION TO B6C3F1 MICE
AT BATTELLE, RICHLAND

Date OF PWG:	July 23, 1998	
Site of PWG:	National Toxicology Program Research Triangle Park, NC	
PWG Participants:	Paul K. Hildebrandt, DVM, Chairperson	PATHCO
	James Hailey, DVM	NIEHS
	Darlene Dixon, DVM, Ph.D	NIEHS
	Ronald Herbert, DVM, Ph.D	NIEHS
	Abraham Nyska, DVM	NIEHS
	Cynthia Shackelford, DVM, Ph.D	EPL
	Russell Cattley, VMD, Ph.D	CIIT
	Rodney Miller, DVM, Ph.D	Battelle Northwest
Study Pathologist:	Dr. Rodney Miller	
Reviewing Pathologist:	Dr. Cynthia Shackelford	

I. SUMMARY AND CONCLUSIONS

No compound related neoplastic lesions were identified in the respiratory tissues of either sex in this study.

Several nonneoplastic lesions that occurred with increased incidence and severity in a dose related fashion were present in the lungs of both sexes. These nonneoplastic lesions were diagnosed as proteinosis in alveoli; histiocytic cellular infiltrate, hyperplasia of alveolar epithelium, foreign body alveolus (small, granular material presumed to be gallium arsenide) acute inflammation and chronic inflammation.

Bronchiole lymph nodes were slightly enlarged in treated mice and was associated with inflammation of the lungs.

Nasal lesions were few in number, minimal in degree of severity and were essentially similar in control and treated mice. Lesions diagnosed were hyaline degeneration, acute inflammation and atrophy of the olfactory epithelium.

The incidence of harderian gland tumors (adenoma and carcinoma) was slightly increased in treated male mice over that of male controls. The PWG was unsure of the significance of this finding because only harderian galnds noted to be abnormal at necropsy were processed for histopathologic examination.

Inflammation in the preputial gland was increased in incidence and severity in the 1.0mg/m^3 dose group over that of controls. The PWG questioned if a direct compound effect was present, since inflammation of the preputial gland has been noted to be increased in other inhalation studies and was unrelated to compound administration.

II. STUDY DESIGN

Male and female B6C3F1 mice were administered gallium arsenide via inhalation for two years at the following doses: 0 mg/m^3, 0.1 mg/m^3, 0.5 mg/m^3, and 1.0g/m^3. The mice were exposed for 6 hours plus T90/day, 5 days/week (exclusive of holidays) for 105 weeks.

III. ANIMAL [illegible]

A. Chronic Toxicity/Carcinogenicity Study

FEMALE MICE

	Control	0.1 mg/m^3	0.5 mg/m^3	1.0 mg/m^3
Animals Initially in Study	(50)	(50)	(50)	(50)
Early Deaths				
Natural Death	3	3	2	10
Moribund Sacrifice	11	11	16	11
Accidentally Killed		2	1	
Survivors - Terminal Sacrifice	36	34	31	29
Animals Examined Microscopically	50	50	50	50

MALE MICE

	Control	0.1 mg/m^3	0.5 mg/m^3	1.0 mg/m^3
Animals Initially in Study	(50)	(50)	(50)	(50)
Early Deaths				
Natural Death	7	4	6	9
Moribund Sacrifice	8	8	10	7
Accidentally Killed				
Survivors - Terminal Sacrifice	35	38	34	34
Animals Examined Microscopically	50	50	50	50

IV. CONDUCT OF THE PWG

Prior to the PWG, the chairperson reviewed the pathology incidence tables, the study pathologist's narrative report, the report prepared by the reviewing pathologist, microscopic slides of potential target organs, and selected lesions with discrepancies in diagnoses between the study pathologist (SP) and reviewing pathologist (RP). All tumors were also reviewed by the chairperson.

Potential target organs in the study were considered to be:

Male Mice	Female Mice
Lung	Lung
Nose	Nose

In addition, the following organs/tissues were examined for all animals in all groups for the lesions listed below:

Male Mice	Female Mice
Lymph Node, bronchial - Hyperplasia	Lymph Node, bronchial - Hyperplasia
Preputial Gland - Inflammation	Liver - Lymphoma, Malignant
	Spleen - Lymphoma, Malignant

At the PWG the chairperson led a brief discussion in the form of introductory remarks which included:

1) Study design
2) Survival data
3) Clinical signs
4) Body weights
5) Gross necropsy lesions
6) Findings reported in the 90-day subchronic study

The chairperson had photographed a number of lung and nose lesions from treated mice in this study to demonstrate the types of lesions present as a result of exposure to gallium arsenide. Twenty-four photomicrographs of lesions were projected to the PWG. These were viewed and appropriate terminology and diagnoses were discussed.

A series of slides with lungs from control and treated mice were presented to the PWG for evaluation and to characterize the pulmonary lesions present. The lesions in the lungs were diagnosed and characterized as follows.

A. Lung

Nonneoplastic lung lesions were present in all dose groups of both sexes and the severity of these lesions increased in a dose related fashion. The pulmonary lesions consisted of proteinosis, histiocytic cell infiltration, alveolar epithelial hyperplasia, particle deposition (foreign body), suppurative inflammation and chronic inflammation.

1) Proteinosis was characterized by the presence of a fine, granular to solid eosinophilic material diffusely dispersed in alveoli. In some mice, this protein material had a crisp eosinophilic, hyaline appearance. This material was lying free in most alveoli with little or no inflammatory reaction whereas in other areas a few alveolar macrophages (histiocytes) had phagocytized varying amounts of this material. This material was thought to be similar to the abundant surfactant material observed in the gallium arsenide repeated dose study that was confirmed by ultrastructure.

2) Histiocytic cellular infiltrate was characterized by increased numbers of macrophages in alveolar spaces. These enlarged macrophages often contained varying amounts of eosinophilic material and some contained black particles. These macrophages were increased in number near areas of eosinophilic material and adjacent to areas of chronic inflammation. The incidence and severity of histiocytic infiltrate was similar in the two higher doses, but much less in the 0.1 mg/m^3 dose group.

3) Hyperplasia of alveolar epithelium was characterized by diffuse scattered increases in numbers of Type 2 alveolar epithelial cells. The enlarged cuboidal epithelial cells occurred

singly or in small groups lining alveolar septae. These foci of alveolar hyperplasia were more prominent near terminal bronchioles and were associated with foreign material and acute inflammation mixed with cellular debris. The individual hyperplastic alveolar epithelial cells associated with acute inflammation often had a more slender or spindle shape rather than the more cuboidal shaped cells distant from the inflammation.

4) Foreign body, alveolus was the term applied to the presence of minimal black particulate material (presumed to be gallium arsenide) in alveolar spaces or in alveolar macrophages. The black pigment was easily observed in macrophages of mice exposed to 0.5 and 1.0 mg/m^3, but was more difficult to observe in macrophages of mice exposed to 0.1 mg/m^3.

5) Focal suppurative inflammation and chronic inflammation were both diagnosed as distinct entities in the lung of many mice in this study. Suppurative inflammation was characterized by neutrophilic infiltrates in distal airways and alveolar spaces. These areas varied in size, sometimes involved large focal areas of lung, and were sometimes multifocal.

Chronic focal inflammation was characterized by focal areas of mixed cell inflammation, increased density of macrophages and some Type 2 cell hyperplasia. Black foreign material and cellular debris were also present.

There was an overlap or mingling of the above lesions. It was the opinion of the PWG that suppurative and chronic inflammation in many lungs were components of a single inflammatory process and that the diagnosis of active/chronic inflammation may have been more appropriate. The severity of these lesions varied between animals within a dose group, but the overall severity was dose related with much less severe lesions observed in the low doses of both sexes.

6) The PWG noted that the alveolar epithelial hyperplasia appeared to be associated with inflammation and foreign material. Hyperplasia was different from the alveolar/bronchiolar hyperplasia that is considered to be a pre-neoplastic lesion. Bronchiolar epithelial hyperplasia was occasionally present in a focus of inflammation, but was considered a part of the inflammatory lesion and was not diagnosed separately. The hyperplasia observed in the lungs in this study was not considered to be preneoplastic but a reactive response to the inflammatory lesions. A few lung tumors diagnosed as alveolar/bronchiolar adenoma or carcinoma were reported; however, the incidence was essentially similar across all dose groups including controls.

7) The PWG examined a series of lungs with bronchial lymph nodes. The PWG agreed with the SP and RP that the bronchial lymph nodes in treated mice were generally larger than those of control mice. An increased number of lymphocytes and plasma cells in the medullary areas over that observed in controls accounted for the increase in size. An occasional black pigment deposit assumed to be gallium arsenide was also observed in the bronchial lymph node of high dose mice.

Hyperplasia of the bronchial lymph node was considered to be the result of pulmonary inflammation rather than a direct compound effect.

8) The incidence of malignant lymphoma was slightly increased in treated female mice over that observed in concurrent controls. A few discrepancies in the diagnosis of malignant lymphoma versus lymphoid hyperplasia in the spleen were presented to the PWG. It was the PWG opinion that the incidence of malignant lymphoma in female control mice was much less than usual and that the incidence in treated mice was within the range of historical control data and that no compound effect is present.

B. Harderian Gland, Male Mice

The PWG evaluated a small series of harderian glands with tumors (adenoma and carcinoma) and recognized that a slight increase in tumors existed in treated male mice over that of controls. It was noted that only harderian glands with gross lesions recognized at necropsy were collected for histopathologic examination. The PWG recommended that consideration be given to examining the wet tissues to determine if sufficient harderian gland is present for additional slide preparation. This decision will be made by NTP pathologists.

C. Preputial Gland Inflammation

Acute inflammation that was minimal to moderate in degree of severity occurred in all dose groups but did occur at a slightly higher incidence in treated mice over that of controls. The inflammation was characterized by an infiltrate of polymorphonuclear cells and cellular debris within ductal lumens and, occasionally, infiltrated the gland parenchyma.

Inflammation of the prepuce has been noted to occur at a slightly higher incidence in inhalation studies, presumably due to the wire mesh cages used during exposure. The PWG recognized the slightly higher incidence of inflammation in the prepuce over that of controls, but questioned if this was a direct compound effect.

D. Nose

The PWG viewed several photomicrographs of nose lesions and noted that the nonneoplastic lesions consisted, primarily, of hyaline degeneration of respiratory epithelium and atrophy of olfactory epithelium.

The incidence and severity of nasal lesions were essentially similar among dose groups including controls. Only a very slight increase in hyaline degeneration occurred in the 0.5 mg/m^3 female dose group.

It was the PWG opinion that no compound effect was present in the nasal cavity.

E. Miscellaneous

Several interesting and unusual lesions were presented to the PWG for evaluation. Results of these are found in the Pathology Working Group Diagnosis (Appendix).

Paul K. Hildebrandt, DVM
Diplomate, American College
of Veterinary Pathologists

NATIONAL TOXICOLOGY PROGRAM
TR-492 Gallium Arsenide
CAS# 1303-00-0
C62033B

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

Pathology Tables - Mice

P03 - Incidence Rates of Non-Neoplastic Lesions

P05 - Incidence Rates of Neoplasms by Anatomic Site (systemic lesions abridged)

P08 - Statistical Analysis of Primary Tumors

B 08

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

2 YEAR CHRONIC RATS

Facility: Battelle Northwest

Chemical CAS #: 1303-00-0000

Lock Date: 03/13/97

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

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

B09

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	30	30	23	35
Natural Death	1	3	6	4
Survivors				
Terminal Sacrifice	19	17	20	11
Natural Death			1	
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Colon	(50)	(49)	(48)	(49)
Inflammation, Acute		1 (2%)		
Intestine Large, Cecum	(50)	(49)	(48)	(49)
Inflammation, Acute		1 (2%)		
Intestine Small, Duodenum	(50)	(48)	(48)	(49)
Necrosis		1 (2%)		2 (4%)
Liver	(50)	(50)	(50)	(50)
Angiectasis	2 (4%)	2 (4%)	5 (10%)	3 (6%)
Basophilic Focus	38 (76%)	36 (72%)	38 (76%)	34 (68%)
Clear Cell Focus	5 (10%)	7 (14%)	8 (16%)	2 (4%)
Degeneration, Cystic				1 (2%)
Eosinophilic Focus	2 (4%)	3 (6%)	3 (6%)	1 (2%)
Fatty Change	12 (24%)	19 (38%)	11 (22%)	12 (24%)
Hepatodiaphragmatic Nodule	3 (6%)	3 (6%)	3 (6%)	4 (8%)
Inflammation, Granulomatous	3 (6%)	1 (2%)		1 (2%)
Mixed Cell Focus	10 (20%)	9 (18%)	6 (12%)	2 (4%)
Necrosis	1 (2%)	1 (2%)	4 (8%)	2 (4%)
Regeneration	2 (4%)	1 (2%)		
Thrombosis				1 (2%)
Vacuolization Cytoplasmic, Focal	3 (6%)		2 (4%)	
Bile Duct, Hyperplasia	15 (30%)	12 (24%)	7 (14%)	13 (26%)
Centrilobular, Necrosis	6 (12%)	13 (26%)	8 (16%)	17 (34%)
Mesentery	(6)	(14)	(6)	(11)
Artery, Inflammation, Chronic Active		1 (7%)		
Fat, Necrosis	6 (100%)	13 (93%)	6 (100%)	11 (100%)
Pancreas	(50)	(50)	(50)	(49)
Atrophy	15 (30%)	13 (26%)	21 (42%)	14 (29%)
Basophilic Focus	4 (8%)	3 (6%)	1 (2%)	1 (2%)
Hyperplasia	3 (6%)		1 (2%)	
Lipomatosis		1 (2%)		
Stomach, Forestomach	(50)	(50)	(50)	(50)
Diverticulum				1 (2%)
Hyperplasia, Squamous		1 (2%)	1 (2%)	2 (4%)

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

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
ALIMENTARY SYSTEM - CONT				
Mineralization				1 (2%)
Necrosis	4 (8%)	7 (14%)	3 (6%)	4 (8%)
Stomach, Glandular	(50)	(50)	(50)	(49)
Mineralization	2 (4%)	1 (2%)	2 (4%)	3 (6%)
Necrosis	3 (6%)	6 (12%)	2 (4%)	4 (8%)
Tongue		(1)	(2)	
Hyperplasia, Squamous		1 (100%)	1 (50%)	
Tooth	(1)		(1)	
Developmental Malformation			1 (100%)	
Inflammation, Chronic Active	1 (100%)			
CARDIOVASCULAR SYSTEM				
Blood Vessel				(1)
Aorta, Mineralization				1 (100%)
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	34 (68%)	37 (74%)	29 (58%)	31 (62%)
Artery, Mineralization				1 (2%)
Atrium, Thrombosis	2 (4%)	3 (6%)		
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(49)
Degeneration, Cystic	4 (8%)	2 (4%)	1 (2%)	
Hyperplasia	27 (54%)	23 (46%)	25 (50%)	22 (45%)
Hypertrophy	10 (20%)	11 (22%)	9 (18%)	11 (22%)
Necrosis		4 (8%)	2 (4%)	2 (4%)
Thrombosis			1 (2%)	
Vacuolization Cytoplasmic	2 (4%)	4 (8%)	4 (8%)	3 (6%)
Adrenal Medulla	(50)	(49)	(50)	(49)
Hyperplasia	16 (32%)	11 (22%)	15 (30%)	12 (24%)
Bilateral, Hyperplasia			1 (2%)	
Islets, Pancreatic	(50)	(50)	(50)	(49)
Hyperplasia				1 (2%)
Parathyroid Gland	(47)	(42)	(47)	(46)
Hyperplasia		3 (7%)	3 (6%)	3 (7%)
Pituitary Gland	(50)	(50)	(50)	(49)
Angiectasis			2 (4%)	1 (2%)
Cyst	1 (2%)			
Pars Distalis, Angiectasis				2 (4%)
Pars Distalis, Hyperplasia	5 (10%)	3 (6%)	7 (14%)	9 (18%)
Thyroid Gland	(50)	(49)	(48)	(49)
C-Cell, Hyperplasia	41 (82%)	41 (84%)	38 (79%)	33 (67%)
Follicular Cell, Hyperplasia	1 (2%)			

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

B11

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.3 MG/M3	1.0 MG/M3
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Clitoral Gland	(50)	(48)	(47)	(48)
Hyperplasia	2 (4%)	4 (8%)	3 (6%)	2 (4%)
Inflammation, Chronic Active	2 (4%)	2 (4%)	1 (2%)	2 (4%)
Metaplasia, Squamous				1 (2%)
Ovary	(50)	(50)	(50)	(49)
Cyst	7 (14%)	8 (16%)	10 (20%)	5 (10%)
Uterus	(50)	(50)	(49)	(50)
Hemorrhage			1 (2%)	
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(49)	(50)	(49)
Hyperplasia, Histiocytic		1 (2%)		
Inflammation, Granulomatous	1 (2%)			
Myelofibrosis	1 (2%)			
Necrosis			1 (2%)	
Lymph Node	(3)	(6)	(3)	(5)
Renal, Hemorrhage		1 (17%)	1 (33%)	1 (20%)
Lymph Node, Bronchial	(36)	(36)	(39)	(40)
Infiltration Cellular, Plasma Cell	1 (3%)			
Lymph Node, Mediastinal	(34)	(39)	(39)	(39)
Infiltration Cellular, Polymorphonuclear	1 (3%)			
Spleen	(50)	(50)	(50)	(49)
Fibrosis	4 (8%)	6 (12%)	5 (10%)	1 (2%)
Hematopoietic Cell Proliferation	5 (10%)	2 (4%)	6 (12%)	1 (2%)
Hemorrhage			1 (2%)	2 (4%)
Necrosis		1 (2%)	1 (2%)	
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(50)
Galactocele	1 (2%)		2 (4%)	
Hyperplasia, Atypical		1 (2%)	1 (2%)	

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

B 12

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Fibrous Osteodystrophy	1 (2%)		1 (2%)	2 (4%)
Hyperostosis	7 (14%)	3 (6%)	7 (14%)	9 (18%)
NERVOUS SYSTEM				
None				
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(50)	(49)
Hyperplasia	3 (6%)	1 (2%)		1 (2%)
Inflammation, Chronic Active	4 (8%)	5 (10%)	3 (6%)	3 (6%)
Metaplasia, Squamous	10 (20%)	5 (10%)	7 (14%)	11 (22%)
Necrosis	1 (2%)			
Epiglottis, Hyperplasia	4 (8%)	2 (4%)		3 (6%)
Epiglottis, Inflammation, Chronic Active	4 (8%)	1 (2%)	1 (2%)	
Epiglottis, Metaplasia, Squamous	4 (8%)	6 (12%)	1 (2%)	3 (6%)
Lung	(50)	(50)	(50)	(50)
Cyst, Squamous			1 (2%)	
Hyperplasia, Atypical			9 (18%)	15 (30%)
Inflammation, Chronic Active	11 (22%)	46 (92%)	49 (98%)	50 (100%)
Metaplasia, Squamous			2 (4%)	1 (2%)
Mineralization	1 (2%)			1 (2%)
Proteinosis	1 (2%)	24 (48%)	47 (94%)	49 (98%)
Thrombosis		1 (2%)		
Alveolar Epithelium, Hyperplasia	14 (28%)	9 (18%)	17 (34%)	14 (28%)
Alveolar Epithelium, Metaplasia		1 (2%)	36 (72%)	41 (82%)
Artery, Mediastinum Inflammation		1 (2%)		
Artery, Mediastinum, Mineralization				1 (2%)
Nose	(50)	(50)	(49)	(49)
Hemorrhage			1 (2%)	
Inflammation, Suppurative	3 (6%)	4 (8%)	9 (18%)	3 (6%)
Thrombosis	2 (4%)	7 (14%)	4 (8%)	6 (12%)
Olfactory Epithelium, Atrophy				2 (4%)
Olfactory Epithelium, Degeneration, Hyaline	39 (78%)	38 (76%)	33 (67%)	32 (65%)
Olfactory Epithelium, Metaplasia, Respiratory		2 (4%)	2 (4%)	1 (2%)
Respiratory Epithelium, Hyperplasia	1 (2%)			
Respiratory Epithelium, Metaplasia, Squamous			1 (2%)	
Trachea	(50)	(50)	(50)	(49)
Mineralization				1 (2%)

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

B13

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
SPECIAL SENSES SYSTEM				
Eye	(1)	(5)	(6)	(1)
Cataract	1 (100%)	4 (80%)	1 (17%)	1 (100%)
Degeneration		1 (20%)	4 (67%)	
Retina, Atrophy	1 (100%)	4 (80%)	1 (17%)	1 (100%)
Sclera, Inflammation, Acute			1 (17%)	
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(49)
Amyloid Deposition	1 (2%)			
Angiectasis				1 (2%)
Cyst		1 (2%)	2 (4%)	
Hydronephrosis			1 (2%)	
Infarct		3 (6%)	1 (2%)	1 (2%)
Inflammation, Suppurative	1 (2%)			
Mineralization				1 (2%)
Nephropathy	48 (96%)	47 (94%)	47 (94%)	45 (92%)
Thrombosis				1 (2%)
Renal Tubule, Hyperplasia	2 (4%)	1 (2%)	1 (2%)	2 (4%)
Renal Tubule, Necrosis	1 (2%)	1 (2%)		
Transitional Epithelium, Hyperplasia		1 (2%)		
Urinary Bladder	(50)	(50)	(50)	(49)
Hemorrhage		1 (2%)		

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

B 14

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	30	29	32	33
Natural Death	7	8	3	4
Survivors				
Terminal Sacrifice	13	13	15	13
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Colon	(47)	(47)	(48)	(50)
Mineralization		1 (2%)		
Intestine Large, Rectum	(48)	(49)	(49)	(49)
Inflammation, Acute	1 (2%)			
Mineralization		1 (2%)		
Anus, Hyperplasia				1 (2%)
Intestine Large, Cecum	(46)	(43)		(49)
Inflammation, Acute	1 (2%)	1 (2%)		
Mineralization		3 (7%)		
Necrosis		1 (2%)		1 (2%)
Intestine Small, Duodenum	(48)	(48)	(49)	(50)
Inflammation, Acute		1 (2%)		1 (2%)
Necrosis			2 (4%)	
Intestine Small, Ileum	(44)	(43)	(48)	(49)
Inflammation, Granulomatous	1 (2%)			
Mineralization	1 (2%)			1 (2%)
Liver	(50)	(50)	(50)	(50)
Angiectasis		2 (4%)		5 (10%)
Basophilic Focus	21 (42%)	23 (46%)	21 (42%)	15 (30%)
Clear Cell Focus	6 (12%)	3 (6%)	6 (12%)	9 (18%)
Degeneration, Cystic	10 (20%)	9 (18%)	10 (20%)	10 (20%)
Eosinophilic Focus	6 (12%)	4 (8%)	5 (10%)	4 (8%)
Fatty Change	5 (10%)	8 (16%)	8 (16%)	7 (14%)
Hepatodiaphragmatic Nodule	1 (2%)	2 (4%)	3 (6%)	2 (4%)
Inflammation, Granulomatous	1 (2%)			
Mineralization			1 (2%)	
Mixed Cell Focus	1 (2%)			
Necrosis	2 (4%)		4 (8%)	1 (2%)
Regeneration	1 (2%)	4 (8%)	5 (10%)	
Vacuolization Cytoplasmic, Focal	1 (2%)			
Bile Duct, Hyperplasia	28 (56%)	27 (54%)	32 (64%)	30 (60%)
Bile Duct, Inflammation, Acute			2 (4%)	
Centrilobular, Necrosis	13 (26%)	14 (28%)	16 (32%)	13 (26%)
Mesentery	(5)	(10)	(14)	(7)

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

C 01

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
ALIMENTARY SYSTEM - CONT				
Hemorrhage		1 (10%)	1 (7%)	
Artery, Inflammation, Chronic Active		1 (10%)		
Artery, Mineralization	3 (60%)	2 (20%)	2 (14%)	2 (29%)
Fat, Inflammation			1 (7%)	
Fat, Necrosis	3 (60%)	7 (70%)	11 (79%)	5 (71%)
Oral Mucosa	(1)	(3)		(1)
Pharyngeal, Inflammation, Chronic	1 (100%)			
Pancreas	(49)	(49)	(50)	(50)
Atrophy	24 (49%)	29 (59%)	25 (50%)	27 (54%)
Basophilic Focus	3 (6%)	3 (6%)	2 (4%)	3 (6%)
Hyperplasia	4 (8%)	3 (6%)	2 (4%)	1 (2%)
Inflammation, Acute			1 (2%)	
Metaplasia, Hepatocyte			1 (2%)	
Artery, Inflammation	2 (4%)			1 (2%)
Artery, Mineralization	3 (6%)	2 (4%)	1 (2%)	1 (2%)
Duct, Hyperplasia			1 (2%)	
Salivary Glands	(50)	(50)	(50)	(50)
Atrophy	1 (2%)		1 (2%)	
Artery, Mineralization	1 (2%)			
Stomach, Forestomach	(49)	(50)	(50)	(50)
Hyperplasia, Squamous			1 (2%)	
Inflammation, Acute				1 (2%)
Mineralization	2 (4%)	2 (4%)	2 (4%)	2 (4%)
Necrosis	7 (14%)	10 (20%)	9 (18%)	11 (22%)
Stomach, Glandular	(49)	(49)	(50)	(50)
Inflammation, Acute	1 (2%)			
Mineralization	8 (16%)	6 (12%)	8 (16%)	8 (16%)
Necrosis	4 (8%)	9 (18%)	13 (26%)	13 (26%)
Tooth	(2)	(1)		(3)
Developmental Malformation	2 (100%)	1 (100%)		3 (100%)
Inflammation, Chronic Active	1 (50%)			1 (33%)
CARDIOVASCULAR SYSTEM				
Blood Vessel	(3)	(4)	(6)	(6)
Aorta, Mineralization	3 (100%)	4 (100%)	4 (67%)	6 (100%)
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	44 (88%)	37 (74%)	41 (82%)	40 (80%)
Necrosis				1 (2%)
Artery, Inflammation, Chronic			1 (2%)	
Artery, Mineralization	5 (10%)	6 (12%)	5 (10%)	7 (14%)
Atrium, Thrombosis	4 (8%)	1 (2%)	3 (6%)	2 (4%)

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

C 02

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
ENDOCRINE SYSTEM				
Adrenal Cortex	(49)	(49)	(49)	(50)
Atrophy	1 (2%)			1 (2%)
Degeneration, Cystic			1 (2%)	
Hyperplasia	24 (49%)	24 (49%)	23 (47%)	23 (46%)
Hypertrophy	1 (2%)	3 (6%)	3 (6%)	2 (4%)
Mineralization		1 (2%)		
Necrosis	1 (2%)		4 (8%)	3 (6%)
Vacuolization Cytoplasmic	2 (4%)	5 (10%)	2 (4%)	1 (2%)
Adrenal Medulla	(50)	(49)	(49)	(50)
Hyperplasia	22 (44%)	25 (51%)	22 (45%)	26 (52%)
Bilateral, Hyperplasia		1 (2%)	1 (2%)	7 (14%)
Islets, Pancreatic	(48)	(49)	(50)	(50)
Hyperplasia	1 (2%)	2 (4%)	2 (4%)	4 (8%)
Parathyroid Gland	(47)	(48)	(47)	(48)
Hyperplasia	13 (28%)	13 (27%)	17 (36%)	16 (33%)
Pituitary Gland	(49)	(49)	(50)	(50)
Angiectasis		1 (2%)		1 (2%)
Pars Distalis, Hyperplasia	17 (35%)	12 (24%)	15 (30%)	12 (24%)
Thyroid Gland	(46)	(46)	(49)	(50)
Hyperplasia	1 (2%)			
C-Cell, Hyperplasia	26 (57%)	28 (61%)	33 (67%)	29 (58%)
Follicular Cell, Hyperplasia		1 (2%)	1 (2%)	
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Coagulating Gland		(1)		
Hyperplasia, Atypical		1 (100%)		
Epididymis	(50)	(50)	(50)	(50)
Atrophy			1 (2%)	
Granuloma Sperm				3 (6%)
Preputial Gland	(50)	(49)	(50)	(49)
Hyperplasia	1 (2%)		3 (6%)	4 (8%)
Inflammation, Chronic Active	4 (8%)	4 (8%)	8 (16%)	3 (6%)
Prostate	(50)	(48)	(50)	(50)
Hyperplasia	12 (24%)	9 (19%)	11 (22%)	7 (14%)
Inflammation, Chronic Active	3 (6%)	1 (2%)	6 (12%)	2 (4%)
Mineralization	1 (2%)			
Seminal Vesicle	(45)	(47)	(48)	(50)
Inflammation, Chronic Active			1 (2%)	
Mineralization	2 (4%)	1 (2%)	1 (2%)	

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

C 03

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
GENITAL SYSTEM - CONT				
Testes	(50)	(50)	(50)	(50)
Atrophy	1 (2%)	2 (4%)	5 (10%)	5 (10%)
Artery, Inflammation, Chronic Active	3 (6%)	4 (8%)	5 (10%)	4 (8%)
Interstitial Cell, Hyperplasia	2 (4%)	3 (6%)	2 (4%)	6 (12%)
HEMATOPOIETIC SYSTEM				
Bone Marrow	(49)	(48)	(50)	(50)
Thrombosis			1 (2%)	
Lymph Node	(12)	(8)	(9)	(5)
Hemorrhage	1 (8%)			
Renal, Ectasia	1 (8%)			
Renal, Hemorrhage	1 (8%)			
Renal, Infiltration Cellular, Plasma Cell		1 (13%)		
Lymph Node, Mandibular	(46)	(43)	(46)	(44)
Infiltration Cellular, Plasma Cell	2 (4%)	1 (2%)	1 (2%)	3 (7%)
Infiltration Cellular, Polymorphonuclear	1 (2%)			
Inflammation, Chronic Active			1 (2%)	
Lymph Node, Mesenteric	(48)	(48)	(50)	(48)
Hemorrhage	1 (2%)			
Lymph Node, Mediastinal	(42)	(40)	(46)	(47)
Hemorrhage	1 (2%)			
Infiltration Cellular, Plasma Cell				1 (2%)
Infiltration Cellular, Polymorphonuclear			1 (2%)	
Pigmentation				1 (2%)
Spleen	(50)	(50)	(50)	(50)
Congestion	1 (2%)			
Fibrosis	13 (26%)	12 (24%)	17 (34%)	12 (24%)
Hematopoietic Cell Proliferation	4 (8%)	2 (4%)	6 (12%)	1 (2%)
Hyperplasia		1 (2%)	1 (2%)	
Inflammation, Acute			1 (2%)	
Inflammation, Granulomatous	2 (4%)			
Necrosis		1 (2%)	5 (10%)	
Thrombosis	1 (2%)			
Thymus	(46)	(45)	(45)	(42)
Cyst	1 (2%)			1 (2%)
INTEGUMENTARY SYSTEM				
Mammary Gland	(41)	(42)	(42)	(40)
Galactocele	1 (2%)	2 (5%)	1 (2%)	3 (8%)
Skin	(50)	(49)	(50)	(50)
Hyperkeratosis	1 (2%)		2 (4%)	
Inflammation, Chronic Active			3 (6%)	2 (4%)

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

C 04

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Callus		1 (2%)		
Fibrous Osteodystrophy	8 (16%)	9 (18%)	10 (20%)	11 (22%)
Hyperostosis				1 (2%)
Inflammation, Chronic Active				1 (2%)
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Degeneration	1 (2%)			
Gliosis		1 (2%)		
Hemorrhage				1 (2%)
Mineralization				1 (2%)
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(49)	(50)
Hyperplasia	3 (6%)	8 (16%)	4 (8%)	11 (22%)
Inflammation, Chronic Active	4 (8%)	3 (6%)	4 (8%)	12 (24%)
Metaplasia, Squamous	1 (2%)	2 (4%)	2 (4%)	10 (20%)
Mineralization	1 (2%)		3 (6%)	1 (2%)
Epiglottis, Hyperplasia		6 (12%)	4 (8%)	5 (10%)
Epiglottis, Inflammation, Chronic Active		1 (2%)	2 (4%)	4 (8%)
Epiglottis, Metaplasia, Squamous				3 (6%)
Epiglottis, Mineralization				1 (2%)
Lung	(50)	(49)	(50)	(50)
Cyst, Squamous				1 (2%)
Hemorrhage	1 (2%)	1 (2%)		
Hyperplasia, Atypical		2 (4%)	5 (10%)	18 (36%)
Inflammation, Chronic Active	3 (6%)	43 (88%)	50 (100%)	50 (100%)
Metaplasia, Squamous			1 (2%)	2 (4%)
Mineralization	4 (8%)	5 (10%)	3 (6%)	7 (14%)
Proteinosis		22 (45%)	50 (100%)	49 (98%)
Thrombosis	1 (2%)			2 (4%)
Alveolar Epithelium, Hyperplasia	12 (24%)	16 (33%)	21 (42%)	21 (42%)
Alveolar Epithelium, Metaplasia		2 (4%)	34 (68%)	41 (82%)
Artery, Mediastinum, Mineralization	4 (8%)	3 (6%)	2 (4%)	5 (10%)
Nose	(50)	(48)	(49)	(50)
Inflammation, Suppurative	10 (20%)	5 (10%)	10 (20%)	8 (16%)
Polyp Inflammatory			1 (2%)	
Thrombosis	4 (8%)	8 (17%)	8 (16%)	7 (14%)
Olfactory Epithelium, Atrophy	1 (2%)	2 (4%)	1 (2%)	2 (4%)
Olfactory Epithelium, Degeneration, Hyaline	18 (36%)	26 (54%)	32 (65%)	25 (50%)

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

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
RESPIRATORY SYSTEM - CONT				
Olfactory Epithelium, Metaplasia, Respiratory	2 (4%)	2 (4%)	1 (2%)	2 (4%)
Respiratory Epithelium, Degeneration, Hyaline				1 (2%)
Respiratory Epithelium, Metaplasia, Squamous				1 (2%)
Turbinate, Necrosis				1 (2%)
Trachea	(49)	(50)	(49)	(50)
Mineralization	2 (4%)		2 (4%)	3 (6%)
SPECIAL SENSES SYSTEM				
Eye	(4)	(2)	(1)	(1)
Cataract	4 (100%)	1 (50%)		1 (100%)
Degeneration			1 (100%)	
Retina, Atrophy	4 (100%)	1 (50%)		1 (100%)
URINARY SYSTEM				
Kidney	(49)	(50)	(50)	(50)
Cyst	3 (6%)	3 (6%)	1 (2%)	1 (2%)
Infarct		2 (4%)	1 (2%)	2 (4%)
Mineralization	5 (10%)	4 (8%)	5 (10%)	4 (8%)
Nephropathy	48 (98%)	49 (98%)	50 (100%)	50 (100%)
Renal Tubule, Hyperplasia	2 (4%)	1 (2%)	4 (8%)	[illegible] (2%)
Urinary Bladder	(48)	(50)	(50)	[illegible]
Hemorrhage		2 (4%)		
Inflammation, Chronic Active	1 (2%)			
Transitional Epithelium, Hyperplasia	1 (2%)			

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

C 07

END OF REPORT

2 YEAR CHRONIC RATS

Facility: Battelle Northwest

Chemical CAS #: 1303-00-0000

Lock Date: 03/13/97

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

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

C 08

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	30	30	23	35
Natural Death	1	3	6	4
Survivors				
Terminal Sacrifice	19	17	20	11
Natural Death			1	
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Colon	(50)	(49)	(48)	(49)
Intestine Large, Rectum	(50)	(49)	(49)	(49)
Carcinoma				1 (2%)
Intestine Large, Cecum	(50)	(49)	(48)	(49)
Intestine Small, Duodenum	(50)	(48)	(48)	(49)
Leiomyoma	1 (2%)			
Intestine Small, Jejunum	(50)	(48)	(46)	(49)
Leiomyosarcoma			1 (2%)	
Intestine Small, Ileum	(50)	(49)	(46)	(49)
Liver	(50)	(50)	(50)	(50)
Histiocytic Sarcoma		1 (2%)	1 (2%)	
Mesentery	(6)	(14)	(6)	(11)
Oral Mucosa	(1)	(2)		
Gingival, Squamous Cell Carcinoma		1 (50%)		
Pharyngeal, Squamous Cell Carcinoma		1 (50%)		
Pharyngeal, Squamous Cell Papilloma	1 (100%)			
Pancreas	(50)	(50)	(50)	(49)
Salivary Glands	(50)	(49)	(50)	(50)
Stomach, Forestomach	(50)	(50)	(50)	(50)
Stomach, Glandular	(50)	(50)	(50)	(49)
Tongue		(1)	(2)	
Squamous Cell Papilloma			1 (50%)	
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)

C 09

NTP Experiment-Test: 05180-06 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC GALLIUM ARSENIDE
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 11/23/98
Time: 08:00:34

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(49)
Adrenal Medulla	(50)	(49)	(50)	(49)
Pheochromocytoma Malignant		1 (2%)		
Pheochromocytoma Benign	4 (8%)	5 (10%)	4 (8%)	8 (16%)
Bilateral, Pheochromocytoma Benign			2 (4%)	5 (10%)
Islets, Pancreatic	(50)	(50)	(50)	(49)
Adenoma	1 (2%)			2 (4%)
Carcinoma				1 (2%)
Pituitary Gland	(50)	(50)	(50)	(49)
Histiocytic Sarcoma			1 (2%)	
Pars Distalis, Adenoma	42 (84%)	43 (86%)	36 (72%)	31 (63%)
Thyroid Gland	(50)	(49)	(48)	(49)
C-Cell, Adenoma	7 (14%)	4 (8%)	4 (8%)	1 (2%)
C-Cell, Carcinoma	2 (4%)	1 (2%)	2 (4%)	3 (6%)
Follicular Cell, Adenoma	2 (4%)			1 (2%)
Follicular Cell, Carcinoma		1 (2%)	1 (2%)	1 (2%)
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Clitoral Gland	(50)	(48)	(47)	(48)
Adenoma	7 (14%)	9 (19%)	7 (15%)	4 (8%)
Carcinoma	3 (6%)	2 (4%)	2 (4%)	2 (4%)
Bilateral, Adenoma	1 (2%)			
Ovary	(50)	(50)	(50)	(49)
Granulosa Cell Tumor Malignant			1 (2%)	
Histiocytic Sarcoma			1 (2%)	
Uterus	(50)	(50)	(49)	(50)
Leiomyoma				1 (2%)
Leiomyosarcoma				1 (2%)
Polyp Stromal	7 (14%)	6 (12%)	6 (12%)	2 (4%)
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(49)	(50)	(49)
Lymph Node	(3)	(6)	(3)	(5)
Pancreatic, Histiocytic Sarcoma			1 (33%)	
Lymph Node, Bronchial	(36)	(36)	(39)	(40)
Histiocytic Sarcoma		1 (3%)	1 (3%)	
Lymph Node, Mandibular	(43)	(45)	(45)	(47)

C 10

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
HEMATOPOIETIC SYSTEM - cont				
Histiocytic Sarcoma			1 (2%)	
Lymph Node, Mesenteric	(50)	(50)	(50)	(49)
Histiocytic Sarcoma			1 (2%)	
Lymph Node, Mediastinal	(34)	(39)	(39)	(39)
Histiocytic Sarcoma		1 (3%)	1 (3%)	
Spleen	(50)	(50)	(50)	(49)
Histiocytic Sarcoma		1 (2%)	1 (2%)	
Thymus	(45)	(48)	(41)	(45)
Histiocytic Sarcoma			1 (2%)	
Thymoma Benign	1 (2%)			
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(50)
Adenoma				1 (2%)
Carcinoma	8 (16%)	2 (4%)	7 (14%)	4 (8%)
Carcinoma, Multiple		1 (2%)		1 (2%)
Fibroadenoma	21 (42%)	24 (48%)	18 (36%)	23 (46%)
Fibroadenoma, Multiple	5 (10%)	7 (14%)	11 (22%)	8 (16%)
Skin	(50)	(50)	(50)	(50)
Basal Cell Adenoma				1 (2%)
Basal Cell Carcinoma			1 (2%)	
Squamous Cell Papilloma			1 (2%)	
Subcutaneous Tissue, Fibroma	1 (2%)		2 (4%)	1 (2%)
Subcutaneous Tissue, Lipoma				1 (2%)
Subcutaneous Tissue, Rhabdomyosarcoma			1 (2%)	
Subcutaneous Tissue, Sarcoma			1 (2%)	
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Meningioma Malignant, Metastatic, Brain			1 (2%)	
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	
Meningioma Malignant			1 (2%)	

C 11

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(50)	(49)
Carcinoma, Metastatic, Thyroid Gland				1 (2%)
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Adenoma			2 (4%)	7 (14%)
Alveolar/Bronchiolar Adenoma, Multiple				1 (2%)
Alveolar/Bronchiolar Carcinoma			2 (4%)	4 (8%)
Carcinoma, Metastatic, Mammary Gland		1 (2%)		
Carcinoma, Metastatic, Thyroid Gland				1 (2%)
Histiocytic Sarcoma		1 (2%)	1 (2%)	
Squamous Cell Carcinoma				1 (2%)
Nose	(50)	(50)	(49)	(49)
Histiocytic Sarcoma			1 (2%)	
SPECIAL SENSES SYSTEM				
Zymbal's Gland		(1)		
Carcinoma		1 (100%)		
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(49)
Histiocytic Sarcoma			1 (2%)	
Renal Tubule, Adenoma			1 (2%)	
Urinary Bladder	(50)	(50)	(50)	(49)
Leiomyoma			1 (2%)	
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma		2 (4%)	1 (2%)	
Leukemia Mononuclear	22 (44%)	21 (42%)	18 (36%)	33 (66%)

* Number of animals with any tissue examined microscopically

C 12

FISCHER 344 RATS FEMALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	48	49	49	47
Total Primary Neoplasms	136	132	135	150
Total Animals with Benign Neoplasms	48	46	43	43
Total Benign Neoplasms	101	98	96	98
Total Animals with Malignant Neoplasms	28	28	32	38
Total Malignant Neoplasms	35	34	39	52
Total Animals with Metastatic Neoplasms		1	1	1
Total Metastatic Neoplasm		1	1	2
Total Animals with Malignant Neoplasms Uncertain Primary Site				
Total Animals with Neoplasms Uncertain-Benign or Malignant				
Total Uncertain Neoplasms				

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

C 13

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	30	29	32	33
Natural Death	7	8	3	4
Survivors				
Terminal Sacrifice	13	13	15	13
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Esophagus	(49)	(50)	(50)	(50)
Intestine Large, Colon	(47)	(47)	(48)	(50)
Intestine Large, Rectum	(48)	(49)	(47)	(49)
Intestine Large, Cecum	(46)	(43)	(48)	(49)
Intestine Small, Duodenum	(48)	(48)	(49)	(50)
Intestine Small, Jejunum	(45)	(43)	(48)	(50)
Intestine Small, Ileum	(44)	(43)	(48)	(49)
Polyp Adenomatous		1 (2%)		
Liver	(50)	(50)	(50)	(50)
Cholangioma				1 (2%)
Hepatocellular Carcinoma			1 (2%)	
Hepatocellular Adenoma	1 (2%)	1 (2%)	1 (2%)	
Osteosarcoma, Metastatic, Bone			1 (2%)	
Mesentery	(5)	(10)	(14)	(7)
Carcinoma, Metastatic, Uncertain Primary Site				1 (14%)
Oral Mucosa	(1)	(3)		(1)
Gingival, Squamous Cell Papilloma				1 (100%)
Pharyngeal, Squamous Cell Papilloma		3 (100%)		
Pancreas	(49)	(49)	(50)	(50)
Adenoma	2 (4%)	1 (2%)	1 (2%)	1 (2%)
Salivary Glands	(50)	(50)	(50)	(50)
Stomach, Forestomach	(49)	(50)	(50)	(50)
Squamous Cell Papilloma				1 (2%)
Stomach, Glandular	(49)	(49)	(50)	(50)
Tongue	(2)		(2)	(1)
Squamous Cell Carcinoma	1 (50%)			
Squamous Cell Papilloma	1 (50%)		1 (50%)	1 (100%)

C 14

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
CARDIOVASCULAR SYSTEM				
Blood Vessel	(3)	(4)	(6)	(6)
Hemangiosarcoma			1 (17%)	
Heart	(50)	(50)	(50)	(50)
Schwannoma Malignant	1 (2%)			
ENDOCRINE SYSTEM				
Adrenal Cortex	(49)	(49)	(49)	(50)
Osteosarcoma, Metastatic, Bone			1 (2%)	
Adrenal Medulla	(50)	(49)	(49)	(50)
Pheochromocytoma Malignant	2 (4%)		3 (6%)	1 (2%)
Pheochromocytoma Benign	12 (24%)	9 (18%)	17 (35%)	10 (20%)
Bilateral, Pheochromocytoma Benign	4 (8%)	3 (6%)	5 (10%)	3 (6%)
Islets, Pancreatic	(48)	(49)	(50)	(50)
Adenoma	2 (4%)	1 (2%)	2 (4%)	2 (4%)
Carcinoma		3 (6%)		1 (2%)
Pituitary Gland	(49)	(49)	(50)	(50)
Pars Distalis, Adenoma	21 (43%)	22 (45%)	21 (42%)	19 (38%)
Thyroid Gland	(46)	(46)	(49)	(50)
C-Cell, Adenoma	3 (7%)	5 (11%)	6 (12%)	2 (4%)
C-Cell, Carcinoma		3 (7%)	2 (4%)	1 (2%)
Follicular Cell, Adenoma	1 (2%)			
GENERAL BODY SYSTEM				
Peritoneum	(1)		(1)	
GENITAL SYSTEM				
Epididymis	(50)	(50)	(50)	(50)
Preputial Gland	(50)	(49)	(50)	(49)
Adenoma		2 (4%)	3 (6%)	6 (12%)
Carcinoma	4 (8%)	4 (8%)	5 (10%)	4 (8%)
Prostate	(50)	(48)	(50)	(50)
Adenoma		2 (4%)		
Histiocytic Sarcoma			1 (2%)	
Seminal Vesicle	(45)	(47)	(48)	(50)
Testes	(50)	(50)	(50)	(50)
Bilateral, Interstitial Cell, Adenoma	42 (84%)	35 (70%)	37 (74%)	33 (66%)
Interstitial Cell, Adenoma	3 (6%)	5 (10%)	9 (18%)	8 (16%)

D 01

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
HEMATOPOIETIC SYSTEM				
Bone Marrow	(49)	(48)	(50)	(50)
Lymph Node	(12)	(8)	(9)	(5)
Schwannoma Malignant, Metastatic, Heart	1 (8%)			
Inguinal, Fibrosarcoma, Metastatic, Skin		1 (13%)		
Renal, Pheochromocytoma Malignant, Metastatic, Adrenal Medulla	1 (8%)			
Lymph Node, Bronchial	(36)	(37)	(35)	(42)
Plasma Cell Tumor Malignant	1 (3%)			
Lymph Node, Mandibular	(46)	(43)	(46)	(44)
Lymph Node, Mesenteric	(48)	(48)	(50)	(48)
Lymph Node, Mediastinal	(42)	(40)	(46)	(47)
Plasma Cell Tumor Malignant	1 (2%)			
Spleen	(50)	(50)	(50)	(50)
Osteosarcoma				1 (2%)
Osteosarcoma, Metastatic, Bone			1 (2%)	
Sarcoma				1 (2%)
Thymus	(46)	(45)	(45)	(42)
INTEGUMENTARY SYSTEM				
Mammary Gland	(41)	(42)	(42)	(40)
Carcinoma				1 (3%)
Fibroadenoma		2 (5%)	3 (7%)	2 (5%)
Skin	(50)	(49)	(50)	(50)
Basal Cell Adenoma	1 (2%)			1 (2%)
Keratoacanthoma	3 (6%)	2 (4%)	4 (8%)	3 (6%)
Squamous Cell Carcinoma	1 (2%)			1 (2%)
Squamous Cell Papilloma		2 (4%)	1 (2%)	1 (2%)
Trichoepithelioma				1 (2%)
Subcutaneous Tissue, Fibroma	3 (6%)	1 (2%)	2 (4%)	1 (2%)
Subcutaneous Tissue, Fibrosarcoma		1 (2%)	2 (4%)	
Subcutaneous Tissue, Hemangioma				1 (2%)
Subcutaneous Tissue, Hemangiopericytoma				1 (2%)
Subcutaneous Tissue, Liposarcoma		1 (2%)		
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Osteosarcoma	1 (2%)		2 (4%)	
Skeletal Muscle	(1)			

D 02

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Astrocytoma Malignant		1 (2%)		
Hemangioma				1 (2%)
Oligodendroglioma Malignant			1 (2%)	1 (2%)
Sarcoma				1 (2%)
Peripheral Nerve		(1)		
Schwannoma Malignant		1 (100%)		
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(49)	(50)
Lung	(50)	(49)	(50)	(50)
Alveolar/Bronchiolar Adenoma	1 (2%)		3 (6%)	1 (2%)
Alveolar/Bronchiolar Adenoma, Multiple				1 (2%)
Alveolar/Bronchiolar Carcinoma	2 (4%)		2 (4%)	2 (4%)
Carcinoma, Metastatic, Thyroid Gland		1 (2%)		
Chordoma, Metastatic, Uncertain Primary Site		1 (2%)		
Osteosarcoma, Metastatic, Bone			1 (2%)	
Pheochromocytoma Malignant, Metastatic, Adrenal Medulla	2 (4%)			
Plasma Cell Tumor Malignant, Metastatic, Lymph Node, Mediastinal	1 (2%)			
Squamous Cell Carcinoma	1 (2%)			
Mediastinum, Sarcoma			1 (2%)	
Nose	(50)	(48)	(49)	(50)
Pleura		(1)		
SPECIAL SENSES SYSTEM				
Zymbal's Gland	(1)	(1)		
Carcinoma	1 (100%)	1 (100%)		
URINARY SYSTEM				
Kidney	(49)	(50)	(50)	(50)
Renal Tubule, Adenoma	1 (2%)			3 (6%)
Renal Tubule, Adenoma, Multiple	1 (2%)			
Transitional Epithelium, Papilloma			1 (2%)	
Urinary Bladder	(48)	(50)	(50)	(50)
Histiocytic Sarcoma			1 (2%)	

D 03

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
URINARY SYSTEM - cont				
Transitional Epithelium, Papilloma			1 (2%)	1 (2%)
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma			1 (2%)	
Leukemia Mononuclear	19 (38%)	28 (56%)	33 (66%)	28 (56%)
Mesothelioma Benign	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Mesothelioma Malignant	1 (2%)	1 (2%)		

* Number of animals with any tissue examined microscopically

D 04

FISCHER 344 RATS MALE	CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	50	49	50	48
Total Primary Neoplasms	139	142	173	150
Total Animals with Benign Neoplasms	50	47	49	46
Total Benign Neoplasms	103	98	119	107
Total Animals with Malignant Neoplasms	30	38	41	34
Total Malignant Neoplasms	36	44	54	43
Total Animals with Metastatic Neoplasms	3	4	1	1
Total Metastatic Neoplasm	5	6	4	1
Total Animals with Malignant Neoplasms Uncertain Primary Site		1		1
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

D 05

END OF REPORT

D 06

2 YEAR CHRONIC RATS

REASONS FOR REMOVAL: ALL

REMOVAL DATE RANGE: ALL

TREATMENT GROUPS: INCLUDE ALL

D07

NTP
LAB: Battelle Northwest

EXPERIMENT: 05180 TEST: 06
TEST TYPE: CHRONIC
CONT: NO1-ES-25335
PATHOLOGIST: GRUMBEIN, S.

STATISTICAL ANALYSIS OF PRIMARY TUMORS
GALLIUM ARSENIDE

CAGES FROM 0000 TO LAST CAGE
ROUTE: RESPIRATORY EXPOSURE WHOLE BODY

REPORT: PEIRPT08
DATE: 11/23/98

TIME: 08:01:21

NTP C#: 62033B
CAS: 1303-00-0000

Rats(FISCHER 344)

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 Medulla
Brain
Clitoral/Preputial Gland
Heart
Islets, Pancreatic
Kidney
Liver
Lung
Ovary
Pancreas
Pituitary Gland
Prostate
Spleen
Testes
Thymus
Thyroid Gland
Urinary Bladder

D 08

NTP
LAB: Battelle Northwest
EXPERIMENT: 05180 TEST: 06
TEST TYPE: CHRONIC
CONT: NO1-ES-25335
PATHOLOGIST: GRUMBEIN, S.

STATISTICAL ANALYSIS OF PRIMARY TUMORS
GALLIUM ARSENIDE

CAGES FROM 0000 TO LAST CAGE
ROUTE: RESPIRATORY EXPOSURE WHOLE BODY

REPORT: PEIRPT08
DATE: 11/23/98
TIME: 08:01:21

NTP C#: 62033B
CAS: 1303-00-0000

SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS
IN THE ANALYSIS OF GALLIUM ARSENIDE

Male Rats

Organ	Morphology
Clitoral/Preputial Gland	Adenoma
All Organs	Hemangioma
	Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated
	Malignant Tumors

Female Rats

Organ	Morphology
Adrenal Medulla	Pheochromocytoma Benign
	Pheochromocyt[illegible] Benign, Complex, Malignant, NOS
Islets, Pancreatic	Carcinoma or Ad[illegible]oma
Lung	Alveolar/Bronchiolar Adenoma
	Alveolar/Bronchiolar Carcinoma
	Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma
Mammary Gland	F[illegible]broade[illegible]ma
	Fibroma [illegible]oadenoma or Adenoma
	Fibroma, [illegible]oadenoma, Carcinoma, or Adenoma
Pituitary Gland: Pars Distalis or Unspecified Site	Adenoma
Thyroid Gland: C-Cell	Adenoma
All Organs	Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated
	Malignant Tumors
	Malignant and Benign Tumors

D 09

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Adrenal Medulla Pheochromocytoma Benign								
TUMOR RATES								
OVERALL (a)	16/50 (32%)	12/49 (24%)	22/49 (45%)	13/50 (26%)	4/50 (8%)	5/49 (10%)	6/50 (12%)	13/49 (27%)
POLY-3 ADJUSTED (b)	40.8%	33.0%	54.8%	35.3%	9.9%	13.3%	16.0%	36.0%
TERMINAL (d)	5/13 (39%)	4/13 (31%)	9/15 (60%)	7/13 (54%)	1/19 (5%)	2/16 (13%)	5/21 (24%)	4/11 (36%)
FIRST INCIDENCE	567	614	590	547	506	695	674	564
STATISTICAL TESTS								
LIFE TABLE	P=0.347N	P=0.342N	P=0.284	P=0.376N	P<0.001 **	P=0.447	P=0.390	P=0.002 **
POLY 3	P=0.297N	P=0.314N	P=0.140	P=0.395N	P<0.001 **	P=0.455	P=0.321	P=0.005 **
POLY 1.5	P=0.271N	P=0.303N	P=0.133	P=0.368N	P=0.002 **	P=0.469	P=0.336	P=0.007 **
POLY 6	P=0.344N	P=0.316N	P=0.162	P=0.434N	P<0.001 **	P=0.441	P=0.309	P=0.003 **
LOGISTIC REGRESSION	P=0.314N	P=0.334N	P=0.165	P=0.404N	P<0.001 **	P=0.463	P=0.329	P=0.007 **
COCH-ARM / FISHERS	P=0.251N	P=0.272N	P=0.133	P=0.330N	P=0.004 **	P=0.487	P=0.370	P=0.014 *

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Adrenal Medulla Pheochromocytoma Malignant								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	0/49 (0%)	3/49 (6%)	1/50 (2%)	0/50 (0%)	1/49 (2%)	0/50 (0%)	0/49 (0%)
POLY-3 ADJUSTED (b)	5.4%	0.0%	8.0%	2.9%	0.0%	2.7%	0.0%	0.0%
TERMINAL (d)	1/13 (8%)	0/13 (0%)	2/15 (13%)	0/13 (0%)	0/19 (0%)	1/16 (6%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	671	---	601	713	---	734 (T)	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.549N	P=0.259N	P=0.555	P=0.527N	P=0.768N	P=0.466	(e)	(e)
POLY 3	P=0.537N	P=0.254N	P=0.508	P=0.519N	P=0.682N	P=0.489	(e)	(e)
POLY 1.5	P=0.532N	P=0.250N	P=0.500	P=0.512N	P=0.677N	P=0.492	(e)	(e)
POLY 6	P=0.542N	P=0.258N	P=0.521	P=0.527N	P=0.689N	P=0.485	(e)	(e)
LOGISTIC REGRESSION	P=0.554N	P=0.256N	P=0.517	P=0.524N	(e)	P=0.466	(e)	(e)
COCH-ARM / FISHERS	P=0.528N	P=0.253N	P=0.490	P=0.500N	P=0.671N	P=0.495	(e)	(e)

D 10

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Adrenal Medulla								
Pheochromocytoma: Benign, Complex, Malignant, NOS								
TUMOR RATES								
OVERALL (a)	16/50 (32%)	12/49 (24%)	23/49 (47%)	14/50 (28%)	4/50 (8%)	6/49 (12%)	6/50 (12%)	13/49 (27%)
POLY-3 ADJUSTED (b)	40.8%	33.0%	56.7%	38.0%	9.9%	16.0%	16.0%	36.0%
TERMINAL (d)	5/13 (39%)	4/13 (31%)	9/15 (60%)	7/13 (54%)	1/19 (5%)	3/16 (19%)	5/21 (24%)	4/11 (36%)
FIRST INCIDENCE	567	614	590	547	506	695	674	564
STATISTICAL TESTS								
LIFE TABLE	P=0.418N	P=0.342N	P=0.233	P=0.459N	P<0.001 **	P=0.317	P=0.390	P=0.002 **
POLY 3	P=0.380N	P=0.314N	P=0.103	P=0.492N	P=0.002 **	P=0.323	P=0.321	P=0.005 **
POLY 1.5	P=0.347N	P=0.303N	P=0.096	P=0.459N	P=0.003 **	P=0.338	P=0.336	P=0.007 **
POLY 6	P=0.438N	P=0.316N	P=0.127	P=0.536N	P=0.002 **	P=0.308	P=0.309	P=0.003 **
LOGISTIC REGRESSION	P=0.395N	P=0.334N	P=0.115	P=0.502N	P<0.001 **	P=0.328	P=0.329	P=0.007 **
COCH-ARM / FISHERS	P=0.318N	P=0.272N	P=0.094	P=0.414N	P=0.006 **	P=0.357	P=0.370	P=0.014 *

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Bone								
Osteosarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.7%	0.0%	5.2%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	567	---	562	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.427N	P=0.510N	P=0.512	P=0.515N	(e)	(e)	(e)	(e)
POLY 3	P=0.402N	P=0.517N	P=0.511	P=0.513N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.400N	P=0.512N	P=0.506	P=0.508N	(e)	(e)	(e)	(e)
POLY 6	P=0.406N	P=0.523N	P=0.521	P=0.519N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.395N	P=0.454N	P=0.489	P=0.466N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.400N	P=0.500N	P=0.500	P=0.500N	(e)	(e)	(e)	(e)

D 11

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Clitoral/Preputial Gland Adenoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	2/49 (4%)	3/50 (6%)	6/49 (12%)	8/50 (16%)	9/48 (19%)	7/47 (15%)	4/48 (8%)
POLY-3 ADJUSTED (b)	0.0%	5.9%	7.8%	16.7%	19.6%	23.5%	19.7%	11.9%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	1/15 (7%)	3/13 (23%)	4/19 (21%)	4/16 (25%)	5/20 (25%)	0/10 (0%)
FIRST INCIDENCE	---	574	604	520	581	590	631	632
STATISTICAL TESTS								
LIFE TABLE	P=0.017 *	P=0.237	P=0.141	P=0.018 *	P=0.333N	P=0.413	P=0.502N	P=0.424N
POLY 3	P=0.016 *	P=0.218	P=0.126	P=0.013 *	P=0.174N	P=0.444	P=0.610	P=0.379N
POLY 1.5	P=0.016 *	P=0.222	P=0.122	P=0.013 *	P=0.150N	P=0.454	P=0.597N	P=0.247N
POLY 6	P=0.015 *	P=0.215	P=0.132	P=0.012 *	P=0.205N	P=0.434	P=0.601	P=0.317N
LOGISTIC REGRESSION	P=0.017 *	P=0.224	P=0.120	P=0.015 *	P=0.178N	P=0.445	P=0.605N	P=0.265N
COCH-ARM / FISHERS	P=0.017 *	P=0.242	P=0.121	P=0.012 *	P=0.113N	P=0.463	P=0.552N	P=0.199N

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Clitoral/Preputial Gland Carcinoma								
TUMOR RATES								
OVERALL (a)	4/50 (8%)	4/49 (8%)	5/50 (10%)	4/49 (8%)	3/50 (6%)	2/48 (4%)	2/47 (4%)	2/48 (4%)
POLY-3 ADJUSTED (b)	10.6%	11.7%	12.8%	11.1%	7.5%	5.3%	5.7%	6.1%
TERMINAL (d)	1/13 (8%)	2/13 (15%)	0/15 (0%)	1/13 (8%)	2/19 (11%)	1/16 (6%)	2/20 (10%)	1/10 (10%)
FIRST INCIDENCE	534	567	590	540	582	559	734 (T)	684
STATISTICAL TESTS								
LIFE TABLE	P=0.601	P=0.616	P=0.549	P=0.605	P=0.540	P=0.561N	P=0.490N	P=0.662
POLY 3	P=0.582N	P=0.592	P=0.525	P=0.621	P=0.623N	P=0.527N	P=0.563N	P=0.589N
POLY 1.5	P=0.577N	P=0.603	P=0.512	P=0.624	P=0.600N	P=0.522N	P=0.553N	P=0.563N
POLY 6	P=0.589N	P=0.582	P=0.550	P=0.622	P=0.631	P=0.533N	P=0.570N	P=0.620N
LOGISTIC REGRESSION	P=0.575N	P=0.609	P=0.497	P=0.636	P=0.636N	P=0.520N	P=0.559N	P=0.601N
COCH-ARM / FISHERS	P=0.575N	P=0.631	P=0.500	P=0.631	P=0.562N	P=0.520N	P=0.530N	P=0.520N

D 12

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Clitoral/Preputial Gland Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	4/50 (8%)	6/49 (12%)	8/50 (16%)	10/49 (20%)	11/50 (22%)	11/48 (23%)	9/47 (19%)	6/48 (13%)
POLY-3 ADJUSTED (b)	10.6%	17.3%	20.0%	26.8%	26.7%	28.3%	25.3%	17.8%
TERMINAL (d)	1/13 (8%)	3/13 (23%)	1/15 (7%)	4/13 (31%)	6/19 (32%)	5/16 (31%)	7/20 (35%)	1/10 (10%)
FIRST INCIDENCE	534	567	590	520	581	559	631	632
STATISTICAL TESTS								
LIFE TABLE	P=0.086	P=0.349	P=0.235	P=0.073	P=0.410N	P=0.482	P=0.398N	P=0.446N
POLY 3	P=0.092	P=0.315	P=0.202	P=0.062	P=0.193N	P=0.536	P=0.552N	P=0.260N
POLY 1.5	P=0.093	P=0.327	P=0.189	P=0.063	P=0.161N	P=0.545	P=0.523N	P=0.221N
POLY 6	P=0.089	P=0.307	P=0.228	P=0.061	P=0.233N	P=0.528	P=0.577N	P=0.307N
LOGISTIC REGRESSION	P=0.092	P=0.330	P=0.176	P=0.067	P=0.197N	P=0.538	P=0.527N	P=0.251N
COCH-ARM / FISHERS	P=0.093	P=0.357	P=0.178	P=0.068	P=0.116N	P=0.553	P=0.463N	P=0.165N

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Islets, Pancreatic Adenoma								
TUMOR RATES								
OVERALL (a)	2/48 (4%)	1/49 (2%)	2/50 (4%)	2/50 (4%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	2/49 (4%)
POLY-3 ADJUSTED (b)	5.6%	2.9%	5.3%	5.6%	2.5%	0.0%	0.0%	5.8%
TERMINAL (d)	1/13 (8%)	1/13 (8%)	0/15 (0%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	671	733 (T)	704	601	685	---	---	691
STATISTICAL TESTS								
LIFE TABLE	P=0.539	P=0.520N	P=0.661N	P=0.660	P=0.127	P=0.480N	P=0.539N	P=0.443
POLY 3	P=0.572	P=0.517N	P=0.676N	P=0.695	P=0.139	P=0.507N	P=0.513N	P=0.449
POLY 1.5	P=0.573	P=0.508N	P=0.677N	P=0.690N	P=0.145	P=0.504N	P=0.509N	P=0.465
POLY 6	P=0.573	P=0.528N	P=0.674N	P=0.692	P=0.134	P=0.510N	P=0.515N	P=0.432
LOGISTIC REGRESSION	P=0.554	P=0.528N	P=0.670N	P=0.694N	P=0.130	P=0.504N	P=0.509N	P=0.445
COCH-ARM / FISHERS	P=0.577	P=0.492N	P=0.676N	P=0.676N	P=0.155	P=0.500N	P=0.500N	P=0.492

D 13

Date: 11/23/98

EXPERIMENT: 05180 TEST: 06

GALLIUM ARSENIDE

Statistical Analysis of Primary Tumors in Rats(FISCHER 344)

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Islets, Pancreatic Carcinoma								
TUMOR RATES								
OVERALL (a)	0/48 (0%)	3/49 (6%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/49 (2%)
POLY-3 ADJUSTED (b)	0.0%	8.7%	0.0%	2.9%	0.0%	0.0%	0.0%	2.9%
TERMINAL (d)	0/13 (0%)	2/13 (15%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	---	532	---	733 (T)	---	---	---	688
STATISTICAL TESTS								
LIFE TABLE	P=0.688N	P=0.117	(e)	P=0.500	P=0.231	(e)	(e)	P=0.468
POLY 3	P=0.691N	P=0.112	(e)	P=0.496	P=0.237	(e)	(e)	P=0.471
POLY 1.5	P=0.681N	P=0.116	(e)	P=0.501	P=0.243	(e)	(e)	P=0.480
POLY 6	P=0.702N	P=0.109	(e)	P=0.491	P=0.231	(e)	(e)	P=0.461
LOGISTIC REGRESSION	P=0.682N	P=0.115	(e)	P=0.500	P=0.234	(e)	(e)	P=0.469
COCH-ARM / FISHERS	P=0.664N	P=0.125	(e)	P=0.510	P=0.253	(e)	(e)	P=0.495

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Islets, Pancreatic Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	2/48 (4%)	4/49 (8%)	2/50 (4%)	3/50 (6%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	3/49 (6%)
POLY-3 ADJUSTED (b)	5.6%	11.5%	5.3%	8.4%	2.5%	0.0%	0.0%	8.7%
TERMINAL (d)	1/13 (8%)	3/13 (23%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	671	532	704	601	685	---	---	688
STATISTICAL TESTS								
LIFE TABLE	P=0.547	P=0.317	P=0.661N	P=0.468	P=0.028 *	P=0.480N	P=0.539N	P=0.252
POLY 3	P=0.570	P=0.321	P=0.676N	P=0.499	P=0.032 *	P=0.507N	P=0.513N	P=0.256
POLY 1.5	P=0.577	P=0.329	P=0.677N	P=0.506	P=0.034 *	P=0.504N	P=0.509N	P=0.270
POLY 6	P=0.564	P=0.310	P=0.674N	P=0.493	P=0.030 *	P=0.510N	P=0.515N	P=0.241
LOGISTIC REGRESSION	P=0.562	P=0.308	P=0.670N	P=0.491	P=0.028 *	P=0.504N	P=0.509N	P=0.250
COCH-ARM / FISHERS	P=0.590	P=0.349	P=0.676N	P=0.520	P=0.039 *	P=0.500N	P=0.500N	P=0.301

D 14

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Kidney: Renal Tubule Adenoma								
TUMOR RATES								
OVERALL (a)	2/49 (4%)	0/50 (0%)	0/50 (0%)	3/50 (6%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/49 (0%)
POLY-3 ADJUSTED (b)	5.4%	0.0%	0.0%	8.5%	0.0%	0.0%	2.7%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	2/13 (15%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	590	---	---	604	---	---	734 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.099	P=0.257N	P=0.227N	P=0.188	P=0.841N	(e)	P=0.520	(e)
POLY 3	P=0.103	P=0.253N	P=0.231N	P=0.481	P=0.764N	(e)	P=0.488	(e)
POLY 1.5	P=0.104	P=0.246N	P=0.232N	P=0.493	P=0.758N	(e)	P=0.491	(e)
POLY 6	P=0.101	P=0.261N	P=0.231N	P=0.469	P=0.771N	(e)	P=0.487	(e)
LOGISTIC REGRESSION	P=0.100	P=0.230N	P=0.235N	P=0.489	(e)	(e)	P=0.520	(e)
COCH-ARM / FISHERS	P=0.106	P=0.242N	P=0.242N	P=0.510	P=0.747N	(e)	P=0.500	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Liver Hepatocellular Carcinoma or Hepatocellular Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.7%	2.9%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	1/15 (7%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	726	733 (T)	698	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.296N	P=0.745	P=0.546	P=0.514N	(e)	(e)	(e)	(e)
POLY 3	P=0.302N	P=0.745	P=0.509	P=0.510N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.298N	P=0.750	P=0.505	P=0.506N	(e)	(e)	(e)	(e)
POLY 6	P=0.306N	P=0.742	P=0.518	P=0.514N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.300N	P=0.751	P=0.526	P=0.508N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.294N	P=0.753N	P=0.500	P=0.500N	(e)	(e)	(e)	(e)

E 01

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Liver Hepatocellular Carcinoma, Hepatocellular Adenoma, or Hepatoblastoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.7%	2.9%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	1/15 (7%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	726	733 (T)	698	---	---	---	---	-
STATISTICAL TESTS								
LIFE TABLE	P=0.296N	P=0.745	P=0.546	P=0.514N	(e)	(e)	(e)	(e)
POLY 3	P=0.302N	P=0.745	P=0.509	P=0.510N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.298N	P=0.750	P=0.505	P=0.506N	(e)	(e)	(e)	(e)
POLY 6	P=0.306N	P=0.742	P=0.518	P=0.514N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.300N	P=0.751	P=0.526	P=0.508N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.294N	P=0.753N	P=0.500	P=0.500N	(e)	(e)	(e)	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Lung Alveolar/Bronchiolar Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	0/49 (0%)	3/50 (6%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	8/50 (16%)
POLY-3 ADJUSTED (b)	2.7%	0.0%	8.0%	5.7%	0.0%	0.0%	5.3%	22.4%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	3/15 (20%)	2/13 (15%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	2/11 (18%)
FIRST INCIDENCE	688	---	733 (T)	723 (T)	---	---	646	556
STATISTICAL TESTS								
LIFE TABLE	P=0.412	P=0.490N	P=0.357	P=0.506	P<0.001 **	(e)	P=0.244	P<0.001 **
POLY 3	P=0.421	P=0.516N	P=0.310	P=0.481	P<0.001 **	(e)	P=0.225	P=0.002 **
POLY 1.5	P=0.426	P=0.512N	P=0.308	P=0.488	P<0.001 **	(e)	P=0.228	P=0.002 **
POLY 6	P=0.416	P=0.520N	P=0.314	P=0.473	P<0.001 **	(e)	P=0.225	P<0.001 **
LOGISTIC REGRESSION	P=0.410	P=0.517N	P=0.328	P=0.480	P<0.001 **	(e)	P=0.226	P=0.002 **
COCH-ARM / FISHERS	P=0.431	P=0.505N	P=0.309	P=0.500	P<0.001 **	(e)	P=0.247	P=0.003 **

E 02

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Lung Alveolar/Bronchiolar Carcinoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	0/49 (0%)	2/50 (4%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	4/50 (8%)
POLY-3 ADJUSTED (b)	5.4%	0.0%	5.3%	5.7%	0.0%	0.0%	5.4%	11.4%
TERMINAL (d)	1/13 (8%)	0/13 (0%)	1/15 (7%)	2/13 (15%)	0/19 (0%)	0/17 (0%)	2/21 (10%)	1/11 (9%)
FIRST INCIDENCE	567	---	722	733 (T)	---	---	734 (T)	631
STATISTICAL TESTS								
LIFE TABLE	P=0.448	P=0.245N	P=0.659N	P=0.690	P=0.005 **	(e)	P=0.259	P=0.039 *
POLY 3	P=0.460	P=0.256N	P=0.692N	P=0.672	P=0.013 *	(e)	P=0.224	P=0.046 *
POLY 1.5	P=0.465	P=0.251N	P=0.693N	P=0.680	P=0.015 *	(e)	P=0.227	P=0.051
POLY 6	P=0.454	P=0.261N	P=0.689N	P=0.663	P=0.012 *	(e)	P=0.221	P=0.041 *
LOGISTIC REGRESSION	P=0.444	P=0.245N	P=0.683N	P=0.673	P=0.010 *	(e)	P=0.259	P=0.047 *
COCH-ARM / FISHERS	P=0.470	P=0.253N	P=0.691N	P=0.691N	P=0.020 *	(e)	P=0.247	P=0.059

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Lung Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma								
TUMOR RATES								
OVERALL (a)	3/50 (6%)	0/49 (0%)	5/50 (10%)	3/50 (6%)	0/50 (0%)	0/50 (0%)	4/50 (8%)	11/50 (22%)
POLY-3 ADJUSTED (b)	8.0%	0.0%	13.3%	8.6%	0.0%	0.0%	10.7%	30.2%
TERMINAL (d)	1/13 (8%)	0/13 (0%)	4/15 (27%)	3/13 (23%)	0/19 (0%)	0/17 (0%)	3/21 (14%)	2/11 (18%)
FIRST INCIDENCE	567	---	722	733 (T)	---	---	646	556
STATISTICAL TESTS								
LIFE TABLE	P=0.479	P=0.124N	P=0.423	P=0.663	P<0.001 **	(e)	P=0.071	P<0.001 **
POLY 3	P=0.490	P=0.134N	P=0.357	P=0.632	P<0.001 **	(e)	P=0.053	P<0.001 **
POLY 1.5	P=0.498	P=0.130N	P=0.357	P=0.644	P<0.001 **	(e)	P=0.055	P<0.001 **
POLY 6	P=0.480	P=0.139N	P=0.357	P=0.617	P<0.001 **	(e)	P=0.052	P<0.001 **
LOGISTIC REGRESSION	P=0.471	P=0.130N	P=0.387	P=0.634	P<0.001 **	(e)	P=0.054	P<0.001 **
COCH-ARM / FISHERS	P=0.505	P=0.125N	P=0.357	P=0.661N	P<0.001 **	(e)	P=0.059	P<0.001 **

E 03

Statistical Analysis of Primary Tumors in Rats(FISCHER 344)

Terminal Sacrifice at 105 weeks

GALLIUM ARSENIDE

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Mammary Gland Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	8/50 (16%)	3/50 (6%)	7/50 (14%)	5/50 (10%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	2.9%	19.8%	7.7%	18.7%	14.2%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	4/19 (21%)	1/17 (6%)	6/21 (29%)	1/11 (9%)
FIRST INCIDENCE	---	---	---	668	589	559	701	632
STATISTICAL TESTS								
LIFE TABLE	P=0.248	(e)	(e)	P=0.483	P=0.446	P=0.130N	P=0.477N	P=0.523N
POLY 3	P=0.256	(e)	(e)	P=0.491	P=0.549N	P=0.105N	P=0.569N	P=0.368N
POLY 1.5	P=0.257	(e)	(e)	P=0.494	P=0.516N	P=0.102N	P=0.546N	P=0.333N
POLY 6	P=0.256	(e)	(e)	P=0.490	P=0.588N	P=0.108N	P=0.594N	P=0.411N
LOGISTIC REGRESSION	P=0.252	(e)	(e)	P=0.492	P=0.588N	P=0.106N	P=0.558N	P=0.392N
COCH-ARM / FISHERS	P=0.257	(e)	(e)	P=0.500	P=0.457N	P=0.100N	P=0.500N	P=0.277N

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Mammary Gland Carcinoma or Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	8/50 (16%)	3/50 (6%)	7/50 (14%)	6/50 (12%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	2.9%	19.8%	7.7%	18.7%	16.9%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	4/19 (21%)	1/17 (6%)	6/21 (29%)	1/11 (9%)
FIRST INCIDENCE	---	---	---	668	589	559	701	632
STATISTICAL TESTS								
LIFE TABLE	P=0.248	(e)	(e)	P=0.483	P=0.292	P=0.130N	P=0.477N	P=0.579
POLY 3	P=0.256	(e)	(e)	P=0.491	P=0.488	P=0.105N	P=0.569N	P=0.491N
POLY 1.5	P=0.257	(e)	(e)	P=0.494	P=0.520	P=0.102N	P=0.546N	P=0.453N
POLY 6	P=0.256	(e)	(e)	P=0.490	P=0.454	P=0.108N	P=0.594N	P=0.534N
LOGISTIC REGRESSION	P=0.252	(e)	(e)	P=0.492	P=0.449	P=0.106N	P=0.558N	P=0.518N
COCH-ARM / FISHERS	P=0.257	(e)	(e)	P=0.500	P=0.578	P=0.100N	P=0.500N	P=0.387N

E 04

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Mammary Gland Fibroadenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	2/50 (4%)	3/50 (6%)	2/50 (4%)	26/50 (52%)	31/50 (62%)	29/50 (58%)	31/50 (62%)
POLY-3 ADJUSTED (b)	0.0%	5.8%	7.9%	5.6%	59.2%	71.3%	68.0%	74.3%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	0/15 (0%)	1/13 (8%)	11/19 (58%)	13/17 (77%)	16/21 (76%)	7/11 (64%)
FIRST INCIDENCE	---	660	601	422	497	422	339	418
STATISTICAL TESTS								
LIFE TABLE	P=0.516	P=0.217	P=0.150	P=0.240	P=0.018 *	P=0.173	P=0.391	P=0.025 *
POLY 3	P=0.521	P=0.222	P=0.125	P=0.230	P=0.184	P=0.152	P=0.252	P=0.090
POLY 1.5	P=0.524	P=0.226	P=0.122	P=0.233	P=0.223	P=0.178	P=0.280	P=0.122
POLY 6	P=0.519	P=0.219	P=0.131	P=0.228	P=0.158	P=0.128	P=0.223	P=0.069
LOGISTIC REGRESSION	P=0.524	P=0.217	P=0.122	P=0.266	P=0.172	P=0.172	P=0.264	P=0.096
COCH-ARM / FISHERS	P=0.527	P=0.247	P=0.121	P=0.247	P=0.329	P=0.210	P=0.344	P=0.210

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Mammary Gland Fibroma, Fibroadenoma or Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	2/50 (4%)	3/50 (6%)	2/50 (4%)	26/50 (52%)	31/50 (62%)	29/50 (58%)	31/50 (62%)
POLY-3 ADJUSTED (b)	0.0%	5.8%	7.9%	5.6%	59.2%	71.3%	68.0%	74.3%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	0/15 (0%)	1/13 (8%)	11/19 (58%)	13/17 (77%)	16/21 (76%)	7/11 (64%)
FIRST INCIDENCE	---	660	601	422	497	422	339	418
STATISTICAL TESTS								
LIFE TABLE	P=0.516	P=0.217	P=0.150	P=0.240	P=0.018 *	P=0.173	P=0.391	P=0.025 *
POLY 3	P=0.521	P=0.222	P=0.125	P=0.230	P=0.184	P=0.152	P=0.252	P=0.090
POLY 1.5	P=0.524	P=0.226	P=0.122	P=0.233	P=0.223	P=0.178	P=0.280	P=0.122
POLY 6	P=0.519	P=0.219	P=0.131	P=0.228	P=0.158	P=0.128	P=0.223	P=0.069
LOGISTIC REGRESSION	P=0.524	P=0.217	P=0.122	P=0.266	P=0.172	P=0.172	P=0.264	P=0.096
COCH-ARM / FISHERS	P=0.527	P=0.247	P=0.121	P=0.247	P=0.329	P=0.210	P=0.344	P=0.210

E 05

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Mammary Gland Fibroma, Fibroadenoma, Carcinoma, or Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	2/50 (4%)	3/50 (6%)	3/50 (6%)	29/50 (58%)	32/50 (64%)	31/50 (62%)	32/50 (64%)
POLY-3 ADJUSTED (b)	0.0%	5.8%	7.9%	8.4%	65.4%	72.7%	72.7%	76.0%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	0/15 (0%)	1/13 (8%)	12/19 (63%)	13/17 (77%)	18/21 (86%)	7/11 (64%)
FIRST INCIDENCE	---	660	601	422	497	422	339	418
STATISTICAL TESTS								
LIFE TABLE	P=0.278	P=0.217	P=0.150	P=0.119	P=0.026 *	P=0.269	P=0.453	P=0.045 *
POLY 3	P=0.283	P=0.222	P=0.125	P=0.113	P=0.264	P=0.295	P=0.295	P=0.183
POLY 1.5	P=0.286	P=0.226	P=0.122	P=0.115	P=0.307	P=0.319	P=0.337	P=0.[illegible]
POLY 6	P=0.282	P=0.219	P=0.131	P=0.112	P=0.240	P=0.267	P=0.240	P=0.352
LOGISTIC REGRESSION	P=0.284	P=0.217	P=0.122	P=0.132	P=0.232	P=0.296	P=0.312	P=0.171
COCH-ARM / FISHERS	P=0.288	P=0.247	P=0.121	P=0.121	P=0.423	P=0.341	P=0.419	P=0.341

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva) Papilloma Squamous or Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	3/50 (6%)	1/50 (2%)	2/50 (4%)	1/50 (2%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.7%	8.5%	2.7%	5.7%	2.5%	0.0%	2.7%	0.0%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	662	524	702	702	699	---	734 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.584	P=0.272	P=0.738N	P=0.494	P=0.594N	P=0.500N	P=0.758	P=0.563N
POLY 3	P=0.572	P=0.286	P=0.757N	P=0.481	P=0.520N	P=0.507N	P=0.747	P=0.528N
POLY 1.5	P=0.581	P=0.291	P=0.759N	P=0.488	P=0.512N	P=0.504N	P=0.751	P=0.517N
POLY 6	P=0.561	P=0.284	P=0.754N	P=0.474	P=0.532N	P=0.510N	P=0.745	P=0.541N
LOGISTIC REGRESSION	P=0.586	P=0.307	P=0.757N	P=0.476	P=0.553N	P=0.507N	P=0.749	P=0.537N
COCH-ARM / FISHERS	P=0.595	P=0.309	P=0.753N	P=0.500	P=0.497N	P=0.500N	P=0.753N	P=0.500N

E 06

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva) Squamous Cell Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.7%	0.0%	0.0%	0.0%	0.0%	5.2%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	506	---	---	---	---	695	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.661N	P=0.513N	P=0.508N	P=0.508N	P=0.499N	P=0.244	(e)	(e)
POLY 3	P=0.660N	P=0.518N	P=0.499N	P=0.514N	P=0.463N	P=0.231	(e)	(e)
POLY 1.5	P=0.659N	P=0.512N	P=0.500N	P=0.508N	P=0.454N	P=0.234	(e)	(e)
POLY 6	P=0.662N	P=0.524N	P=0.497N	P=0.519N	P=0.473N	P=0.230	(e)	(e)
LOGISTIC REGRESSION	P=0.667N	P=0.403N	P=0.521N	P=0.437N	P=0.476N	P=0.230	(e)	(e)
COCH-ARM / FISHERS	P=0.660N	P=0.500N	P=0.500N	P=0.500N	P=0.443N	P=0.247	(e)	(e)

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva) Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	3/50 (6%)	1/50 (2%)	2/50 (4%)	1/50 (2%)	2/50 (4%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	5.3%	8.5%	2.7%	5.7%	2.5%	5.2%	2.7%	0.0%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	506	524	702	702	699	695	734 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.631N	P=0.457	P=0.482N	P=0.684	P=0.336N	P=0.504	P=0.758	P=0.563N
POLY 3	P=0.650N	P=0.469	P=0.499N	P=0.669	P=0.288N	P=0.491	P=0.747	P=0.528N
POLY 1.5	P=0.637N	P=0.478	P=0.500N	P=0.679	P=0.276N	P=0.495	P=0.751	P=0.517N
POLY 6	P=0.642	P=0.463	P=0.497N	P=0.659	P=0.303N	P=0.488	P=0.745	P=0.541N
LOGISTIC REGRESSION	P=0.624N	P=0.538	P=0.507N	P=0.691	P=0.299N	P=0.488	P=0.749	P=0.537N
COCH-ARM / FISHERS	P=0.622N	P=0.500	P=0.500N	P=0.691N	P=0.258N	P=0.500	P=0.753N	P=0.500N

E 07

Statistical Analysis of Primary Tumors in Rats(FISCHER 344)

GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Oral Mucosa Squamous Cell Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	0.0%	5.2%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	---	---	---	---	---	695	---	---
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.499N	P=0.244	(e)	(e)
POLY 3	(e)	(e)	(e)	(e)	P=0.463N	P=0.231	(e)	(e)
POLY 1.5	(e)	(e)	(e)	(e)	P=0.454N	P=0.234	(e)	(e)
POLY 6	(e)	(e)	(e)	(e)	P=0.473N	P=0.230	(e)	(e)
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.476N	P=0.230	(e)	(e)
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.443N	P=0.247	(e)	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Oral Mucosa Squamous Cell Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	3/50 (6%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	8.5%	0.0%	2.9%	2.5%	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	---	524	---	733 (T)	699	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.692N	P=0.114	(e)	P=0.500	P=0.714N	P=0.500N	P=0.524N	P=0.563N
POLY 3	P=0.698N	P=0.109	(e)	P=0.490	P=0.663N	P=0.507N	P=0.512N	P=0.528N
POLY 1.5	P=0.689N	P=0.112	(e)	P=0.494	P=0.661N	P=0.504N	P=0.509N	P=0.517N
POLY 6	P=0.705N	P=0.109	(e)	P=0.487	P=0.666N	P=0.510N	P=0.515N	P=0.541N
LOGISTIC REGRESSION	P=0.675N	P=0.124	(e)	P=0.500	P=0.689N	P=0.507N	P=0.512N	P=0.537N
COCH-ARM / FISHERS	P=0.672N	P=0.121	(e)	P=0.500	P=0.660N	P=0.500N	P=0.500N	P=0.500N

E 08

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Pancreas Adenoma								
TUMOR RATES								
OVERALL (a)	2/49 (4%)	1/49 (2%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/49 (0%)
POLY-3 ADJUSTED (b)	5.5%	2.9%	2.7%	2.9%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	1/13 (8%)	0/13 (0%)	1/15 (7%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	720	712	733 (T)	732	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.584N	P=0.538N	P=0.460N	P=0.507N	(e)	(e)	(e)	(e)
POLY 3	P=0.582N	P=0.520N	P=0.487N	P=0.513N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.575N	P=0.513N	P=0.490N	P=0.505N	(e)	(e)	(e)	(e)
POLY 6	P=0.590N	P=0.526N	P=0.481N	P=0.521N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.589N	P=0.528N	P=0.472N	P=0.512N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.568N	P=0.500N	P=0.492N	P=0.492N	(e)	(e)	(e)	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Pituitary Gland: Pars Distalis or Unspecified Site Adenoma								
TUMOR RATES								
OVERALL (a)	21/49 (43%)	22/49 (45%)	21/50 (42%)	19/50 (38%)	42/50 (84%)	43/50 (86%)	36/50 (72%)	31/49 (63%)
POLY-3 ADJUSTED (b)	49.6%	56.8%	50.9%	48.8%	92.3%	94.8%	81.3%	74.8%
TERMINAL (d)	4/13 (31%)	7/13 (54%)	7/15 (47%)	7/13 (54%)	19/19 (100%)	17/17 (100%)	19/21 (91%)	9/11 (82%)
FIRST INCIDENCE	338	574	513	539	581	478	339	506
STATISTICAL TESTS								
LIFE TABLE	P=0.439N	P=0.418	P=0.459N	P=0.504N	P=0.451	P=0.339	P=0.208N	P=0.479
POLY 3	P=0.414N	P=0.328	P=0.539	P=0.564N	P=0.004N**	P=0.470	P=0.081N	P=0.014N*
POLY 1.5	P=0.365N	P=0.383	P=0.567	P=0.494N	P=0.005N**	P=0.497	P=0.094N	P=0.015N*
POLY 6	P=0.478N	P=0.283	P=0.510	P=0.555	P=0.002N**	P=0.437	P=0.068N	P=0.013N*
LOGISTIC REGRESSION	P=0.344N	P=0.464	P=0.541N	P=0.407N	P=0.028N*	P=0.238	P=0.204N	P=0.068N
COCH-ARM / FISHERS	P=0.305N	P=0.500	P=0.547N	P=0.387N	P=0.007N**	P=0.500	P=0.114N	P=0.017N*

E 09

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Prostate Adenoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	2/48 (4%)	0/50 (0%)	0/50 (0%)				
POLY-3 ADJUSTED (b)	0.0%	5.9%	0.0%	0.0%				
TERMINAL (d)	0/13 (0%)	2/13 (15%)	0/15 (0%)	0/13 (0%)				
FIRST INCIDENCE	---	733 (T)	---	---				
STATISTICAL TESTS								
LIFE TABLE	P=0.451N	P=0.235	(e)	(e)				
POLY 3	P=0.459N	P=0.220	(e)	(e)				
POLY 1.5	P=0.451N	P=0.223	(e)	(e)				
POLY 6	P=0.468N	P=0.215	(e)	(e)				
LOGISTIC REGRESSION	(e)	P=0.235	(e)	(e)				
COCH-ARM / FISHERS	P=0.439N	P=0.237	(e)	(e)				

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Skin Basal Cell Adenoma, Basosquamous Tumor Benign. or Trichoepithelioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2
POLY-3 ADJUSTED (b)	2.7%	0.0%	0.0%	5.7%	0.0%	0.0%	0.0%	2.9%
TERMINAL (d)	1/13 (8%)	0/13 (0%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	1/11 (9%)
FIRST INCIDENCE	733 (T)	---	---	702	---	---	---	34 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.158	P=0.500N	P=0.471N	P=0.513	P=0.159	(e)	(e)	P=0.391
POLY 3	P=0.156	P=0.514N	P=0.495N	P=0.483	P=0.239	(e)	(e)	P=0.473
POLY 1.5	P=0.158	P=0.510N	P=0.498N	P=0.489	P=0.245	(e)	(e)	P=0.483
POLY 6	P=0.154	P=0.518N	P=0.491N	P=0.479	P=0.231	(e)	(e)	P=0.461
LOGISTIC REGRESSION	P=0.147	(e)	(e)	P=0.483	(e)	(e)	(e)	P=0.391
COCH-ARM / FISHERS	P=0.160	P=0.500N	P=0.500N	P=0.500	P=0.257	(e)	(e)	P=0.500

E 10

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Skin Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)
POLY-3 ADJUSTED (b)	2.7%	0.0%	0.0%	5.7%	0.0%	0.0%	2.7%	2.9%
TERMINAL (d)	1/13 (8%)	0/13 (0%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	1/11 (9%)
FIRST INCIDENCE	733 (T)	---	---	702	---	---	734 (T)	734 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.158	P=0.500N	P=0.471N	P=0.513	P=0.302	(e)	P=0.520	P=0.391
POLY 3	P=0.156	P=0.514N	P=0.495N	P=0.483	P=0.399	(e)	P=0.488	P=0.473
POLY 1.5	P=0.158	P=0.510N	P=0.498N	P=0.489	P=0.412	(e)	P=0.491	P=0.483
POLY 6	P=0.154	P=0.518N	P=0.491N	P=0.479	P=0.384	(e)	P=0.487	P=0.461
LOGISTIC REGRESSION	P=0.147	(e)	(e)	P=0.483	(e)	(e)	P=0.520	P=0.391
COCH-ARM / FISHERS	P=0.160	P=0.500N	P=0.500N	P=0.500	P=0.436	(e)	P=0.500	P=0.500

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Skin Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepitheliom								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	4/50 (8%)	4/50 (8%)	5/50 (10%)	6/50 (12%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	1/50 (2%)
POLY-3 ADJUSTED (b)	10.9%	11.4%	13.3%	16.5%	0.0%	0.0%	5.4%	2.9%
TERMINAL (d)	3/13 (23%)	2/13 (15%)	3/15 (20%)	2/13 (15%)	0/19 (0%)	0/17 (0%)	2/21 (10%)	1/11 (9%)
FIRST INCIDENCE	671	594	702	519	---	---	734 (T)	734 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.295	P=0.617	P=0.582	P=0.354	P=0.393	(e)	P=0.259	P=0.391
POLY 3	P=0.317	P=0.616	P=0.514	P=0.358	P=0.498	(e)	P=0.224	P=0.473
POLY 1.5	P=0.318	P=0.622	P=0.507	P=0.360	P=0.514	(e)	P=0.227	P=0.483
POLY 6	P=0.321	P=0.619	P=0.527	P=0.364	P=0.478	(e)	P=0.221	P=0.461
LOGISTIC REGRESSION	P=0.284	P=0.596	P=0.550	P=0.334	(e)	(e)	P=0.259	P=0.391
COCH-ARM / FISHERS	P=0.319	P=0.643N	P=0.500	P=0.370	P=0.546	(e)	P=0.247	P=0.500

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Skin Fibroma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	1/50 (2%)	2/50 (4%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	2/50 (4%)	1/50 (2%)
POLY-3 ADJUSTED (b)	8.0%	2.9%	5.3%	2.8%	2.5%	0.0%	5.3%	2.9%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	1/15 (7%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	566	733 (T)	674	618	607	---	684	709
STATISTICAL TESTS								
LIFE TABLE	P=0.420N	P=0.337N	P=0.474N	P=0.336N	P=0.587	P=0.516N	P=0.484	P=0.698
POLY 3	P=0.404N	P=0.340N	P=0.499N	P=0.328N	P=0.624	P=0.508N	P=0.477	P=0.728
POLY 1.5	P=0.400N	P=0.328N	P=0.500N	P=0.319N	P=0.639	P=0.504N	P=0.484	P=0.741
POLY 6	P=0.408N	P=0.354N	P=0.497N	P=0.338N	P=0.605	P=0.512N	P=0.473	P=0.712
LOGISTIC REGRESSION	P=0.405N	P=0.316N	P=0.499N	P=0.291N	P=0.642	P=0.496N	P=0.469	P=0.757
COCH-ARM / FISHERS	P=0.398N	P=0.309N	P=0.500N	P=0.309N	P=0.668	P=0.500N	P=0.500	P=0.753N

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Skin Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Fibrous Histiocytoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	2/50 (4%)	4/50 (8%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	3/50 (6%)	1/50 (2%)
POLY-3 ADJUSTED (b)	8.0%	5.8%	10.6%	2.8%	2.5%	0.0%	8.0%	2.9%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	3/15 (20%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	566	548	674	618	607	---	647	709
STATISTICAL TESTS								
LIFE TABLE	P=0.264N	P=0.530N	P=0.544	P=0.336N	P=0.643	P=0.516N	P=0.286	P=0.698
POLY 3	P=0.253N	P=0.538N	P=0.501	P=0.328N	P=0.672	P=0.508N	P=0.284	P=0.728
POLY 1.5	P=0.247N	P=0.526N	P=0.500	P=0.319N	P=0.683N	P=0.504N	P=0.290	P=0.741
POLY 6	P=0.259N	P=0.551N	P=0.503	P=0.338N	P=0.651	P=0.512N	P=0.282	P=0.712
LOGISTIC REGRESSION	P=0.249N	P=0.493N	P=0.514	P=0.291N	P=0.682N	P=0.496N	P=0.297	P=0.757
COCH-ARM / FISHERS	P=0.242N	P=0.500N	P=0.500	P=0.309N	P=0.652N	P=0.500N	P=0.309	P=0.753N

E 12

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Skin Fibrosarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	2.9%	5.3%	0.0%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	2/15 (13%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	---	548	733 (T)	---	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.420N	P=0.495	P=0.268	(e)	(e)	(e)	(e)	(e)
POLY 3	P=0.417N	P=0.489	P=0.241	(e)	(e)	(e)	(e)	(e)
POLY 1.5	P=0.412N	P=0.492	P=0.239	(e)	(e)	(e)	(e)	(e)
POLY 6	P=0.422N	P=0.488	P=0.245	(e)	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.412N	P=0.561	P=0.268	(e)	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.405N	P=0.500	P=0.247	(e)	(e)	(e)	(e)	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Skin Fibrosarcoma, Sarcoma, Myxosarcoma, or Fibrous Histiocytoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	2.9%	5.3%	0.0%	0.0%	0.0%	2.7%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	2/15 (13%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	---	548	733 (T)	---	---	---	647	---
STATISTICAL TESTS								
LIFE TABLE	P=0.420N	P=0.495	P=0.268	(e)	P=0.771N	(e)	P=0.477	(e)
POLY 3	P=0.417N	P=0.489	P=0.241	(e)	P=0.761N	(e)	P=0.490	(e)
POLY 1.5	P=0.412N	P=0.492	P=0.239	(e)	P=0.754N	(e)	P=0.492	(e)
POLY 6	P=0.422N	P=0.488	P=0.245	(e)	P=0.769N	(e)	P=0.490	(e)
LOGISTIC REGRESSION	P=0.412N	P=0.561	P=0.268	(e)	P=0.744N	(e)	P=0.503	(e)
COCH-ARM / FISHERS	P=0.405N	P=0.500	P=0.247	(e)	P=0.743N	(e)	P=0.500	(e)

E 13

Statistical Analysis of Primary Tumors in Rats(FISCHER 344)
Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Skin Keratoacanthoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	2/50 (4%)	4/50 (8%)	3/50 (6%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	8.1%	5.8%	10.6%	8.4%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	2/13 (15%)	1/13 (8%)	2/15 (13%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	671	621	702	519	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.580	P=0.527N	P=0.568	P=0.642	(e)	(e)	(e)	(e)
POLY 3	P=0.603	P=0.531N	P=0.512	P=0.652	(e)	(e)	(e)	(e)
POLY 1.5	P=0.602	P=0.522N	P=0.506	P=0.654	(e)	(e)	(e)	(e)
POLY 6	P=0.606	P=0.537N	P=0.523	P=0.654	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.578	P=0.541N	P=0.542	P=0.646	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.601	P=0.500N	P=0.500	P=0.661N	(e)	(e)	(e)	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Skin Squamous Cell Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	2/50 (4%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	5.8%	2.7%	2.8%	0.0%	0.0%	2.7%	0.0%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	1/15 (7%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	---	594	733 (T)	621	---	---	734 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.693	P=0.228	P=0.529	P=0.475	P=0.841N	(e)	P=0.527	(e)
POLY 3	P=0.690	P=0.223	P=0.505	P=0.492	P=0.761N	(e)	P=0.488	(e)
POLY 1.5	P=0.694	P=0.227	P=0.502	P=0.495	P=0.754N	(e)	P=0.491	(e)
POLY 6	P=0.688	P=0.221	P=0.509	P=0.491	P=0.769N	(e)	P=0.487	(e)
LOGISTIC REGRESSION	P=0.696	P=0.226	P=0.529	P=0.509	(e)	(e)	P=0.526	(e)
COCH-ARM / FISHERS	P=0.702	P=0.247	P=0.500	P=0.500	P=0.743N	(e)	P=0.500	(e)

E 14

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Skin Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	4/50 (8%)	5/50 (10%)	4/50 (8%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	8.1%	11.4%	13.3%	11.0%	0.0%	0.0%	2.7%	0.0%
TERMINAL (d)	2/13 (15%)	2/13 (15%)	3/15 (20%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	671	594	702	519	---	---	734 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.561	P=0.468	P=0.428	P=0.471	P=0.841N	(e)	P=0.520	(e)
POLY 3	P=0.587	P=0.471	P=0.366	P=0.491	P=0.761N	(e)	P=0.488	(e)
POLY 1.5	P=0.586	P=0.477	P=0.361	P=0.492	P=0.754N	(e)	P=0.491	(e)
POLY 6	P=0.594	P=0.470	P=0.374	P=0.497	P=0.769N	(e)	P=0.487	(e)
LOGISTIC REGRESSION	P=0.561	P=0.454	P=0.393	P=0.484	(e)	(e)	P=0.520	(e)
COCH-ARM / FISHERS	P=0.586	P=0.500	P=0.357	P=0.500	P=0.743N	(e)	P=0.500	(e)

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
Skin Squamous Cell Papilloma, Papilloma, or Keratoacanthoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	4/50 (8%)	5/50 (10%)	4/50 (8%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	8.1%	11.4%	13.3%	11.0%	0.0%	0.0%	2.7%	0.0%
TERMINAL (d)	2/13 (15%)	2/13 (15%)	3/15 (20%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	671	594	702	519	---	---	734 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.561	P=0.468	P=0.428	P=0.471	P=0.841N	(e)	P=0.520	(e)
POLY 3	P=0.587	P=0.471	P=0.366	P=0.491	P=0.761N	(e)	P=0.488	(e)
POLY 1.5	P=0.586	P=0.477	P=0.361	P=0.492	P=0.754N	(e)	P=0.491	(e)
POLY 6	P=0.594	P=0.470	P=0.374	P=0.497	P=0.769N	(e)	P=0.487	(e)
LOGISTIC REGRESSION	P=0.561	P=0.454	P=0.393	P=0.484	(e)	(e)	P=0.520	(e)
COCH-ARM / FISHERS	P=0.586	P=0.500	P=0.357	P=0.500	P=0.743N	(e)	P=0.500	(e)

Statistical Analysis of Primary Tumors in Rats(FISCHER 344)

Terminal Sacrifice at 105 weeks

GALLIUM ARSENIDE

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Testes Adenoma								
TUMOR RATES								
OVERALL (a)	45/50 (90%)	40/50 (80%)	46/50 (92%)	41/50 (82%)				
POLY-3 ADJUSTED (b)	95.5%	90.1%	95.5%	90.9%				
TERMINAL (d)	13/13 (100%)	12/13 (92%)	15/15 (100%)	13/13 (100%)				
FIRST INCIDENCE	506	524	394	422				
STATISTICAL TESTS								
LIFE TABLE	P=0.516N	P=0.443N	P=0.409N	P=0.465N				
POLY 3	P=0.345N	P=0.227N	P=0.742N	P=0.269N				
POLY 1.5	P=0.284N	P=0.199N	P=0.643	P=0.228N				
POLY 6	P=0.473N	P=0.237N	P=0.841N	P=0.357N				
LOGISTIC REGRESSION	P=0.321N	P=0.314N	P=0.511	P=0.337N				
COCH-ARM / FISHERS	P=0.267N	P=0.131N	P=0.500	P=0.194N				

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Thyroid Gland: C-Cell Adenoma								
TUMOR RATES								
OVERALL (a)	3/46 (7%)	5/46 (11%)	6/49 (12%)	2/50 (4%)	7/50 (14%)	4/49 (8%)	4/48 (8%)	1/49 (2%)
POLY-3 ADJUSTED (b)	8.7%	14.6%	15.5%	5.7%	17.5%	10.5%	10.8%	2.9%
TERMINAL (d)	1/13 (8%)	1/13 (8%)	2/15 (13%)	0/13 (0%)	3/19 (16%)	2/17 (12%)	2/21 (10%)	0/11 (0%)
FIRST INCIDENCE	645	393	562	45	677	700	630	703
STATISTICAL TESTS								
LIFE TABLE	P=0.227N	P=0.334	P=0.290	P=0.523N	P=0.137N	P=0.300N	P=0.271N	P=0.101N
POLY 3	P=0.202N	P=0.350	P=0.299	P=0.489N	P=0.078N	P=0.286N	P=0.306N	P=0.048N*
POLY 1.5	P=0.189N	P=0.351	P=0.287	P=0.478N	P=0.069N	P=0.280N	P=0.302N	P=0.042N*
POLY 6	P=0.217N	P=0.350	P=0.318	P=0.501N	P=0.091N	P=0.293N	P=0.306N	P=0.058N
LOGISTIC REGRESSION	P=0.179N	P=0.347	P=0.278	P=0.502N	P=0.086N	P=0.283N	P=0.312N	P=0.062N
COCH-ARM / FISHERS	P=0.172N	P=0.357	P=0.276	P=0.460N	P=0.057N	P=0.274N	P=0.286N	P=0.032N*

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Thyroid Gland: C-Cell Carcinoma								
TUMOR RATES								
OVERALL (a)	0/46 (0%)	3/46 (7%)	2/49 (4%)	1/50 (2%)	2/50 (4%)	1/49 (2%)	2/48 (4%)	3/49 (6%)
POLY-3 ADJUSTED (b)	0.0%	9.0%	5.4%	2.8%	5.0%	2.6%	5.5%	8.7%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	0/15 (0%)	0/13 (0%)	1/19 (5%)	1/17 (6%)	1/21 (5%)	1/11 (9%)
FIRST INCIDENCE	---	614	660	615	684	734 (T)	605	632
STATISTICAL TESTS								
LIFE TABLE	P=0.530N	P=0.110	P=0.258	P=0.482	P=0.179	P=0.518N	P=0.692	P=0.353
POLY 3	P=0.503N	P=0.112	P=0.257	P=0.507	P=0.275	P=0.516N	P=0.667	P=0.436
POLY 1.5	P=0.493N	P=0.114	P=0.254	P=0.510	P=0.291	P=0.512N	P=0.669	P=0.455
POLY 6	P=0.513N	P=0.111	P=0.261	P=0.503	P=0.258	P=0.520N	P=0.667	P=0.415
LOGISTIC REGRESSION	P=0.498N	P=0.112	P=0.257	P=0.529	P=0.260	P=0.515N	P=0.667	P=0.417
COCH-ARM / FISHERS	P=0.477N	P=0.121	P=0.263	P=0.521	P=0.320	P=0.508N	P=0.673	P=0.490

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Thyroid Gland: C-Cell Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	3/46 (7%)	8/46 (17%)	8/49 (16%)	3/50 (6%)	9/50 (18%)	5/49 (10%)	6/48 (13%)	4/49 (8%)
POLY-3 ADJUSTED (b)	8.7%	23.0%	20.5%	8.4%	22.4%	13.1%	16.1%	11.6%
TERMINAL (d)	1/13 (8%)	2/13 (15%)	2/15 (13%)	0/13 (0%)	4/19 (21%)	3/17 (18%)	3/21 (14%)	1/11 (9%)
FIRST INCIDENCE	645	393	562	615	677	700	605	632
STATISTICAL TESTS								
LIFE TABLE	P=0.201N	P=0.093	P=0.139	P=0.633	P=0.456N	P=0.232N	P=0.299N	P=0.316N
POLY 3	P=0.161N	P=0.093	P=0.136	P=0.649N	P=0.277N	P=0.218N	P=0.338N	P=0.176N
POLY 1.5	P=0.151N	P=0.094	P=0.128	P=0.639N	P=0.252N	P=0.211N	P=0.335N	P=0.156N
POLY 6	P=0.173N	P=0.092	P=0.151	P=0.658N	P=0.308N	P=0.226N	P=0.336N	P=0.202N
LOGISTIC REGRESSION	P=0.148N	P=0.091	P=0.124	P=0.656N	P=0.309N	P=0.211N	P=0.351N	P=0.210N
COCH-ARM / FISHERS	P=0.137N	P=0.099	P=0.120	P=0.621N	P=0.211N	P=0.205N	P=0.318N	P=0.125N

F 03

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Thyroid Gland: Follicular Cell Adenoma								
TUMOR RATES								
OVERALL (a)	1/46 (2%)	0/46 (0%)	0/49 (0%)	0/50 (0%)	2/50 (4%)	0/49 (0%)	0/48 (0%)	1/49 (2%)
POLY-3 ADJUSTED (b)	2.9%	0.0%	0.0%	0.0%	5.0%	0.0%	0.0%	2.9%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	1/19 (5%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	688	---	---	---	660	---	---	631
STATISTICAL TESTS								
LIFE TABLE	P=0.662N	P=0.490N	P=0.471N	P=0.490N	P=0.396	P=0.262N	P=0.242N	P=0.597N
POLY 3	P=0.653N	P=0.508N	P=0.484N	P=0.497N	P=0.630	P=0.247N	P=0.257N	P=0.551N
POLY 1.5	P=0.650N	P=0.505N	P=0.486N	P=0.491N	P=0.637	P=0.245N	P=0.254N	P=0.535N
POLY 6	P=0.656N	P=0.513N	P=0.483N	P=0.504N	P=0.621	P=0.250N	P=0.260N	P=0.569N
LOGISTIC REGRESSION	P=0.662N	P=0.509N	P=0.482N	P=0.500N	P=0.636	P=0.247N	P=0.256N	P=0.538N
COCH-ARM / FISHERS	P=0.647N	P=0.500N	P=0.484N	P=0.479N	P=0.652	P=0.253N	P=0.258N	P=0.508N

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Thyroid Gland: Follicular Cell Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	1/46 (2%)	0/46 (0%)	0/49 (0%)	0/50 (0%)	2/50 (4%)	1/49 (2%)	1/48 (2%)	2/49 (4%)
POLY-3 ADJUSTED (b)	2.9%	0.0%	0.0%	0.0%	5.0%	2.6%	2.9%	3.8%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	1/19 (5%)	1/17 (6%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	688	---	---	---	660	734 (T)	734 (T)	631
STATISTICAL TESTS								
LIFE TABLE	P=0.662N	P=0.490N	P=0.471N	P=0.490N	P=0.372	P=0.536N	P=0.491N	P=0.600
POLY 3	P=0.653N	P=0.508N	P=0.484N	P=0.497N	P=0.461	P=0.517N	P=0.532N	P=0.643
POLY 1.5	P=0.650N	P=0.505N	P=0.486N	P=0.491N	P=0.475	P=0.512N	P=0.527N	P=0.658
POLY 6	P=0.656N	P=0.513N	P=0.483N	P=0.504N	P=0.446	P=0.522N	P=0.537N	P=0.626
LOGISTIC REGRESSION	P=0.662N	P=0.509N	P=0.482N	P=0.500N	P=0.443	P=0.516N	P=0.531N	P=0.654
COCH-ARM / FISHERS	P=0.647N	P=0.500N	P=0.484N	P=0.479N	P=0.521	P=0.508N	P=0.515N	P=0.584

F 04

Statistical Analysis of Primary Tumors in Rats(FISCHER 344) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Tongue								
Squamous Cell Carcinoma or Papilloma Squamous								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	5.3%	0.0%	2.7%	2.9%	0.0%	0.0%	2.7%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	1/21 (5%)	0/11 (0%)
FIRST INCIDENCE	506	---	702	702	---	---	734 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.698N	P=0.275N	P=0.482N	P=0.510N	P=0.841N	(e)	P=0.520	(e)
POLY 3	P=0.704N	P=0.258N	P=0.499N	P=0.525N	P=0.761N	(e)	P=0.488	(e)
POLY 1.5	P=0.702N	P=0.251N	P=0.500N	P=0.515N	P=0.754N	(e)	P=0.491	(e)
POLY 6	P=0.708N	P=0.266N	P=0.497N	P=0.536N	P=0.759N	(e)	P=0.487	(e)
LOGISTIC REGRESSION	P=0.702N	P=0.196N	P=0.507N	P=0.486N	(e)	(e)	P=0.520	(e)
COCH-ARM / FISHERS	P=0.702N	P=0.247N	P=0.500N	P=0.500N	P=0.743N	(e)	P=0.500	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
Uterus								
Polyp Stromal								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)					7/50 (14%)	6/50 (12%)	6/50 (12%)	2/50 (4%)
POLY-3 ADJUSTED (b)					17.4%	15.1%	15.6%	5.7%
TERMINAL (d)					3/19 (16%)	1/17 (6%)	3/21 (14%)	1/11 (9%)
FIRST INCIDENCE					589	585	534	422
STATISTICAL TESTS								
LIFE TABLE					P=0.164N	P=0.533N	P=0.494N	P=0.210N
POLY 3					P=0.098N	P=0.512N	P=0.536N	P=0.111N
POLY 1.5					P=0.085N	P=0.507N	P=0.528N	P=0.098N
POLY 6					P=0.121N	P=0.510N	P=0.538N	P=0.131N
LOGISTIC REGRESSION					P=0.080N	P=0.517N	P=0.537N	P=0.100N
COCH-ARM / FISHERS					P=0.067N	P=0.500N	P=0.500N	P=0.080N

F 05

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
All Organs Hemangioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	5.7%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	---	---	---	668	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.042 *	(e)	(e)	P=0.224	(e)	(e)	(e)	(e)
POLY 3	P=0.043 *	(e)	(e)	P=0.227	(e)	(e)	(e)	(e)
POLY 1.5	P=0.044 *	(e)	(e)	P=0.230	(e)	(e)	(e)	(e)
POLY 6	P=0.043 *	(e)	(e)	P=0.225	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.041 *	(e)	(e)	P=0.223	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.046 *	(e)	(e)	P=0.247	(e)	(e)	(e)	(e)

Dose	Males CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3	Females CONTROL	0.01 MG/M3	0.1 MG/M3	1.0 MG/M3
All Organs Hemangiosarcoma or Hemangioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	1/50 (2%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	2.7%	5.7%	0.0	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	---	---	678	668	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.119	(e)	P=0.508	P=0.224	(e)	(e)	(e)	(e)
POLY 3	P=0.126	(e)	P=0.506	P=0.227	(e)	(e)	(e)	(e)
POLY 1.5	P=0.127	(e)	P=0.503	P=0.230	(e)	(e)	(e)	(e)
POLY 6	P=0.126	(e)	P=0.511	P=0.225	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.118	(e)	P=0.505	P=0.223	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.128	(e)	P=0.500	P=0.247	(e)	(e)	(e)	(e)

F 06

Statistical Analysis of Primary Tumors in Rats(FISCHER 344)
Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
All Organs: Histiocytic Sarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	2/50 (4%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	2.6%	0.0%	0.0%	5.1%	2.7%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	0/13 (0%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	---	---	443	---	---	559	678	---
STATISTICAL TESTS								
LIFE TABLE	P=0.746N	(e)	P=0.500	(e)	P=0.396N	P=0.223	P=0.465	(e)
POLY 3	P=0.745N	(e)	P=0.509	(e)	P=0.390N	P=0.236	P=0.489	(e)
POLY 1.5	P=0.743N	(e)	P=0.505	(e)	P=0.377N	P=0.237	P=0.492	(e)
POLY 6	P=0.746N	(e)	P=0.515	(e)	P=0.405N	P=0.237	P=0.489	(e)
LOGISTIC REGRESSION	P=0.769N	(e)	P=0.454	(e)	P=0.327N	P=0.236	P=0.493	(e)
COCH-ARM / FISHERS	P=0.743N	(e)	P=0.500	(e)	P=0.358N	P=0.247	P=0.500	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
All Organs: Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	19/50 (38%)	28/50 (56%)	33/50 (66%)	28/50 (56%)	22/50 (44%)	21/50 (42%)	18/50 (36%)	33/50 (66%)
POLY-3 ADJUSTED (b)	45.6%	65.9%	73.1%	66.4%	51.7%	48.2%	42.2%	73.7%
TERMINAL (d)	4/13 (31%)	7/13 (54%)	12/15 (80%)	7/13 (54%)	11/19 (58%)	5/17 (29%)	5/21 (24%)	6/11 (55%)
FIRST INCIDENCE	506	350	450	520	506	497	310	418
STATISTICAL TESTS								
LIFE TABLE	P=0.309	P=0.070	P=0.047 *	P=0.077	P<0.001 **	P=0.540	P=0.317N	P=0.003 **
POLY 3	P=0.288	P=0.038 *	P=0.004 **	P=0.034 *	P<0.001 **	P=0.456N	P=0.248N	P=0.021 *
POLY 1.5	P=0.306	P=0.040 *	P=0.004 **	P=0.039 *	P<0.001 **	P=0.475N	P=0.263N	P=0.017 *
POLY 6	P=0.294	P=0.039 *	P=0.006 **	P=0.036 *	P=0.002 **	P=0.417N	P=0.221N	P=0.033 *
LOGISTIC REGRESSION	P=0.327	P=0.047 *	P=0.005 **	P=0.043 *	P=0.002 **	P=0.520N	P=0.290N	P=0.012 *
COCH-ARM / FISHERS	P=0.347	P=0.054	P=0.004 **	P=0.054	P=0.002 **	P=0.500N	P=0.270N	P=0.022 *

E 07

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
All Organs Mesothelioma: Benign, Malignant, NOS								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	2/50 (4%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	5.3%	5.8%	2.7%	2.9%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	1/13 (8%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	599	534	680	733 (T)	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.489N	P=0.659	P=0.484N	P=0.523N	(e)	(e)	(e)	(e)
POLY 3	P=0.485N	P=0.668	P=0.497N	P=0.525N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.475N	P=0.676	P=0.499N	P=0.515N	(e)	(e)	(e)	(e)
POLY 6	P=0.498N	P=0.661	P=0.495N	P=0.538N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.466N	P=0.686N	P=0.503N	P=0.509N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.463N	P=0.691N	P=0.500N	P=0.500N	(e)	(e)	(e)	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
All Organs Osteosarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	2/50 (4%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.7%	0.0%	5.2%	2.9%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	567	---	562	733 (T)	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.643	P=0.510N	P=0.512	P=0.752	(e)	(e)	(e)	(e)
POLY 3	P=0.666	P=0.517N	P=0.511	P=0.747	(e)	(e)	(e)	(e)
POLY 1.5	P=0.668	P=0.512N	P=0.506	P=0.752	(e)	(e)	(e)	(e)
POLY 6	P=0.663	P=0.523N	P=0.521	P=0.742	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.671	P=0.454N	P=0.489	P=0.761	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.668	P=0.500N	P=0.500	P=0.753N	(e)	(e)	(e)	(e)

F 06

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
All Organs								
Osteosarcoma or Osteoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	2/50 (4%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.7%	0.0%	5.2%	2.9%	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/13 (0%)	0/13 (0%)	0/15 (0%)	1/13 (8%)	0/19 (0%)	0/17 (0%)	0/21 (0%)	0/11 (0%)
FIRST INCIDENCE	567	---	562	733 (T)	---	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.643	P=0.510N	P=0.512	P=0.752	(e)	(e)	(e)	(e)
POLY 3	P=0.666	P=0.517N	P=0.511	P=0.747	(e)	(e)	(e)	(e)
POLY 1.5	P=0.668	P=0.512N	P=0.506	P=0.752	(e)	(e)	(e)	(e)
POLY 6	P=0.663	P=0.523N	P=0.521	P=0.742	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.671	P=0.454N	P=0.489	P=0.761	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.668	P=0.500N	P=0.500	P=0.753N	(e)	(e)	(e)	(e)

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
All Organs								
Benign Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	50/50 (100%)	47/50 (94%)	49/50 (98%)	46/50 (92%)	48/50 (96%)	46/50 (92%)	43/50 (86%)	43/50 (86%)
POLY-3 ADJUSTED (b)	100.0%	99.6%	99.1%	96.8%	99.7%	97.7%	93.9%	94.2%
TERMINAL (d)	13/13 (100%)	13/13 (100%)	15/15 (100%)	13/13 (100%)	19/19 (100%)	17/17 (100%)	21/21 (100%)	10/11 (91%)
FIRST INCIDENCE	338	393	394	422	497	422	339	418
STATISTICAL TESTS								
LIFE TABLE	P=0.518N	P=0.531	P=0.319N	P=0.488N	P=0.064	P=0.493	P=0.288N	P=0.136
POLY 3	P=0.116N	P=1.000N	P=0.891N	P=0.276N	P=0.205N	P=0.533N	P=0.104N	P=0.123N
POLY 1.5	P=0.073N	P=0.700N	P=0.689N	P=0.141N	P=0.193N	P=0.331N	P=0.074N	P=0.084N
POLY 6	P=0.258N	P=1.000N	P=1.000N	P=0.498N	P=0.215N	P=1.000N	P=0.179N	P=0.211N
LOGISTIC REGRESSION	P=0.066N	P=0.395N	P=0.489N	P=0.089N	P=0.459N	P=0.331N	P=0.164N	P=0.247N
COCH-ARM / FISHERS	P=0.104N	P=0.121N	P=0.500N	P=0.059N	P=0.164N	P=0.339N	P=0.080N	P=0.080N

Statistical Analysis of Primary Tumors in Rats(FISCHER 344)
Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
All Organs Malignant Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	30/50 (60%)	38/50 (76%)	41/50 (82%)	34/50 (68%)	28/50 (56%)	28/50 (56%)	32/50 (64%)	38/50 (76%)
POLY-3 ADJUSTED (b)	67.2%	81.8%	85.9%	77.8%	63.9%	61.5%	72.4%	82.6%
TERMINAL (d)	8/13 (62%)	10/13 (77%)	12/15 (80%)	9/13 (69%)	13/19 (68%)	8/17 (47%)	15/21 (71%)	7/11 (64%)
FIRST INCIDENCE	506	204	443	520	506	478	310	418
STATISTICAL TESTS								
LIFE TABLE	P=0.534N	P=0.109	P=0.171	P=0.261	P<0.001 **	P=0.452	P=0.315	P=0.004 **
POLY 3	P=0.567	P=0.070	P=0.020 *	P=0.171	P=0.014 *	P=0.395N	P=0.253	P=0.028 *
POLY 1.5	P=0.521N	P=0.065	P=0.015 *	P=0.200	P=0.011 *	P=0.530N	P=0.250	P=0.021 *
POLY 6	P=0.516	P=0.078	P=0.032 *	P=0.159	P=0.023 *	P=0.443N	P=0.269	P=0.051
LOGISTIC REGRESSION	P=0.401N	P=0.070	P=0.014 *	P=0.220	P=0.010 *	P=0.565	P=0.204	P=0.012 *
COCH-ARM / FISHERS	P=0.380N	P=0.066	P=0.013 *	P=0.266	P=0.017 *	P=0.580N	P=0.270	P=0.028 *

Dose	Males CONTROL	Males 0.01 MG/M3	Males 0.1 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.01 MG/M3	Females 0.1 MG/M3	Females 1.0 MG/M3
All Organs Malignant and Benign Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	50/50 (100%)	49/50 (98%)	50/50 (100%)	48/50 (96%)	48/50 (96%)	49/50 (98%)	49/50 (98%)	47/50 (94%)
POLY-3 ADJUSTED (b)	100.0%	99.9%	100.0%	99.4%	99.7%	99.8%	100.0%	99.7%
TERMINAL (d)	13/13 (100%)	13/13 (100%)	15/15 (100%)	13/13 (100%)	19/19 (100%)	17/17 (100%)	21/21 (100%)	11/11 (100%)
FIRST INCIDENCE	338	204	394	422	497	422	310	418
STATISTICAL TESTS								
LIFE TABLE	P=0.495	P=0.436	(e)	P=0.512	P=0.041 *	P=0.342	P=0.485	P=0.050
POLY 3	P=0.999N	P=1.000N	(e)	P=1.000N	P=1.000N	P=1.000	P=1.000	P=1.000
POLY 1.5	P=0.506N	P=0.996N	(e)	P=0.705N	P=0.809N	P=0.937	P=0.927	P=0.948N
POLY 6	P=1.000N	P=1.000N	(e)	P=1.000N	P=1.000N	P=1.000	P=1.000	P=1.000
LOGISTIC REGRESSION	P=0.075N	P=0.848N	(e)	P=0.294N	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.156N	P=0.500N	(e)	P=0.247N	P=0.255N	P=0.500	P=0.500	P=0.500N

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

F10

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.
(I) Interim sacrifice
(T) Terminal sacrifice
Tumor rates based on number of animals necropsied.
* To the right of any statistical result, indicates significance at (P<=0.05).
** To the right of any statistical result, indicates significance at (P<=0.01).

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

2 YEAR CHRONIC

Facility: Battelle Northwest

Chemical CAS #: 1303-00-0000

Lock Date: 04/11/97

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

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

F 12

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	11	11	16	11
Natural Death	3	3	2	10
Accidently Killed		2	1	
Survivors				
Terminal Sacrifice	36	34	31	29
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Esophagus	(50)	(50)	(49)	(50)
Inflammation, Suppurative		1 (2%)		
Gallbladder	(47)	(45)	(45)	(41)
Degeneration, Hyaline		1 (2%)		
Epithelium, Hyperplasia	1 (2%)			
Intestine Large, Cecum	(48)	(49)	(50)	(46)
Hemorrhage		1 (2%)		
Infiltration Cellular, Mast Cell			1 (2%)	
Intestine Small, Jejunum	(48)	(47)	(49)	(43)
Peyer's Patch, Hyperplasia	2 (4%)	1 (2%)		
Intestine Small, Ileum	(48)	(47)	(49)	(45)
Hemorrhage		1 (2%)		
Inflammation		1 (2%)	1 (2%)	
Peyer's Patch, Hyperplasia	1 (2%)		2 (4%)	1 (2%)
Liver	(50)	(50)	(50)	(50)
Angiectasis				1 (2%)
Clear Cell Focus			1 (2%)	
Clear Cell Focus, Multiple	1 (2%)			
Degeneration, Fatty	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Eosinophilic Focus	3 (6%)	13 (26%)	10 (20%)	10 (20%)
Eosinophilic Focus, Multiple	2 (4%)	2 (4%)	1 (2%)	4 (8%)
Hematopoietic Cell Proliferation	3 (6%)	4 (8%)	5 (10%)	5 (10%)
Hemorrhage		1 (2%)		
Hyperplasia, Lymphoid	1 (2%)	3 (6%)	1 (2%)	
Inflammation	3 (6%)	1 (2%)	1 (2%)	
Necrosis	3 (6%)	4 (8%)	7 (14%)	5 (10%)
Pigmentation, Hemosiderin	1 (2%)			
Bile Duct, Cyst	1 (2%)			
Bile Duct, Degeneration, Hyaline	1 (2%)			
Oval Cell, Hyperplasia	1 (2%)	1 (2%)		
Serosa, Inflammation				1 (2%)
Mesentery	(8)	(9)	(16)	(13)
Hemorrhage	1 (13%)			1 (8%)

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

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
ALIMENTARY SYSTEM - CONT				
Inflammation, Chronic	1 (13%)			1 (8%)
Inflammation, Suppurative			2 (13%)	
Fat, Necrosis	4 (50%)	9 (100%)	13 (81%)	11 (85%)
Pancreas	(50)	(50)	(50)	(49)
Atrophy	5 (10%)	10 (20%)	11 (22%)	2 (4%)
Cytoplasmic Alteration	1 (2%)	1 (2%)	2 (4%)	1 (2%)
Hyperplasia, Lymphoid			1 (2%)	
Duct, Cyst		2 (4%)	2 (4%)	
Stomach, Forestomach	(49)	(50)	(50)	(49)
Hemorrhage	1 (2%)			
Ulcer	1 (2%)	1 (2%)		2 (4%)
Epithelium, Hyperplasia	2 (4%)	6 (12%)	1 (2%)	2 (4%)
Stomach, Glandular	(49)	(50)	(50)	(48)
Inflammation, Suppurative		2 (4%)		
Ulcer		1 (2%)	1 (2%)	
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	49 (98%)	48 (96%)	47 (94%)	47 (94%)
Artery, Inflammation		1 (2%)	1 (2%)	1 (2%)
Atrium, Thrombosis				1 (2%)
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(49)
Hematopoietic Cell Proliferation	1 (2%)	1 (2%)	1 (2%)	
Hypertrophy	5 (10%)	5 (10%)	7 (14%)	7 (14%)
Capsule, Hyperplasia				1 (2%)
Adrenal Medulla	(50)	(49)	(50)	(49)
Hyperplasia	1 (2%)	2 (4%)	1 (2%)	2 (4%)
Islets, Pancreatic	(50)	(50)	(50)	(48)
Hyperplasia	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Pituitary Gland	(46)	(48)	(50)	(47)
Pars Distalis, Hyperplasia	16 (35%)	20 (42%)	20 (40%)	9 (19%)
Thyroid Gland	(50)	(50)	(50)	(49)
Follicular Cell, Hyperplasia	10 (20%)	17 (34%)	14 (28%)	12 (24%)
GENERAL BODY SYSTEM				
None				

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

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
GENITAL SYSTEM				
Ovary	(49)	(50)	(50)	(4[illegible])
Angiectasis	2 (4%)		2 (4%)	
Atrophy	3 (6%)	2 (4%)	2 (4%)	
Cyst	18 (37%)	17 (34%)	23 (46%)	15 (33%)
Hemorrhage			1 (2%)	
Hyperplasia		1 (2%)		
Interstitial Stromal Tumor	1 (2%)			
Thrombosis			1 (2%)	
Germinal Epithelium, Hyperplasia		1 (2%)		
Uterus	(49)	(50)	(50)	(50)
Angiectasis	1 (2%)	1 (2%)	2 (4%)	
Hematocyst	1 (2%)			
Hydrometra	2 (4%)	4 (8%)	3 (6%)	4 (8%)
Hyperplasia, Cystic	2 (4%)	2 (4%)	2 (4%)	3 (6%)
Inflammation, Suppurative		1 (2%)	1 (2%)	
Thrombosis				1 (2%)
Endometrium, Hyperplasia	1 (2%)			
Myometrium, Hyperplasia	2 (4%)		2 (4%)	2 (4%)
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Hyperplasia	2 (4%)	1 (2%)	2 (4%)	1 (2%)
Lymph Node	(4)	(8)	(5)	(6)
Angiectasis	2 (50%)	1 (13%)	2 (40%)	
Renal, Angiectasis		1 (13%)		
Renal, Hyperplasia		1 (13%)		1 (17%)
Lymph Node, Bronchial	(39)	(43)	(42)	(42)
Hyperplasia	10 (26%)	12 (28%)	13 (31%)	23 (55%)
Lymph Node, Mandibular	(35)	(37)	(43)	(43)
Hyperplasia	1 (3%)		1 (2%)	2 (5%)
Lymph Node, Mesenteric	(49)	(49)	(50)	(47)
Hyperplasia	3 (6%)	3 (6%)	5 (10%)	6 (13%)
Lymph Node, Mediastinal	(40)	(43)	(49)	(45)
Hematopoietic Cell Proliferation			2 (4%)	
Hyperplasia	5 (13%)	3 (7%)	6 (12%)	8 (18%)
Spleen	(50)	(50)	(50)	(49)
Hematopoietic Cell Proliferation	23 (46%)	22 (44%)	22 (44%)	28 (57%)
Hyperplasia, Histiocytic				1 (2%)
Hyperplasia, Lymphoid	20 (40%)	12 (24%)	18 (36%)	7 (14%)
Capsule, Inflammation	1 (2%)			
Thymus	(43)	(47)	(43)	(44)
Angiectasis			1 (2%)	
Hyperplasia, Lymphoid	1 (2%)			1 (2%)

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

C 01

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(49)
Hyperplasia	4 (8%)	4 (8%)	2 (4%)	3 (6%)
Skin	(50)	(50)	(50)	(50)
Subcutaneous Tissue, Hemorrhage		2 (4%)	2 (4%)	
Subcutaneous Tissue, Inflammation		1 (2%)	1 (2%)	
Subcutaneous Tissue, Inflammation, Granulomatous				1 (2%)
Subcutaneous Tissue, Mineralization	1 (2%)			
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Fibrous Osteodystrophy	21 (42%)	24 (48%)	14 (28%)	18 (36%)
Maxilla, Fracture		1 (2%)	1 (2%)	
Skeletal Muscle	(1)	(2)	(1)	(1)
Hemorrhage		1 (50%)		
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Cyst Epithelial Inclusion				1 (2%)
Gliosis			1 (2%)	
Hemorrhage		1 (2%)		1 (2%)
Meninges, Infiltration Cellular, Mononuclear Cell	2 (4%)	5 (10%)	3 (6%)	3 (6%)
Spinal Cord	(1)	(1)	(1)	
Hyperplasia, Lymphoid	1 (100%)		1 (100%)	
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(50)	(50)
Inflammation, Suppurative	2 (4%)	2 (4%)	2 (4%)	1 (2%)
Squamous Epithelium, Hyperplasia	11 (22%)	9 (18%)	7 (14%)	7 (14%)
Lung	(50)	(50)	(50)	(50)
Congestion	1 (2%)			
Hemorrhage	9 (18%)	6 (12%)	5 (10%)	5 (10%)
Infiltration Cellular, Histiocyte	2 (4%)	13 (26%)	48 (96%)	49 (98%)
Inflammation, Chronic, Focal	1 (2%)	2 (4%)	11 (22%)	18 (36%)
Inflammation, Focal, Suppurative			2 (4%)	14 (28%)
Alveolar Epithelium, Hyperplasia	2 (4%)	5 (10%)	27 (54%)	43 (86%)
Alveolus, Foreign Body		8 (16%)	48 (96%)	49 (98%)
Alveolus, Proteinosis		4 (8%)	49 (98%)	50 (100%)

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

G 02

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
RESPIRATORY SYSTEM - CONT				
Mediastinum, Necrosis		1 (2%)		
Perivascular, Infiltration Cellular, Mononuclear Cell	2 (4%)		2 (4%)	2 (4%)
Nose	(50)	(49)	(50)	(50)
Inflammation, Suppurative	2 (4%)		4 (8%)	4 (8%)
Olfactory Epithelium, Atrophy	3 (6%)	1 (2%)	7 (14%)	4 (8%)
Olfactory Epithelium, Degeneration, Hyaline	3 (6%)	1 (2%)	10 (20%)	5 (10%)
Olfactory Epithelium, Inflammation, Chronic			1 (2%)	
Olfactory Epithelium, Metaplasia, Respiratory			1 (2%)	1 (2%)
Respiratory Epithelium, Degeneration, Hyaline	15 (30%)	17 (35%)	21 (42%)	17 (34%)
Respiratory Epithelium, Metaplasia, Squamous			2 (4%)	2 (4%)
SPECIAL SENSES SYSTEM				
Eye	(1)		(2)	(1)
Degeneration			1 (50%)	
Cornea, Inflammation, Chronic	1 (100%)		1 (50%)	1 (100%)
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Glomerulosclerosis	2 (4%)			
Hydronephrosis	1 (2%)			
Inflammation, Chronic Active				1 (2%)
Metaplasia, Osseous	2 (4%)	3 (6%)	1 (2%)	1 (2%)
Nephropathy	43 (86%)	44 (88%)	40 (80%)	36 (72%)
Capsule, Inflammation				1 (2%)
Renal Tubule, Hyperplasia				1 (2%)
Urinary Bladder	(48)	(48)	(50)	(48)
Angiectasis	1 (2%)			
Hyperplasia, Lymphoid			1 (2%)	
Artery, Inflammation			1 (2%)	

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

G 03

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
DISPOSITION SUMMARY				
Animals Initially In Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	7	8	10	7
Natural Death	8	4	6	9
Survivors				
Terminal Sacrifice	35	38	34	34
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Gallbladder	(42	(47)	(41)	(43)
Degeneration, Hyaline		1 (2%)		1 (2%)
Intestine Small, Jejunum	(44)	(48)	(45)	(43)
Peyer's Patch, Hyperplasia	1 (2%)		1 (2%)	1 (2%)
Intestine Small, Ileum	(44)	(47)	(45)	(42)
Peyer's Patch, Hyperplasia			1 (2%)	
Liver	(50)	(50)	(50)	(50)
Basophilic Focus		1 (2%)	2 (4%)	2 (4%)
Clear Cell Focus		2 (4%)	2 (4%)	1 (2%)
Degeneration, Fatty	1 (2%)	1 (2%)	1 (2%)	
Eosinophilic Focus	8 (16%)	12 (24%)	11 (22%)	14 (28%)
Eosinophilic Focus, Multiple	3 (6%)	2 (4%)	3 (6%)	5 (10%)
Hematopoietic Cell Proliferation	3 (6%)	1 (2%)	2 (4%)	2 (4%)
Inflammation	2 (4%)	3 (6%)	1 (2%)	
Necrosis	10 (20%)	6 (12%)	5 (10%)	4 (8%)
Bile Duct, Cyst	1 (2%)		1 (2%)	
Oval Cell, Hyperplasia	1 (2%)	1 (2%)		
Mesentery	(4)	(5)	(4)	(6)
Fat, Necrosis	1 (25%)	5 (100%)	3 (75%)	6 (100%)
Pancreas	(50)	(50)	(49)	(47)
Atrophy	13 (26%)	7 (14%)	9 (18%)	6 (13%)
Inflammation	1 (2%)			
Stomach, Forestomach	(50)	(50)	(49)	(49)
Ulcer	2 (4%)			1 (2%)
Epithelium, Hyperplasia	6 (12%)	2 (4%)	3 (6%)	3 (6%)
Stomach, Glandular	(49)	(50)	(49)	(48)
Infiltration Cellular, Mixed Cell		1 (2%)		
Ulcer				1 (2%)
Tooth	(1)	(3)	(1)	(1)
Malformation	1 (100%)	2 (67%)	1 (100%)	1 (100%)

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

G 04

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Cardiomyopathy	48 (96%)	50 (100%)	49 (98%)	47 (94%)
Thrombosis		1 (2%)		
Artery, Inflammation			1 (2%)	
Atrium, Thrombosis	2 (4%)			
Ventricle, Thrombosis			1 (2%)	
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(48)
Degeneration, Cystic				1 (2%)
Hyperplasia	4 (8%)	10 (20%)	7 (14%)	4 (8%)
Hypertrophy	38 (76%)	33 (66%)	38 (76%)	30 (63%)
Mineralization			1 (2%)	
Adrenal Medulla	(50)	(50)	(50)	(47)
Hyperplasia				1 (2%)
Islets, Pancreatic	(50)	(48)	(49)	(47)
Hyperplasia	2 (4%)	3 (6%)	2 (4%)	4 (9%)
Pituitary Gland	(48)	(48)	(47)	(47)
Pars Distalis, Hyperplasia		1 (2%)	1 (2%)	1 (2%)
Thyroid Gland	(50)	(50)	(50)	(48)
Follicular Cell, Hyperplasia	11 (22%)	13 (26%)	7 (14%)	8 (17%)
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Epididymis	(50)	(50)	(50)	(49)
Granuloma Sperm		2 (4%)		1 (2%)
Hyperplasia	1 (2%)	1 (2%)		
Inflammation	2 (4%)	1 (2%)		
Preputial Gland	(50)	(49)	(49)	(48)
Ectasia	5 (10%)	3 (6%)	5 (10%)	5 (10%)
Inflammation	3 (6%)	3 (6%)	4 (8%)	9 (19%)
Prostate	(50)	(49)	(49)	(49)
Inflammation	2 (4%)		1 (2%)	1 (2%)
Seminal Vesicle	(50)	(50)	(48)	(43)
Inflammation		1 (2%)		1 (2%)
Testes	(50)	(50)	(50)	(50)
Atrophy	6 (12%)	9 (18%)	2 (4%)	2 (4%)

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

G 05

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
HEMATOPOIETIC SYSTEM				
Bone Marrow	(49)	(50)	(50)	(49)
Hyperplasia	2 (4%)	3 (6%)	2 (4%)	3 (6%)
Lymph Node	(2)		(2)	(1)
Hyperplasia	1 (50%)			
Lymph Node, Bronchial	(38)	(37)	(40)	(41)
Hyperplasia	5 (13%)	7 (19%)	17 (43%)	24 (59%)
Lymph Node, Mandibular	(37)	(40)	(28)	(32)
Hyperplasia	2 (5%)	3 (8%)		
Lymph Node, Mesenteric	(48)	(49)	(50)	(46)
Angiectasis		1 (2%)	1 (2%)	1 (2%)
Erythrophagocytosis		1 (2%)		
Hematopoietic Cell Proliferation	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Hyperplasia	3 (6%)	5 (10%)	4 (8%)	4 (9%)
Lymph Node, Mediastinal	(38)	(36)	(38)	(33)
Hematopoietic Cell Proliferation		1 (3%)		
Hyperplasia	1 (3%)	1 (3%)	4 (11%)	3 (9%)
Spleen	(50)	(50)	(49)	(47)
Hematopoietic Cell Proliferation	17 (34%)	13 (26%)	19 (39%)	18 (38%)
Hyperplasia, Lymphoid	1 (2%)	5 (10%)	3 (6%)	2 (4%)
INTEGUMENTARY SYSTEM				
Skin	(50)	(50)	(50)	(50)
Cyst Epithelial Inclusion			1 (2%)	
Inflammation	1 (2%)			1 (2%)
Prepuce, Inflammation, Chronic Active	2 (4%)	4 (8%)	3 (6%)	3 (6%)
Subcutaneous Tissue, Inflammation, Chronic			2 (4%)	
Subcutaneous Tissue, Inflammation, Focal, Suppurative		1 (2%)		
Subcutaneous Tissue, Inflammation, Granulomatous	1 (2%)	1 (2%)		1 (2%)
MUSCULOSKELETAL SYSTEM				
Bone	(49)	(50)	(50)	(50)
Fibrous Osteodystrophy	1 (2%)	2 (4%)	2 (4%)	

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

G 06

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(49)
Meninges, Infiltration Cellular, Mononuclear Cell			1 (2%)	
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(48)	(48)
Inflammation, Suppurative		1 (2%)	1 (2%)	
Metaplasia, Squamous	1 (2%)			
Squamous Epithelium, Hyperplasia	11 (22%)	13 (26%)	11 (23%)	5 (10%)
Lung	(50)	(50)	(50)	(50)
Congestion	1 (2%)			
Hematopoietic Cell Proliferation			1 (2%)	1 (2%)
Hemorrhage	5 (10%)	6 (12%)	6 (12%)	3 (6%)
Hyperplasia, Atypical				1 (2%)
Infiltration Cellular, Histiocyte	3 (6%)	10 (20%)	45 (90%)	48 (96%)
Inflammation, Chronic, Focal	1 (2%)	3 (6%)	3 (6%)	12 (24%)
Inflammation, Focal, Suppurative			8 (16%)	23 (46%)
Alveolar Epithelium, Hyperplasia	4 (8%)	9 (18%)	39 (78%)	45 (90%)
Alveolus, Foreign Body		4 (8%)	46 (92%)	50 (100%)
Alveolus, Proteinosis	1 (2%)	4 (8%)	49 (98%)	50 (100%)
Nose	(49)	(49)	(49)	(48)
Inflammation, Suppurative		3 (6%)	2 (4%)	1 (2%)
Olfactory Epithelium, Atrophy	7 (14%)	2 (4%)	5 (10%)	8 (17%)
Olfactory Epithelium, Degeneration, Hyaline	2 (4%)	4 (8%)	6 (12%)	1 (2%)
Respiratory Epithelium, Degeneration, Hyaline	1 (2%)	2 (4%)	2 (4%)	1 (2%)
Respiratory Epithelium, Hyperplasia		1 (2%)		
SPECIAL SENSES SYSTEM				
Eye	(2)	(1)		(4)
Degeneration		1 (100%)		2 (50%)
Cornea, Inflammation, Chronic	1 (50%)			
Harderian Gland	(3)	(5)	(7)	(7)
Hyperplasia			1 (14%)	
URINARY SYSTEM				
Kidney	(50)	(50)	(49)	(48)
Cyst	1 (2%)			
Hydronephrosis	2 (4%)	3 (6%)	2 (4%)	3 (6%)
Infarct		1 (2%)		
Inflammation, Chronic Active	1 (2%)		1 (2%)	1 (2%)

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

G 07

INCIDENCE RATES OF NONNEOPLASTIC LESIONS BY ANATOMIC SITE (a)
GALLIUM ARSENIDE

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
URINARY SYSTEM - CONT				
Metaplasia, Osseous		1 (2%)	4 (8%)	
Nephropathy	48 (96%)	49 (98%)	45 (92%)	47 (98%)
Capsule, Inflammation		1 (2%)	2 (4%)	
Cortex, Cyst	2 (4%)	4 (8%)		2 (4%)
Renal Tubule, Hyperplasia	2 (4%)		3 (6%)	1 (2%)
Renal Tubule, Necrosis			1 (2%)	
Urinary Bladder	(49)	(50)	(46)	(46)
Inflammation	1 (2%)			2 (4%)
Transitional Epithelium, Hyperplasia	1 (2%)			

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

G 08

G 09

END OF REPORT

GALLIUM ARSENIDE

2 YEAR CHRONIC

Facility: Battelle Northwest

Chemical CAS #: 1303-00-0000

Lock Date: 04/11/97

Cage Range: All

Reasons For Removal: All

Removal Date Range: All

Treatment Groups: Include All

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

G 10

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	11	11	16	11
Natural Death	3	3	2	10
Accidently Killed		2	1	
Survivors				
Terminal Sacrifice	36	34	31	29
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Gallbladder	(47)	(45)	(45)	(41)
Intestine Small, Duodenum	(48)	(47)	(50)	(46)
Intestine Small, Jejunum	(48)	(47)	(49)	(43)
Carcinoma				1 (2%)
Polyp Adenomatous		1 (2%)		
Liver	(50)	(50)	(50)	(50)
Hepatocellular Carcinoma	8 (16%)	9 (18%)	4 (8%)	5 (10%)
Hepatocellular Carcinoma, Multiple	4 (8%)	2 (4%)		3 (6%)
Hepatocellular Adenoma	9 (18%)	9 (18%)	12 (24%)	8 (16%)
Hepatocellular Adenoma, Multiple	2 (4%)	1 (2%)		2 (4%)
Hepatocholangiocarcinoma				2 (4%)
Hepatocholangiocarcinoma, Multiple			1 (2%)	
Histiocytic Sarcoma	1 (2%)			
Mesentery	(8)	(9)	(16)	(13)
Hemangiosarcoma			1 (6%)	
Hepatocholangiocarcinoma, Metastatic, Liver			1 (6%)	1 (8%)
Sarcoma, Metastatic, Skin	2 (25%)			1 (8%)
Teratoma Malignant, Metastatic, Ovary			1 (6%)	
Pancreas	(50)	(50)	(50)	(49)
Sarcoma, Metastatic, Skin	2 (4%)			
Salivary Glands	(50)	(50)	(50)	(50)
Stomach, Forestomach	(49)	(50)	(50)	(49)
Squamous Cell Papilloma				3 (6%)
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Hemangiosarcoma		1 (2%)		
Hepatocholangiocarcinoma, Metastatic, Liver				1 (2%)

G 11

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
ENDOCRINE SYSTEM				
Adrenal Medulla	(50)	(49)	(50)	(49)
Phaeochromocytoma Benign			1 (2%)	1 (2%)
Islets, Pancreatic	(50)	(50)	(50)	(48)
Adenoma	1 (2%)			
Pituitary Gland	(46)	(48)	(50)	(47)
Pars Distalis, Adenoma	3 (7%)	7 (15%)	5 (10%)	7 (15%)
Pars Distalis, Carcinoma			1 (2%)	
Pars Intermedia, Adenoma			2 (4%)	
Pars Intermedia, Carcinoma			2 (4%)	
Thyroid Gland	(50)	(50)	(50)	(49)
Hepatocholangiocarcinoma, Metastatic, Liver				1 (2%)
C-Cell, Carcinoma	1 (2%)			
Follicular Cell, Adenoma	1 (2%)			2 (4%)
Follicular Cell, Carcinoma				2 (4%
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Ovary	(49)	(50)	(50)	(46)
Cystadenoma	2 (4%)	1 (2%)	1 (2%)	3 (7%)
Sarcoma, Metastatic, Skin	1 (2%)			
Teratoma Malignant			1 (2%)	
Thecoma Benign			1 (2%)	
Tubulostromal Adenoma	1 (2%)			
Uterus	(49)	(50)	(50)	(50)
Carcinoma	1 (2%)			
Hemangioma			1 (2%)	
Leiomyoma		1 (2%)		1 (2%)
Leiomyosarcoma	1 (2%)			
Polyp Stromal	1 (2%)	2 (4%)	2 (4%)	2 (4%)
Sarcoma Stromal			1 (2%)	
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Hemangiosarcoma	1 (2%)	1 (2%)		
Lymph Node	(4)	(8)	(5)	(6)
Sarcoma, Metastatic, Skin	1 (25%)			1 (17%)
Teratoma Malignant, Metastatic, Ovary			1 (20%)	
Pancreatic, Hepatocholangiocarcinoma,				

G 12

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
HEMATOPOIETIC SYSTEM - cont				
Metastatic, Liver				1 (17%)
Lymph Node, Bronchial	(39)	(43)	(42)	(42)
Hepatocholangiocarcinoma, Metastatic, Liver			1 (2%)	
Histiocytic Sarcoma	1 (3%)			
Lymph Node, Mandibular	(35)	(37)	(43)	(43)
Lymph Node, Mesenteric	(49)	(49)	(50)	(47)
Hemangiosarcoma			1 (2%)	
Hepatocholangiocarcinoma, Metastatic, Liver			1 (2%)	
Histiocytic Sarcoma	1 (2%)			
Sarcoma, Metastatic, Skin	1 (2%)			
Lymph Node, Mediastinal	(40)	(43)	(49)	(45)
Carcinoma, Metastatic, Harderian Gland	1 (3%)			
Hepatocholangiocarcinoma, Metastatic, Liver			1 (2%)	2 (4%)
Sarcoma, Metastatic, Skin	1 (3%)			
Spleen	(50)	(50)	(50)	(49)
Hemangiosarcoma		2 (4%)	2 (4%)	
Histiocytic Sarcoma	1 (2%)			
Thymus	(43)	(47)	(43)	(44)
Hepatocholangiocarcinoma, Metastatic, Liver				1 (2%)
INTEGUMENTARY SYSTEM				
Mammary Gland	(50)	(50)	(50)	(49)
Carcinoma	1 (2%)	1 (2%)	1 (2%)	2 (4%)
Skin	(50)	(50)	(50)	(50)
Subcutaneous Tissue, Carcinoma			1 (2%)	
Subcutaneous Tissue, Hemangioma			1 (2%)	
Subcutaneous Tissue, Sarcoma	4 (8%)	4 (8%)	2 (4%)	4 (8%)
Subcutaneous Tissue, Schwannoma Benign			1 (2%)	
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Hemangiosarcoma	1 (2%)			
Skeletal Muscle	(1)	(2)	(1)	(1)
Carcinoma, Metastatic, Harderian Gland	1 (100%)			
Hemangiosarcoma			1 (100%)	
Hepatocholangiocarcinoma, Metastatic, Liver				1 (100%)

G 13

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
NERVOUS SYSTEM				
Brain	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Pituitary Gland			3 (6%)	
Oligodendroglioma Benign				1 (2%)
RESPIRATORY SYSTEM				
Larynx	(50)	(50)	(50)	(50)
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Adenoma	6 (12%)	4 (8%)	1 (2%)	3 (6%)
Alveolar/Bronchiolar Carcinoma	1 (2%)		3 (6%)	2 (4%)
Alveolar/Bronchiolar Carcinoma, Multiple				1 (2%)
Carcinoma, Metastatic, Harderian Gland	2 (4%)			
Hepatocellular Carcinoma, Metastatic, Liver	4 (8%)	3 (6%)	2 (4%)	3 (6%)
Hepatocellular Carcinoma, Metastatic, Lung				1 (2%)
Hepatocholangiocarcinoma, Metastatic, Liver			1 (2%)	2 (4%)
Sarcoma, Metastatic, Skin				1 (2%)
Teratoma Malignant, Metastatic, Ovary			1 (2%)	
Mediastinum, Carcinoma, Metastatic, Harderian Gland	1 (2%)			
Mediastinum, Hemangioma			1 (2%)	
Mediastinum, Hepatocholangiocarcinoma, Metastatic, Liver			1 (2%)	1 (2%)
Mediastinum, Sarcoma, Metastatic, Skin	1 (2%)			
SPECIAL SENSES SYSTEM				
Harderian Gland	(5)	(4)	(3)	(2)
Adenoma	2 (40%)	3 (75%)	2 (67%)	2 (100%)
Carcinoma	3 (60%)	1 (25%)	1 (33%)	
URINARY SYSTEM				
Kidney	(50)	(50)	(50)	(50)
Hepatocholangiocarcinoma, Metastatic, Liver			1 (2%)	1 (2%)
Teratoma Malignant, Metastatic, Ovary			1 (2%)	
Urinary Bladder	(48)	(48)	(50)	(48)
Hemangioma		1 (2%)		
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma	1 (2%)			

* Number of animals with any tissue examined microscopically

A 01

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
SYSTEMIC LESIONS - cont				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Lymphoma Malignant	3 (6%)	8 (16%)	11 (22%)	10 (20%)

A 02

NTP Experiment-Test: 05180-07 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)
Study Type: CHRONIC GALLIUM ARSENIDE
Route: RESPIRATORY EXPOSURE WHOLE BODY

Report: PEIRPT05
Date: 09/15/98
Time: 07:44:06

B6C3F1 MICE FEMALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	36	36	40	39
Total Primary Neoplasms	58	59	65	67
Total Animals with Benign Neoplasms	22	24	26	22
Total Benign Neoplasms	28	30	31	35
Total Animals with Malignant Neoplasms	26	23	26	26
Total Malignant Neoplasms	30	29	34	32
Total Animals with Metastatic Neoplasms	9	3	6	7
Total Metastatic Neoplasm	18	3	16	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

A 03

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
DISPOSITION SUMMARY				
Animals Initially in Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	7	8	10	7
Natural Death	8	4	6	9
Survivors				
Terminal Sacrifice	35	38	34	34
Animals Examined Microscopically	50	50	50	50
ALIMENTARY SYSTEM				
Intestine Large, Cecum	(44)	(49)	(44)	(42)
Polyp Adenomatous		1 (2%)		
Intestine Small, Duodenum	(42)	(46)	(45)	(43)
Histiocytic Sarcoma	1 (2%)			
Intestine Small, Jejunum	(44)	(48)	(45)	(43)
Carcinoma	2 (5%)	2 (4%)		1 (2%)
Hemangiosarcoma				1 (2%)
Intestine Small, Ileum	(44)	(47)	(45)	(42)
Hepatocellular Carcinoma, Metastatic, Liver	1 (2%)			
Liver	(50)	(50)	(50)	(50)
Hemangiosarcoma	1 (2%)	2 (4%)	3 (6%)	1 (2%)
Hepatocellular Carcinoma	10 (20%)	7 (14%)	10 (20%)	14 (28%)
Hepatocellular Carcinoma, Multiple	3 (6%)	2 (4%)	2 (4%)	3 (6%)
Hepatocellular Adenoma	11 (22%)	13 (26%)	12 (24%)	15 (30%)
Hepatocellular Adenoma, Multiple	5 (10%)	5 (10%)	7 (14%)	2 (4%)
Hepatocholangiocarcinoma		2 (4%)		
Histiocytic Sarcoma	2 (4%)			1 (2%)
Mesentery	(4)	(5)	(4)	(6)
Hemangioma	1 (25%)			
Hemangiosarcoma	2 (50%)			
Sarcoma			1 (25%)	
Pancreas	(50)	(50)	(49)	(47)
Sarcoma, Metastatic, Mesentery			1 (2%)	
Stomach, Forestomach	(50)	(50)	(49)	(49)
Squamous Cell Papilloma	1 (2%)			1 (2%)
Tooth	(1)	(3)	(1)	(1)
Odontoma		1 (33%)		

A 04

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
CARDIOVASCULAR SYSTEM				
Heart	(50)	(50)	(50)	(50)
Hemangiosarcoma			1 (2%)	
ENDOCRINE SYSTEM				
Adrenal Cortex	(50)	(50)	(50)	(48)
Adenoma				1 (2%)
Histiocytic Sarcoma	1 (2%)			
Capsule, Adenoma			1 (2%)	
Adrenal Medulla	(50)	(50)	(50)	(47)
Pheochromocytoma Benign	1 (2%)			
Islets, Pancreatic	(50)	(48)	(49)	(47)
Adenoma			3 (6%)	
Thyroid Gland	(50)	(50)	(50)	(48)
Follicular Cell, Adenoma	1 (2%)	1 (2%)		
Follicular Cell, Carcinoma	1 (2%)			
GENERAL BODY SYSTEM				
None				
GENITAL SYSTEM				
Epididymis	(50)	(50)	(50)	(49)
Prostate	(50)	(49)	(49)	(49)
Seminal Vesicle	(50)	(50)	(48)	(43)
Hemangioma	1 (2%)			
Testes	(50)	(50)	(50)	(50)
Hemangioma		1 (2%)		
Interstitial Cell, Adenoma			2 (4%)	
HEMATOPOIETIC SYSTEM				
Bone Marrow	(49)	(50)	(50)	(48)
Hemangiosarcoma			2 (4%)	1 (2%)
Lymph Node	(2)		(2)	(1)
Pancreatic, Histiocytic Sarcoma	1 (50%)			
Renal, Hemangiosarcoma				1 (100%)
Lymph Node, Bronchial	(38)	(37)	(40)	(41)
Histiocytic Sarcoma				1 (2%)
Lymph Node, Mandibular	(37)	(40)	(28)	(32)
Histiocytic Sarcoma	1 (3%)			

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
HEMATOPOIETIC SYSTEM - cont				
Lymph Node, Mesenteric	(48)	(49)	(50)	(46)
Histiocytic Sarcoma	1 (2%)			1 (2%)
Lymph Node, Mediastinal	(38)	(36)	(38)	(33)
Hepatocellular Carcinoma, Metastatic, Liver	1 (3%)			1 (3%)
Histiocytic Sarcoma				(47)
Spleen	(50)	(50)	(49)	1 (2%)
Hemangiosarcoma	2 (4%)		2 (4%)	
Thymus	(38)	(36)	(38)	(35)
INTEGUMENTARY SYSTEM				
Skin	(50)	(50)	(50)	(50)
Histiocytic Sarcoma	1 (2%)			
Sebaceous Gland, Adenoma	1 (2%)			
Subcutaneous Tissue, Hemangiosarcoma			1 (2%)	
Subcutaneous Tissue, Lipoma	1 (2%)	1 (2%)		1 (2%)
MUSCULOSKELETAL SYSTEM				
Bone	(49)	(50)	(50)	(50)
Hepatocellular Carcinoma, Metastatic, Liver	1 (2%)			
NERVOUS SYSTEM				
None				
RESPIRATORY SYSTEM				
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Adenoma	12 (24%)	8 (16%)	10 (20%)	6 (12%)
Alveolar/Bronchiolar Adenoma, Multiple	1 (2%)	2 (4%)	1 (2%)	1 (2%)
Alveolar/Bronchiolar Carcinoma	3 (6%)	4 (8%)	6 (12%)	6 (12%)
Alveolar/Bronchiolar Carcinoma, Multiple		2 (4%)		
Carcinoma, Metastatic, Harderian Gland	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Hemangiosarcoma			1 (2%)	
Hepatocellular Carcinoma, Metastatic, Liver	3 (6%)	1 (2%)	2 (4%)	2 (4%)
Histiocytic Sarcoma	1 (2%)			1 (2%)
Mediastinum, Alveolar/Bronchiolar Carcinoma, Metastatic, Lung			1 (2%)	
Mediastinum, Hepatocellular Carcinoma, Metastatic, Liver	1 (2%)			

A-3

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
SPECIAL SENSES SYSTEM				
Ear			(1)	
Hemangiosarcoma			1 (100%)	
Harderian Gland	(3)	(5)	(7)	(7)
Adenoma	1 (33%)	4 (80%)	4 (57%)	4 (57%)
Adenoma, Multiple	1 (33%)			
Carcinoma	1 (33%)	1 (20%)	3 (43%)	3 (43%)
URINARY SYSTEM				
Kidney	(50)	(50)	(49)	(48)
Hepatocellular Carcinoma, Metastatic, Liver	1 (2%)			
Sarcoma, Metastatic, Mesentery			1 (2%)	
Renal Tubule, Adenoma				1 (2%)
Urinary Bladder	(49)	(50)	(46)	(46)
SYSTEMIC LESIONS				
Multiple Organs	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma	3 (6%)			1 (2%)
Lymphoma Malignant	1 (2%)	1 (2%)	2 (4%)	1 (2%)

* Number of animals with any tissue examined microscopically

A 07

NTP Experiment-Test: 05180-07 INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a) Report: PEIRPT05
Study Type: CHRONIC GALLIUM ARSENIDE Date: 09/15/98
Route: RESPIRATORY EXPOSURE WHOLE BODY Time: 07:46:06

B6C3F1 MICE MALE	CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
TUMOR SUMMARY				
Total Animals with Primary Neoplasms (b)	39	36	43	40
Total Primary Neoplasms	67	60	75	66
Total Animals with Benign Neoplasms	29	27	30	24
Total Benign Neoplasms	38	37	40	32
Total Animals with Malignant Neoplasms	23	20	26	28
Total Malignant Neoplasms	29	23	35	34
Total Animals with Metastatic Neoplasms	4	2	5	3
Total Metastatic Neoplasm	3	2	6	3
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

A 08

END OF REPORT

A 09

2 YEAR CHRONIC

REASONS FOR REMOVAL: ALL

REMOVAL DATE RANGE: ALL

TREATMENT GROUPS: INCLUDE ALL

NTP
LAB: Battelle Northwest

EXPERIMENT: 05180 TEST: 07
TEST TYPE: CHRONIC
CONT: NO1-ES-25335
PATHOLOGIST: MILLER, RODNEY

STATISTICAL ANALYSIS OF PRIMARY TUMORS
GALLIUM ARSENIDE

CAGES FROM 0000 TO LAST CAGE
ROUTE: RESPIRATORY EXPOSURE WHOLE BODY

REPORT: PETEPT08
DATE: 09/15/98

TIME: 07:48:25

NTP C#: 62033B
CAS: 1303-00-0000

Mice(B6C3F1)

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
Bone Marrow
Brain
Heart
Islets, Pancreatic
Kidney
Liver
Lung
Ovary
Pituitary Gland
Spleen
Testes
Thyroid Gland
Urinary Bladder

A II

NTP
LAB: Battelle Northwest
EXPERIMENT: 05180 TEST: 07
TEST TYPE: CHRONIC
CONT: NO1-ES-25335
PATHOLOGIST: MILLER, RODNEY

STATISTICAL ANALYSIS OF PRIMARY TUMORS
GALLIUM ARSENIDE

CAGES FROM 0000 TO LAST CAGE
ROUTE: RESPIRATORY EXPOSURE WHOLE BODY

REPORT: PEIRPT08
DATE: 09/15/98
TIME: 07:48:25

NTP C#: G20338
CAS: 1303-00-0000

SUMMARY OF STATISTICALLY SIGNIFICANT (P<=.05) RESULTS
IN THE ANALYSIS OF GALLIUM ARSENIDE

Female Mice

Organ	Morphology
Liver	Hepatocellular Carcinoma
Stomach, Forestomach	Squamous Cell Papilloma
Thyroid Gland: Follicular Cell	Carcinoma
	Carcinoma or Adenoma
All Organs	Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type
	Malignant and Benign Tumors

A 12

Date: 09/15/98 EXPERIMENT: 05180 TEST: 07 GALLIUM ARSENIDE

Statistical Analysis of Primary Tumors in Mice(B6C3F1)

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Bone Marrow Hemangiosarcoma								
TUMOR RATES								
OVERALL (a)	0/49 (0%)	0/50 (0%)	2/50 (4%)	1/48 (2%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	4.6%	2.2%	2.2%	2.2%	0.0%	0.0%
TERMINAL (d)	0/34 (0%)	0/38 (0%)	0/34 (0%)	0/34 (0%)	1/36 (3%)	0/34 (0%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	---	---	502	665	735 (T)	672	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.212	(e)	P=0.237	P=0.500	P=0.236N	P=0.759	P=0.530N	P=0.543N
POLY 3	P=0.216	(e)	P=0.242	P=0.507	P=0.220N	P=0.757N	P=0.520N	P=0.513N
POLY 1.5	P=0.212	(e)	P=0.243	P=0.505	P=0.216N	P=0.759N	P=0.513N	P=0.507N
POLY 6	P=0.219	(e)	P=0.242	P=0.510	P=0.224N	P=0.755N	P=0.526N	P=0.519N
LOGISTIC REGRESSION	P=0.147	(e)	P=0.220	P=0.475	P=0.214N	P=0.762N	(e)	(e)
COCH-ARM / FISHERS	P=0.201	(e)	P=0.253	P=0.495	P=0.208N	P=0.753N	P=0.500N	P=0.500N

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Harderian Gland Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	4/50 (8%)	4/50 (8%)	4/50 (8%)	2/50 (4%)	3/50 (6%)	2/50 (4%)	2/50 (4%)
POLY-3 ADJUSTED (b)	4.6%	8.6%	9.0%	8.8%	4.4%	6.6%	4.8%	4.8%
TERMINAL (d)	2/35 (6%)	1/38 (3%)	1/34 (3%)	2/34 (6%)	1/36 (3%)	2/34 (6%)	1/31 (3%)	2/29 (7%)
FIRST INCIDENCE	733 (T)	609	548	561	633	659	643	735 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.334	P=0.385	P=0.334	P=0.333	P=0.569N	P=0.497	P=0.639	P=0.626
POLY 3	P=0.361	P=0.363	P=0.342	P=0.354	P=0.524N	P=0.504	P=0.658	P=0.668
POLY 1.5	P=0.361	P=0.356	P=0.341	P=0.351	P=0.506N	P=0.500	P=0.670	P=0.679
POLY 6	P=0.360	P=0.374	P=0.345	P=0.357	P=0.543N	P=0.506	P=0.64[illegible]	P=0.655
LOGISTIC REGRESSION	P=0.342	P=0.348	P=0.336	P=0.343	P=0.505N	P=0.500	P=0.69[illegible]	P=0.680
COCH-ARM / FISHERS	P=0.349	P=0.339	P=0.339	P=0.339	P=0.483N	P=0.500	P=0.691N	P=0.691N

A 13

Statistical Analysis of Primary Tumors in Mice(B6C3F1)
Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3	Females CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
Harderian Gland Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	3/50 (6%)	3/50 (6%)	3/50 (6%)	1/50 (2%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.3%	2.2%	6.9%	6.7%	6.6%	2.2%	2.5%	0.0%
TERMINAL (d)	0/35 (0%)	1/38 (3%)	2/34 (6%)	3/34 (9%)	2/36 (6%)	1/31 (3%)	1/31 (3%)	0/29 (0%)
FIRST INCIDENCE	686	733 (T)	645	733 (T)	617	735 (T)	735 (T)	
STATISTICAL TESTS								
LIFE TABLE	P=0.132	P=0.746N	P=0.290	P=0.297	P=0.121N	P=0.320N	P=0.360N	P=0.155N
POLY 3	P=0.146	P=0.752N	P=0.299	P=0.313	P=0.105N	P=0.305N	P=0.345N	P=0.133N
POLY 1.5	P=0.148	P=0.754N	P=0.302	P=0.313	P=0.099N	P=0.306N	P=0.331N	P=0.126N
POLY 6	P=0.143	P=0.749N	P=0.294	P=0.311	P=0.110N	P=0.304N	P=0.358N	P=0.139N
LOGISTIC REGRESSION	P=0.146	P=0.757N	P=0.303	P=0.313	P=0.102N	P=0.305N	P=0.328N	P=0.121N
COCH-ARM / FISHERS	P=0.146	P=0.753N	P=0.309	P=0.309	P=0.093N	P=0.309N	P=0.309N	P=0.321N

Dose	Males CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3	Females CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
Harderian Gland Carcinoma or Adenoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	5/50 (10%)	7/50 (14%)	7/50 (14%)	5/50 (10%)	4/50 (8%)	3/50 (6%)	2/50 (4%)
POLY-3 ADJUSTED (b)	6.8%	10.8%	15.7%	15.4%	11.0%	8.8%	7.3%	4.8%
TERMINAL (d)	2/35 (6%)	2/38 (5%)	3/34 (9%)	5/34 (15%)	3/36 (8%)	3/34 (9%)	2/31 (7%)	2/29 (7%)
FIRST INCIDENCE	686	603	548	561	617	659	643	735 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.122	P=0.408	P=0.156	P=0.156	P=0.228N	P=0.513N	P=0.441N	P=0.397N
POLY 3	P=0.137	P=0.385	P=0.162	P=0.171	P=0.189N	P=0.500N	P=0.417N	P=0.250N
POLY 1.5	P=0.138	P=0.377	P=0.162	P=0.169	P=0.173N	P=0.502N	P=0.397N	P=0.235N
POLY 6	P=0.134	P=0.396	P=0.165	P=0.171	P=0.207N	P=0.501N	P=0.437N	P=0.268N
LOGISTIC REGRESSION	P=0.131	P=0.370	P=0.159	P=0.167	P=0.172N	P=0.500N	P=0.377N	P=0.227N
COCH-ARM / FISHERS	P=0.131	P=0.357	P=0.159	P=0.159	P=0.154N	P=0.500N	P=0.357N	P=0.218N

Date: 09/15/98 EXPERIMENT: 05180 TEST: 07 GALLIUM ARSENIDE

Statistical Analysis of Primary Tumors in Mice(B6C3F1)

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Intestine Small: Jejunum Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	2/50 (4%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	4.6%	4.3%	0.0%	2.2%	0.0%	0.0%	0.0%	2.4%
TERMINAL (d)	2/35 (6%)	0/38 (0%)	0/34 (0%)	0/34 (0%)	0/36 (0%)	0/34 (0%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	733 (T)	481	---	710	---	---	---	707
STATISTICAL TESTS								
LIFE TABLE	P=0.272N	P=0.667N	P=0.245N	P=0.497N	P=0.171	(e)	(e)	P=0.478
POLY 3	P=0.270N	P=0.669N	P=0.242N	P=0.491N	P=0.178	(e)	(e)	P=0.488
POLY 1.5	P=0.267N	P=0.676N	P=0.239N	P=0.492N	P=0.182	(e)	(e)	P=0.493
POLY 6	P=0.274N	P=0.659N	P=0.245N	P=0.490N	P=0.174	(e)	(e)	P=0.482
LOGISTIC REGRESSION	P=0.275N	P=0.647	(e)	P=0.492N	P=0.180	(e)	(e)	P=0.492
COCH-ARM / FISHERS	P=0.263N	P=0.691N	P=0.247N	P=0.500N	P=0.186	(e)	(e)	P=0.500

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Intestine Small: Site Unspecified Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	2/50 (4%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)
POLY-3 ADJUSTED (b)	4.6%	4.3%	0.0%	2.2%	0.0%	0.0%	0.0%	2.4%
TERMINAL (d)	2/35 (6%)	0/38 (0%)	0/34 (0%)	0/34 (0%)	0/36 (0%)	0/34 (0%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	733 (T)	481	---	710	---	---	---	707
STATISTICAL TESTS								
LIFE TABLE	P=0.272N	P=0.667N	P=0.245N	P=0.497N	P=0.171	(e)	(e)	P=0.478
POLY 3	P=0.270N	P=0.669N	P=0.242N	P=0.491N	P=0.178	(e)	(e)	P=0.488
POLY 1.5	P=0.267N	P=0.676N	P=0.239N	P=0.492N	P=0.182	(e)	(e)	P=0.493
POLY 6	P=0.274N	P=0.659N	P=0.245N	P=0.490N	P=0.174	(e)	(e)	P=0.482
LOGISTIC REGRESSION	P=0.275N	P=0.647	(e)	P=0.492N	P=0.180	(e)	(e)	P=0.492
COCH-ARM / FISHERS	P=0.263N	P=0.691N	P=0.247N	P=0.500N	P=0.186	(e)	(e)	P=0.500

B 01

Statistical Analysis of Primary Tumors in Mice(B6C3F1)

Terminal Sacrifice at 105 weeks

GALLIUM ARSENIDE

Dose	Males CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3	Females CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
Islets, Pancreatic Adenoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	0/48 (0%)	3/49 (6%)	[illegible]	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/48 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	7.1%	[illegible]	2.2%	0.0%	0.0%	0.0%
TERMINAL (d)	0/35 (0%)	0/36 (0%)	3/34 (9%)	[illegible]	0/36 (0%)	0/34 (0%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	---	--	733 (T)	--	707	---	--	---
STATISTICAL TESTS								
LIFE TABLE	P=0.458	(e)	P=0.116	[illegible]	P=0.372N	P=0.495N	P=0.527N	P=0.522N
POLY 3	P=0.484	(e)	P=0.113	(e)	P=0.364N	P=0.498N	P=0.520N	P=0.518N
POLY 1.5	P=0.478	(e)	P=0.114	(e)	P=0.361N	P=0.500N	P=0.514N	P=0.514N
POLY 6	P=0.488	(e)	P=0.111	(e)	P=0.367N	P=0.498N	P=0.526N	P=0.523N
LOGISTIC REGRESSION	(e)	(e)	P=0.116	(e)	P=0.362N	P=0.500N	P=0.515N	P=0.514N
COCH-ARM / FISHERS	P=0.458	(e)	P=0.117	(e)	P=0.356N	P=0.500N	P=0.500N	P=0.510N

Dose	Males CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3	Females CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
Liver Hemangiosarcoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	2/50 (4%)	3/50 (6%)	[illegible]	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	2.3%	4.4%	7.0%	[illegible]	0.0%	0.0%	0.0%	0.0%
TERMINAL (d)	0/35 (0%)	2/38 (5%)	2/34 (6%)	[illegible]	0/36 (0%)	0/34 (0%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	570	733 (T)	692	[illegible]	---	---	---	--
STATISTICAL TESTS								
LIFE TABLE	P=0.576N	P=0.524	P=0.296	P=0.756N	(e)	(e)	(e)	(e)
POLY 3	P=0.553N	P=0.511	P=0.294	P=0.758N	(e)	(e)	(e)	(e)
POLY 1.5	P=0.552N	P=0.509	P=0.300	P=0.759N	(e)	(e)	(e)	(e)
POLY 6	P=0.556N	P=0.514	P=0.288	P=0.756N	(e)	(e)	(e)	(e)
LOGISTIC REGRESSION	P=0.561N	P=0.485	P=0.305	P=0.754	(e)	(e)	(e)	(e)
COCH-ARM / FISHERS	P=0.558N	P=0.500	P=0.309	P=0.753N	(e)	(e)	(e)	(e)

B 02

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Liver								
Hepatocellular Adenoma								
TUMOR RATES								
OVERALL (a)	16/50 (32%)	18/50 (36%)	19/50 (38%)	17/50 (34%)	11/50 (22%)	10/50 (20%)	12/50 (24%)	10/50 (20%)
POLY-3 ADJUSTED (b)	35.1%	36.5%	42.4%	37.5%	24.5%	22.0%	29.3%	23.3%
TERMINAL (d)	13/35 (37%)	11/38 (29%)	15/34 (44%)	14/34 (41%)	11/36 (31%)	9/34 (27%)	10/31 (32%)	8/29 (28%)
FIRST INCIDENCE	457	473	502	656	735 (T)	715	629	505
STATISTICAL TESTS								
LIFE TABLE	P=0.409	P=0.525	P=0.313	P=0.477	P=0.347	P=0.556N	P=0.338	P=0.487
POLY 3	P=0.412	P=0.527	P=0.306	P=0.490	P=0.503	P=0.487N	P=0.400	P=0.547N
POLY 1.5	P=0.452	P=0.493	P=0.323	P=0.504	P=0.537	P=0.497N	P=0.432	P=0.526N
POLY 6	P=0.364	P=0.568	P=0.289	P=0.474	P=0.468	P=0.479N	P=0.375	P=0.569N
LOGISTIC REGRESSION	P=0.495	P=0.371	P=0.330	P=0.531	P=0.427	P=0.537N	P=0.337	P=0.592N
COCH-ARM / FISHERS	P=0.492	P=0.417	P=0.338	P=0.500	P=0.509N	P=0.500N	P=0.500	P=0.500N

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Liver								
Hepatocellular Carcinoma								
TUMOR RATES								
OVERALL (a)	13/50 (26%)	9/50 (18%)	12/50 (24%)	17/50 (34%)	12/50 (24%)	11/50 (22%)	4/50 (8%)	8/50 (16%)
POLY-3 ADJUSTED (b)	29.0%	19.1%	26.9%	35.3%	26.3%	23.7%	9.7%	18.6%
TERMINAL (d)	7/35 (20%)	6/38 (16%)	8/34 (24%)	9/34 (27%)	8/36 (22%)	5/34 (15%)	2/31 (7%)	2/29 (7%)
FIRST INCIDENCE	561	478	573	406	633	659	629	628
STATISTICAL TESTS								
LIFE TABLE	P=0.085	P=0.191N	P=0.532N	P=0.276	P=0.225N	P=0.523N	P=0.065N	P=0.388N
POLY 3	P=0.108	P=0.195N	P=0.505N	P=0.333	P=0.140N	P=0.479N	P=0.040N*	P=0.269N
POLY 1.5	P=0.103	P=0.204N	P=0.500N	P=0.312	P=0.124N	P=0.493N	P=0.035N*	P=0.250N
POLY 6	P=0.111	P=0.186N	P=0.511N	P=0.350	P=0.159N	P=0.463N	P=0.046N*	P=0.287N
LOGISTIC REGRESSION	P=0.088	P=0.224N	P=0.508N	P=0.245	P=0.130N	P=0.497N	P=0.040N*	P=0.266N
COCH-ARM / FISHERS	P=0.090	P=0.235N	P=0.500N	P=0.257	P=0.105N	P=0.500N	P=0.027N*	P=0.227N

B 03

Statistical Analysis of [illegible] Tumors in Mice(B6C3F1) GALLIUM ARSENIDE

Terminal Sacrifice at 103 weeks

Dose	Males CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3	Females CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
Liver								
Hepatocellular Carcinoma or Hepatocellular Adenoma								
TUMOR RATES								
OVERALL (a)	26/50 (52%)	23/50 (46%)	27/50 (54%)	30/50 (60%)	21/50 (42%)	19/50 (38%)	14/50 (28%)	18/50 (36%)
POLY-3 ADJUSTED (b)	55.7%	46.6%	58.0%	61.8%	46.1%	40.8%	33.9%	41.1%
TERMINAL (d)	17/35 (49%)	15/38 (40%)	19/34 (56%)	19/34 (56%)	17/36 (47%)	12/34 (35%)	11/31 (36%)	10/29 (35%)
FIRST INCIDENCE	457	473	502	406	633	659	629	505
STATISTICAL TESTS								
LIFE TABLE	P=0.117	P=0.252N	P=0.455	P=0.299	P=0.507	P=0.478N	P=0.243N	P=0.523
POLY 3	P=0.129	P=0.244N	P=0.494	P=0.344	P=0.357N	P=0.383N	P=0.172N	P=0.395N
POLY 1.5	P=0.134	P=0.269N	P=0.502	P=0.332	P=0.316N	P=0.405N	P=0.146N	P=0.371N
POLY 6	P=0.121	P=0.221N	P=0.487	P=0.353	P=0.401N	P=0.355N	P=0.197N	P=0.417N
LOGISTIC REGRESSION	P=0.127	P=0.365N	P=0.494	P=0.280	P=0.401N	P=0.398N	P=0.201N	P=0.440N
COCH-ARM / FISHERS	P=0.128	P=0.345N	P=0.500	P=0.273	P=0.268N	P=0.419N	P=0.104N	P=0.341N

Dose	Males CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3	Females CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
Liver								
Hepatocellular Carcinoma, Hepatocellular Adenoma, Hepatoblastoma								
TUMOR RATES								
OVERALL (a)	26/50 (52%)	23/50 (46%)	27/50 (54%)	30/50 (60%)	21/50 (42%)	19/50 (38%)	14/50 (28%)	18/50 (36%)
POLY-3 ADJUSTED (b)	55.7%	46.6%	58.0%	61.8%	46.1%	40.8%	33.9%	41.1%
TERMINAL (d)	17/35 (49%)	15/38 (40%)	19/34 (56%)	19/34 (56%)	17/36 (47%)	12/34 (35%)	11/31 (36%)	10/29 (35%)
FIRST INCIDENCE	457	473	502	406	633	659	629	505
STATISTICAL TESTS								
LIFE TABLE	P=0.117	P=0.252N	P=0.455	P=0.299	P=0.507	P=0.478N	P=0.243N	P=0.523
POLY 3	P=0.129	P=0.244N	P=0.494	P=0.344	P=0.357N	P=0.383N	P=0.172N	P=0.395N
POLY 1.5	P=0.134	P=0.269N	P=0.502	P=0.332	P=0.316N	P=0.405N	P=0.146N	P=0.371N
POLY 6	P=0.121	P=0.221N	P=0.487	P=0.353	P=0.401N	P=0.355N	P=0.197N	P=0.417N
LOGISTIC REGRESSION	P=0.127	P=0.365N	P=0.494	P=0.280	P=0.401N	P=0.398N	P=0.201N	P=0.440N
COCH-ARM / FISHERS	P=0.128	P=0.345N	P=0.500	P=0.273	P=0.268N	P=0.419N	P=0.104N	P=0.341N

B 04

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Liver								
Hepatocholangiocarcinoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	2/50 (4%)
POLY-3 ADJUSTED (b)	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	2.4%	4.7%
TERMINAL (d)	0/35 (0%)	1/38 (3%)	0/34 (0%)	0/34 (0%)	0/36 (0%)	0/34 (0%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	---	481	---	---	---	---	553	490
STATISTICAL TESTS								
LIFE TABLE	P=0.268N	P=0.251	(e)	(e)	P=0.054	(e)	P=0.487	P=0.219
POLY 3	P=0.254N	P=0.251	(e)	(e)	P=0.055	(e)	P=0.483	P=0.227
POLY 1.5	P=0.256N	P=0.247	(e)	(e)	P=0.057	(e)	P=0.488	P=0.232
POLY 6	P=0.253N	P=0.255	(e)	(e)	P=0.052	(e)	P=0.479	P=0.222
LOGISTIC REGRESSION	P=0.283N	P=0.176	(e)	(e)	P=0.059	(e)	P=0.563	P=0.250
COCH-ARM / FISHERS	P=0.264N	P=0.247	(e)	(e)	P=0.060	(e)	P=0.500	P=0.247

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Lung								
Alveolar/Bronchiolar Adenoma								
TUMOR RATES								
OVERALL (a)	13/50 (26%)	10/50 (20%)	11/50 (22%)	7/50 (14%)	6/50 (12%)	4/50 (8%)	1/50 (2%)	3/50 (6%)
POLY-3 ADJUSTED (b)	29.4%	21.6%	25.6%	15.3%	13.3%	8.8%	2.5%	7.1%
TERMINAL (d)	11/35 (31%)	8/38 (21%)	10/34 (29%)	5/34 (15%)	4/36 (11%)	4/34 (12%)	1/31 (3%)	2/29 (7%)
FIRST INCIDENCE	686	659	729	555	617	735 (T)	(T)	[illegible]
STATISTICAL TESTS								
LIFE TABLE	P=0.160N	P=0.244N	P=0.443N	P=0.119N	P=0.231N	P=0.403N	P=0.089N	P=0.345N
POLY 3	P=0.111N	P=0.271N	P=0.437N	P=0.085N	P=0.179N	P=0.369N	P=0.075N	P=0.273N
POLY 1.5	P=0.112N	P=0.283N	P=0.420N	P=0.089N	P=0.168N	P=0.372N	P=0.068N	P=0.280N
POLY 6	P=0.113N	P=0.256N	P=0.458N	P=0.081N	P=0.191N	P=0.369N	P=0.082N	P=0.288N
LOGISTIC REGRESSION	P=0.122N	P=0.257N	P=0.460N	P=0.093N	P=0.184N	P=0.361N	P=0.075N	P=0.258N
COCH-ARM / FISHERS	P=0.119N	P=0.318N	P=0.408N	P=0.105N	P=0.154N	P=0.370N	P=0.056N	P=0.243N

R 05

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Lung Alveolar/Bronchiolar Carcinoma								
TUMOR RATES								
OVERALL (a)	3/50 (6%)	6/50 (12%)	6/50 (12%)	6/50 (12%)	1/50 (2%)	0/50 (0%)	3/50 (6%)	3/50 (6%)
POLY-3 ADJUSTED (b)	6.8%	13.0%	13.6%	13.3%	2.2%	0.0%	7.3%	6.9%
TERMINAL (d)	3/35 (9%)	4/38 (11%)	3/34 (9%)	5/34 (15%)	1/36 (3%)	0/34 (0%)	2/31 (7%)	1/29 (3%)
FIRST INCIDENCE	735 (T)	7[illegible]	393	699	735 (T)	---	659	365
STATISTICAL TESTS								
LIFE TABLE	P=0.254	P=0.294	P=0.234	P=0.230	P=0.059	P=0.511N	P=0.255	P=0.267
POLY 3	P=0.296	P=0.267	P=0.244	P=0.255	P=0.071	P=0.498N	P=0.273	P=0.295
POLY 1.5	P=0.293	P=0.260	P=0.245	P=0.254	P=0.075	P=0.500N	P=0.283	P=0.301
POLY 6	P=0.292	P=0.276	P=0.242	P=0.256	P=0.066	P=0.497N	P=0.265	P=0.288
LOGISTIC REGRESSION	P=0.290	P=0.274	P=0.242	P=0.249	P=0.084	(e)	P=0.268	P=0.331
COCH-ARM / FISHERS	P=0.289	P=0.243	P=0.243	P=0.243	P=0.078	P=0.500N	P=0.309	P=0.309

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Lung Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma								
TUMOR RATES								
OVERALL (a)	1[illegible] (30%)	14/50 (28%)	16/50 (32%)	13/50 (26%)	7/50 (14%)	4/50 (8%)	4/50 (8%)	6/50 (12%)
POLY-3 ADJUSTED (b)	[illegible]	30.2%	36.3%	28.3%	15.5%	8.8%	9.8%	13.6%
TERMINAL (d)	[illegible] (37%)	11/38 (29%)	12/34 (35%)	10/34 (29%)	5/36 (14%)	4/34 (12%)	3/31 (10%)	3/29 (10%)
FIRST INCIDENCE	686	659	393	555	617	735 (T)	659	365
STATISTICAL TESTS								
LIFE TABLE	P=0.503N	P=0.395N	P=0.458	P=0.440N	P=0.426	P=0.294N	P=0.356N	P=0.605
POLY 3	P=0.392N	P=0.438N	P=0.498	P=0.362N	P=0.527	P=0.260N	P=0.322N	P=0.520N
POLY 1.5	P=0.394N	P=0.455N	P=0.505	P=0.373N	P=0.543	P=0.263N	P=0.301N	P=0.509N
POLY 6	P=0.395N	P=0.415N	P=0.486	P=0.351N	P=0.510	P=0.259N	P=0.340N	P=0.535N
LOGISTIC REGRESSION	P=0.416N	P=0.420N	P=0.466	P=0.380N	P=0.552	P=0.253N	P=0.322N	P=0.471N
COCH-ARM / FISHERS	P=0.414N	P=0.500N	P=0.500	P=0.412N	P=0.558	P=0.262N	P=0.262N	P=0.500N

B 06

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Mammary Gland Carcinoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	1/50 (2%)	2/50 (4%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	2.2%	2.2%	2.5%	4.7%
TERMINAL (d)	0/35 (0%)	0/38 (0%)	0/34 (0%)	0/34 (0%)	1/36 (3%)	0/34 (0%)	1/31 (3%)	1/29 (3%)
FIRST INCIDENCE	---	---	---	---	735 (T)	715	735 (T)	646
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.286	P=0.757	P=0.728	P=0.447
POLY 3	(e)	(e)	(e)	(e)	P=0.319	P=0.758N	P=0.738	P=0.481
POLY 1.5	(e)	(e)	(e)	(e)	P=0.330	P=0.760N	P=0.746	P=0.489
POLY 6	(e)	(e)	(e)	(e)	P=0.309	P=0.756N	P=0.731	P=0.472
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.319	P=0.760N	P=0.728	P=0.488
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.344	P=0.753N	P=0.753N	P=0.500

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Mesentery Hemangiosarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)
POLY-3 ADJUSTED (b)	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	0.0%
TERMINAL (d)	1/35 (3%)	0/38 (0%)	0/34 (0%)	0/34 (0%)	0/36 (0%)	0/34 (0%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	570	---	---	---	---	---	629	---
STATISTICAL TESTS								
LIFE TABLE	P=0.166N	P=0.226N	P=0.243N	P=0.241N	P=0.629	(e)	P=0.471	(e)
POLY 3	P=0.167N	P=0.230N	P=0.245N	P=0.234N	P=0.626	(e)	P=0.482	(e)
POLY 1.5	P=0.165N	P=0.231N	P=0.241N	P=0.234N	P=0.637	(e)	P=0.488	(e)
POLY 6	P=0.169N	P=0.228N	P=0.249N	P=0.236N	P=0.613	(e)	P=0.478	(e)
LOGISTIC REGRESSION	P=0.164N	P=0.257N	P=0.238N	P=0.253N	P=0.659	(e)	P=0.528	(e)
COCH-ARM / FISHERS	P=0.160N	P=0.247N	P=0.247N	P=0.247N	P=0.649	(e)	P=0.500	(e)

B 07

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Ovary Cystadenoma								
TUMOR RATES								
OVERALL (a)					2/49 (4%)	1/50 (2%)	1/50 (2%)	3/46 (7%)
POLY-3 ADJUSTED (b)					4.4%	2.2%	2.[illegible]	7.6%
TERMINAL (d)					1/36 (3%)	1/34 (3%)	1/31 (3%)	1/28 (4%)
FIRST INCIDENCE					639	735 (T)	735 (T)	505
STATISTICAL TESTS								
LIFE TABLE					P=0.233	P=0.509N	0.551N	P=0.435
POLY 3					P=0.[illegible]45	P=0.499N	P=0.537N	P=0.442
POLY 1.5					P=0.255	P=0.499N	P=0.52[illegible]N	P=0.4[illegible]
POLY 6					P=0.236	P=0.499N	P=0.549N	P=0.432
LOGISTIC REGRESSION					P=0.292	P=0.493N	P=0.517N	P=0.614
COCH-ARM / FISHERS					P=0.269	P=0.492N	P=0.492N	P=0.470

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Pituitary Gland: Pars Distalis or Unspecified Site Adenoma								
TUMOR RATES								
OVERALL (a)	0/48 (0%)	0/48 (0%)	0/47 (0%)	0/47 (0%)	3/46 (7%)	7/48 (15%)	5/50 (10%)	7/47 (15%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	7.2%	16.1%	12.1%	17.7%
TERMINAL (d)	0/34 (0%)	0/36 (0%)	0/33 (0%)	0/34 (0%)	1/33 (3%)	6/34 (18%)	3/31 (10%)	6/29 (21%)
FIRST INCIDENCE	---	---	---	---	729	701	483	646
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.170	P=0.167	P=0.310	P=0.109
POLY 3	(e)	(e)	(e)	(e)	P=0.204	P=0.173	P=0.350	P=0.[illegible]3
POLY 1.5	(e)	(e)	(e)	(e)	P=0.224	P=0.170	P=0.364	P=0.144
POLY 6	(e)	(e)	(e)	(e)	P=0.186	P=0.178	P=0.339	P=0.124
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.198	P=0.177	P=0.371	P=0.119
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.261	P=0.176	P=0.405	P=0.167

B 08

Statistical Analysis of Primary Tumors in Mice(B6C3F1) GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Pituitary Gland: Pars Distalis or Unspecified Site Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	0/48 (0%)	0/48 (0%)	0/47 (0%)	0/47 (0%)	3/46 (7%)	7/48 (15%)	6/50 (12%)	7/47 (15%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	7.2%	16.1%	14.5%	17.7%
TERMINAL (d)	0/34 (0%)	0/36 (0%)	0/33 (0%)	0/34 (0%)	1/33 (3%)	6/34 (18%)	4/31 (13%)	6/29 (21%)
FIRST INCIDENCE	---	---	---	---	729	701	483	646
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.158	P=0.167	P=0.205	P=0.109
POLY 3	(e)	(e)	(e)	(e)	P=0.189	P=0.173	P=0.235	P=0.133
POLY 1.5	(e)	(e)	(e)	(e)	P=0.210	P=0.170	P=0.249	P=0.144
POLY 6	(e)	(e)	(e)	(e)	P=0.171	P=0.178	P=0.225	P=0.124
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.183	P=0.177	P=0.247	P=0.119
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.247	P=0.176	P=0.287	P=0.167

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Pituitary Gland: Pars Intermedia Adenoma								
TUMOR RATES								
OVERALL (a)	0/48 (0%)	0/48 (0%)	0/47 (0%)	0/47 (0%)	0/46 (0%)	0/48 (0%)	2/50 (4%)	0/47 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.9%	0.0%
TERMINAL (d)	0/34 (0%)	0/36 (0%)	0/33 (0%)	0/34 (0%)	0/33 (0%)	0/34 (0%)	1/31 (3%)	0/29 (0%)
FIRST INCIDENCE	---	---	---	---	---	---	659	---
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.504	(e)	P=0.216	(e)
POLY 3	(e)	(e)	(e)	(e)	P=0.501	(e)	P=0.232	(e)
POLY 1.5	(e)	(e)	(e)	(e)	P=0.518	(e)	P=0.239	(e)
POLY 6	(e)	(e)	(e)	(e)	P=0.484	(e)	P=0.227	(e)
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.533	(e)	P=0.243	(e)
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.539	(e)	P=0.269	(e)

B 09

Statistical Analysis of Primary Tumors in Mice(B6C3F1)

Terminal Sacrifice at 105 weeks

GALLIUM ARSENIDE

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Pituitary Gland: Pars Intermedia Carcinoma								
TUMOR RATES								
OVERALL (a)	0/48 (0%)	0/47 (0%)	0/47 (0%)	0/47 (0%)	0/46 (0%)	0/48 (0%)	2/50 (4%)	0/47 (0%)
POLY-3 ADJUSTED (b)	0.0%	[illegible]	0.0%	0.0%	0.0%	0.0%	4.8%	0.0%
TERMINAL (d)	0/34 (0%)	0/26 (0%)	0/33 (0%)	0/34 (0%)	0/33 (0%)	0/34 (0%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	---	---	---	---	---	---	365	---
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.524	(e)	P=0.222	(e)
POLY 3	(e)	(e)	(e)	(e)	P=0.498	(e)	P=0.237	(e)
POLY 1.5	(e)	(e)	(e)	(e)	P=0.516	(e)	P=0.242	(e)
POLY 6	(e)	(e)	(e)	(e)	P=0.480	(e)	P=0.234	(e)
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.569	(e)	P=0.461	(e)
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.539	(e)	P=0.269	(e)

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Pituitary Gland: Pars Intermedia Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	0/48 (0%)	0/48 (0%)	0/47 (0%)	0/47 (0%)	0/46 (0%)	0/48 (0%)	4/50 (8%)	0/47 (0%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.5%	0.0%
TERMINAL (d)	0/34 (0%)	0/26 (0%)	0/33 (0%)	0/34 (0%)	0/33 (0%)	0/34 (0%)	1/31 (3%)	0/29 (0%)
FIRST INCIDENCE	---	---	---	---	---	---	365	---
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.394	(e)	P=0.055	(e)
POLY 3	(e)	(e)	(e)	(e)	P=0.370	(e)	P=0.061	(e)
POLY 1.5	(e)	(e)	(e)	(e)	P=0.394	(e)	P=0.063	(e)
POLY 6	(e)	(e)	(e)	(e)	P=0.346	(e)	P=0.059	(e)
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.467	(e)	P=0.116	(e)
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.427	(e)	P=0.069	(e)

B 10

Statistical Analysis of Primary Tumors in Mice(B6C3F1) GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Skin								
Sarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	0/50 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	4/50 (8%)	4/50 (8%)	2/50 (4%)	4/50 (8%)
POLY-3 ADJUSTED (b)	0.0%	0.0%	0.0%	0.0%	8.7%	8.8%	4.8%	9.2%
TERMINAL (d)	0/35 (0%)	0/38 (0%)	0/34 (0%)	0/34 (0%)	0/36 (0%)	4/34 (12%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	---	---	---	---	533	735 (T)	365	412
STATISTICAL TESTS								
LIFE TABLE	(e)	(e)	(e)	(e)	P=0.540	P=0.627	P=0.396N	P=0.589
POLY 3	(e)	(e)	(e)	(e)	P=0.550N	P=0.636	P=0.385N	P=0.614
POLY 1.5	(e)	(e)	(e)	(e)	P=0.534N	P=0.637	P=0.368N	P=0.627
POLY 6	(e)	(e)	(e)	(e)	P=0.566N	P=0.631	P=0.404N	P=0.600
LOGISTIC REGRESSION	(e)	(e)	(e)	(e)	P=0.484N	P=0.643N	P=0.259N	P=0.602N
COCH-ARM / FISHERS	(e)	(e)	(e)	(e)	P=0.514N	P=0.643N	P=0.339N	P=0.643N

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Spleen								
Hemangiosarcoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	0/50 (0%)	2/49 (4%)	1/47 (2%)	0/50 (0%)	2/50 (4%)	2/50 (4%)	0/49 (0%)
POLY-3 ADJUSTED (b)	4.5%	0.0%	4.6%	2.3%	0.0%	4.4%	4.9%	0.0%
TERMINAL (d)	0/35 (0%)	0/38 (0%)	0/34 (0%)	0/34 (0%)	0/36 (0%)	1/34 (3%)	2/31 (7%)	0/29 (0%)
FIRST INCIDENCE	570	---	502	665	---	672	735 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.605	P=0.230N	P=0.684	P=0.500N	P=0.482N	P=0.239	P=0.206	(e)
POLY 3	P=0.601	P=0.231N	P=0.683	P=0.508N	P=0.458N	P=0.241	P=0.216	(e)
POLY 1.5	P=0.599	P=0.232N	P=0.686	P=0.510N	P=0.446N	P=0.238	P=0.223	(e)
POLY 6	P=0.600	P=0.230N	P=0.679	P=0.507N	P=0.470N	P=0.243	P=0.209	(e)
LOGISTIC REGRESSION	P=0.544	P=0.269N	P=0.678	P=0.584N	P=0.459N	P=0.238	P=0.206	(e)
COCH-ARM / FISHERS	P=0.592	P=0.247N	P=0.684	P=0.523N	P=0.430N	P=0.247	P=0.247	(e)

B 11

Statistical Analysis of Primary Tumors in Mice(B6C3F1) GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Stomach, Forestomach Squamous Cell Papilloma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	3/50 (6%)
POLY-3 ADJUSTED (b)	2.3%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	7.7%
TERMINAL (d)	1/35 (3%)	0/38 (0%)	0/34 (0%)	1/34 (3%)	0/36 (0%)	0/34 (0%)	0/31 (0%)	3/29 (10%)
FIRST INCIDENCE	733 (T)	---		733 (T)			-	735 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.520	P=0.484N	P=0.506N	P=0.755	P=0.007 **	(e)	(e)	P=0.085
POLY 3	P=0.530	P=0.491N	P=0.504N	P=0.755N	P=0.009 **	(e)	(e)	P=0.108
POLY 1.5	P=0.532	P=0.493N	P=0.502N	P=0.755N	P=0.009 **	(e)	(e)	P=0.113
POLY 6	P=0.526	P=0.488N	P=0.507N	P=0.755N	P=0.008 **	(e)	(e)	P=0.103
LOGISTIC REGRESSION	P=0.520	(e)	(e)	P=0.755	(e)	(e)	(e)	P=0.085
COCH-ARM / FISHERS	P=0.536	P=0.500N	P=0.500N	P=0.753N	P=0.011 *	(e)	(e)	P=0.123

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Testes Adenoma								
TUMOR RATES								
OVERALL (a)	0/50 (0%)	0/50 (0%)	2/50 (4%)	0/50 (0%)				
POLY-3 ADJUSTED (b)	0.0%	0.0%	4.7%	0.0%				
TERMINAL (d)	0/35 (0%)	0/38 (0%)	2/34 (6%)	0/34 (0%)				
FIRST INCIDENCE	---	---	733 (T)	---				
STATISTICAL TESTS								
LIFE TABLE	P=0.520	(e)	P=0.232	(e)				
POLY 3	P=0.544	(e)	P=0.232	(e)				
POLY 1.5	P=0.544	(e)	P=0.235	(e)				
POLY 6	P=0.542	(e)	P=0.229	(e)				
LOGISTIC REGRESSION	(e)	(e)	P=0.232	(e)				
COCH-ARM / FISHERS	P=0.536	(e)	P=0.247	(e)				

B 12

Statistical Analysis of Primary Tumors in Mice(B6C3F1) GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Thyroid Gland: Follicular Cell Adenoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/48 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	2/49 (4%)
POLY-3 ADJUSTED (b)	2.3%	2.2%	0.0%	0.0%	2.2%	0.0%	0.0%	4.9%
TERMINAL (d)	1/35 (3%)	1/38 (3%)	0/34 (0%)	0/34 (0%)	1/36 (3%)	0/34 (0%)	0/31 (0%)	2/28 (7%)
FIRST INCIDENCE	733 (T)	733 (T)	---	---	735 (T)	---	---	735 (T)
STATISTICAL TESTS								
LIFE TABLE	P=0.219N	P=0.743N	P=0.506N	P=0.506N	P=0.159	P=0.511N	P=0.530N	P=0.412
POLY 3	P=0.216N	P=0.751N	P=0.504N	P=0.498N	P=0.188	P=0.498N	P=0.520N	P=0.470
POLY 1.5	P=0.215N	P=0.753N	P=0.502N	P=0.500N	P=0.195	P=0.500N	P=0.513N	P=0.480
POLY 6	P=0.217N	P=0.747N	P=0.507N	P=0.497N	P=0.182	P=0.497N	P=0.526N	P=0.458
LOGISTIC REGRESSION	P=0.219N	P=0.743N	(e)	(e)	P=0.159	(e)	(e)	P=0.412
COCH-ARM / FISHERS	P=0.213N	P=0.753N	P=0.500N	P=0.510N	P=0.204	P=0.500N	P=0.500N	P=0.492

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Thyroid Gland: Follicular Cell Carcinoma								
TUMOR RATES								
OVERALL (a)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/48 (0%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	2/49 (4%)
POLY-3 ADJUSTED (b)	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%
TERMINAL (d)	1/35 (3%)	0/38 (0%)	0/34 (0%)	0/34 (0%)	0/36 (0%)	0/34 (0%)	0/31 (0%)	0/28 (0%)
FIRST INCIDENCE	733 (T)	---	---	---	---	---	---	628
STATISTICAL TESTS								
LIFE TABLE	P=0.362N	P=0.484N	P=0.506N	P=0.506N	P=0.037 *	(e)	(e)	P=0.214
POLY 3	P=0.370N	P=0.491N	P=0.504N	P=0.498N	P=0.037 *	(e)	(e)	P=0.220
POLY 1.5	P=0.366N	P=0.493N	P=0.502N	P=0.500N	P=0.039 *	(e)	(e)	P=0.225
POLY 6	P=0.374N	P=0.488N	P=0.507N	P=0.497N	P=0.036 *	(e)	(e)	P=0.215
LOGISTIC REGRESSION	P=0.362N	(e)	(e)	(e)	P=0.042 *	(e)	(e)	P=0.239
COCH-ARM / FISHERS	P=0.356N	P=0.500N	P=0.500N	P=0.510N	P=0.042 *	(e)	(e)	P=0.242

B 13

Dose	Males CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3	Females CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
Thyroid Gland: Follicular Cell Carcinoma or Adenoma								
TUMOR RATES								
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/50 (0%)	0/48 (0%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	1/49 (8%)
POLY-3 ADJUSTED (b)	4.6%	2.2%	0.0%	0.0%	2.2%	0.0%	0.0%	2.[illegible]%
TERMINAL (d)	2/35 (6%)	1/38 (3%)	0/34 (0%)	0/34 (0%)	1/36 (3%)	0/34 (0%)	0/33 (0%)	2/25 (8%)
FIRST INCIDENCE	733 (T)	733 (T)	---	---	735 (T)	---		628
STATISTICAL TESTS								
LIFE TABLE	P=0.313N	P=0.471N	P=0.245N	P=0.249N	P=0.014 *	P=0.511N	P=0.530N	P=0.122
POLY 3	P=0.111N	P=0.484N	P=0.242N	P=0.235N	P=0.016 *	P=0.498N	P=0.520N	P=0.156
POLY 1.5	P=0.110N	P=0.488N	P=0.239N	P=0.238N	P=0.018 *	P=0.500N	P=0.513N	P=0.1[illegible]
POLY 6	P=0.112N	P=0.479N	P=0.245N	P=0.233N	P=0.015 *	P=0.497N	P=0.526N	P=0.1[illegible]
LOGISTIC REGRESSION	P=0.113N	P=0.471N	(e)	(e)	P=0.018 *	(e)	(e)	P=0.157
COCH ARM / FISHERS	P=0.108N	P=0.500N	P=0.247N	P=0.258N	P=0.021 *	P=0.500N	P=0.500N	P=0.175

Dose	Males CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3	Females CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
Uterus Polyp Stromal								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)					1/50 (2%)	2/50 (4%)	2/50 (4%)	2/50 (4%)
POLY-3 ADJUSTED (b)					2.2%	4.4%	4.2%	4.8%
TERMINAL (d)					1/36 (3%)	2/34 (6%)	1/31 (3%)	2/29 (7%)
FIRST INCIDENCE					735 (T)	735 (T)	560	735 (T)
STATISTICAL TESTS								
LIFE TABLE					P=0.363	P=0.480	P=0.458	P=0.424
POLY 3					P=0.406	P=0.504	P=0.470	P=0.478
POLY 1.5					P=0.422	P=0.501	P=0.479	P=0.487
POLY 6					P=0.389	P=0.506	P=0.463	P=0.467
LOGISTIC REGRESSION					P=0.416	P=0.480	P=0.505	P=0.424
COCH-ARM / FISHERS					P=0.442	P=0.500	P=0.500	P=0.500

B 14

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
Uterus Sarcoma Stromal or Polyp Stromal								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)					1/50 (2%)	2/50 (4%)	3/50 (6%)	2/50 (4%)
POLY-3 ADJUSTED (b)					2.2%	4.4%	7.2%	4.8%
TERMINAL (d)					1/36 (3%)	2/34 (6%)	1/31 (3%)	2/29 (7%)
FIRST INCIDENCE					735 (T)	735 (T)	560	735 (T)
STATISTICAL TESTS								
LIFE TABLE					P=0.332	P=0.480	P=0.266	P=0.424
POLY 3					P=0.370	P=0.504	P=0.278	P=0.478
POLY 1.5					P=0.387	P=0.501	P=0.286	P=0.487
POLY 6					P=0.351	P=0.509	P=0.272	P=0.467
LOGISTIC REGRESSION					P=0.393	P=0.4[illegible]	P=0.316	P=0.424
COCH-ARM / FISHERS					P=0.409	P=0.50[illegible]	P=0.309	P=0.500

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
All Organs Hemangioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	2/50 (4%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	2/50 (4%)	0/50 (0%)
POLY-3 ADJUSTED (b)	4.5%	2.2%	0.0%	0.0%	0.0%	2.2%	4.9%	.0%
TERMINAL (d)	1/35 (3%)	1/38 (3%)	0/34 (0%)	0/34 (0%)	0/36 (0%)	1/34 (3%)	2/31 (7%)	0/29 (0%)
FIRST INCIDENCE	561	733 (T)	---	---	---	735 (T)	735 (T)	---
STATISTICAL TESTS								
LIFE TABLE	P=0.112N	P=0.481N	P=0.248N	P=0.243N	P=0.644N	P=0.489	P=0.206	(e)
POLY 3	P=0.108N	P=0.489N	P=0.245N	P=0.234N	P=0.613N	P=0.502	P=0.216	(e)
POLY 1.5	P=0.107N	P=0.491N	P=0.241N	P=0.234N	P=0.602N	P=0.500	P=0.223	(e)
POLY 6	P=0.110N	P=0.486N	P=0.249N	P=0.236N	P=0.625N	P=0.503	P=0.209	(e)
LOGISTIC REGRESSION	P=0.105N	P=0.518N	P=0.239N	P=0.255N	(e)	P=0.489	P=0.206	(e)
COCH-ARM / FISHERS	P=0.105N	P=0.500N	P=0.247N	P=0.247N	P=0.588N	P=0.500	P=0.247	(e)

C01

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
All Organs Hemangiosarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	2/50 (4%)	6/50 (12%)	3/50 (6%)	1/50 (2%)	2/50 (4%)	3/50 (6%)	0/50 (0%)
POLY-3 ADJUSTED (b)	6.7%	4.4%	13.6%	6.6%	2.2%	4.4%	7.3%	0.0%
TERMINAL (d)	1/35 (3%)	2/38 (5%)	2/31 (6%)	1/34 (3%)	1/36 (3%)	1/34 (3%)	2/31 (7%)	0/29 (0%)
FIRST INCIDENCE	570	733 (T)	502	599	735 (T)	672	629	---
STATISTICAL TESTS								
LIFE TABLE	P=0.383	P=0.470N	P=0.236	P=0.658N	P=0.382N	P=0.492	P=0.256	P=0.543N
POLY 3	P=0.410	P=0.487N	P=0.236	P=0.651N	P=0.351N	P=0.505	P=0.273	P=0.513N
POLY 1.5	P=0.410	P=0.489N	P=0.240	P=0.652N	P=0.336N	P=0.502	P=0.283	P=0.507N
POLY 6	P=0.408	P=0.485N	P=0.232	P=0.651N	P=0.368N	P=0.509	P=0.266	P=0.519N
LOGISTIC REGRESSION	P=0.394	P=0.506N	P=0.242	P=0.638	P=0.335N	P=0.501	P=0.276	(e)
COCH-ARM / FISHERS	P=0.403	P=0.500N	P=0.243	P=0.661N	P=0.318N	P=0.500	P=0.309	P=0.500N

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
All Organs Hemangiosarcoma or Hemangioma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	5/50 (10%)	3/50 (6%)	6/50 (12%)	3/50 (6%)	1/50 (2%)	3/50 (6%)	5/50 (10%)	0/50 (0%)
POLY-3 ADJUSTED (b)	11.1%	6.5%	13.6%	6.6%	2.2%	6.6%	12.2%	0.0%
TERMINAL (d)	2/35 (6%)	3/38 (8%)	2/34 (6%)	1/34 (3%)	1/36 (3%)	2/34 (6%)	4/31 (13%)	0/29 (0%)
FIRST INCIDENCE	561	733 (T)	502	599	735 (T)	672	629	---
STATISTICAL TESTS								
LIFE TABLE	P=0.465N	P=0.326N	P=0.478	P=0.362N	P=0.400N	P=0.296	P=0.074	P=0.543N
POLY 3	P=0.436N	P=0.347N	P=0.484	P=0.350N	P=0.359N	P=0.311	P=0.081	P=0.513N
POLY 1.5	P=0.433N	P=0.347N	P=0.493	P=0.348N	P=0.339N	P=0.307	P=0.088	P=0.507N
POLY 6	P=0.440N	P=0.348N	P=0.474	P=0.353N	P=0.381N	P=0.314	P=0.077	P=0.519N
LOGISTIC REGRESSION	P=0.445N	P=0.370N	P=0.500	P=0.392N	P=0.353N	P=0.308	P=0.080	(e)
COCH-ARM / FISHERS	P=0.436N	P=0.357N	P=0.500	P=0.357N	P=0.317N	P=0.309	P=0.102	P=0.500N

C 02

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
All Organs Histiocytic Sarcoma								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	3/50 (6%)	0/50 (0%)	0/50 (0%)	1/50 (2%)	1/50 (2%)	0/50 (0%)	0/50 (0%)	0/50 (0%)
POLY-3 ADJUSTED (b)	6.8%	0.0%	0.0%	2.2%	2.2%	0.0%	0.0%	0.0%
TERMINAL (d)	2/35 (6%)	0/38 (0%)	0/34 (0%)	0/34 (0%)	0/36 (0%)	0/34 (0%)	0/31 (0%)	0/29 (0%)
FIRST INCIDENCE	647	---	---	716	439	---	---	---
STATISTICAL TESTS								
LIFE TABLE	P=0.339N	P=0.111N	P=0.132N	P=0.306N	P=0.356N	P=0.504N	P=0.517N	P=0.504N
POLY 3	P=0.339N	P=0.112N	P=0.124N	P=0.298N	P=0.356N	P=0.501N	P=0.523N	P=0.516N
POLY 1.5	P=0.335N	P=0.114N	P=0.121N	P=0.298N	P=0.354N	P=0.502N	P=0.516N	P=0.509N
POLY 6	P=0.345N	P=0.110N	P=0.127N	P=0.300N	P=0.358N	P=0.501N	P=0.530N	P=0.523N
LOGISTIC REGRESSION	P=0.326N	P=0.117N	P=0.122N	P=0.299N	P=0.357N	P=0.427N	P=0.390N	P=0.543N
COCH-ARM / FISHERS	P=0.327N	P=0.121N	P=0.121N	P=0.309N	P=0.351N	P=0.500N	P=0.500N	P=0.500N

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
All Organs Malignant Lymphoma: Histiocytic, Lymphocytic, Mixed, NOS, or Undifferentiated Cell Type								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	1/50 (2%)	1/50 (2%)	2/50 (4%)	1/50 (2%)	3/50 (6%)	8/50 (16%)	11/50 (22%)	10/50 (20%)
POLY-3 ADJUSTED (b)	2.3%	2.2%	4.7%	2.2%	6.6%	17.2%	26.6%	23.1%
TERMINAL (d)	1/35 (3%)	1/38 (3%)	2/34 (6%)	1/34 (3%)	1/36 (3%)	4/34 (12%)	9/31 (29%)	4/29 (14%)
FIRST INCIDENCE	733 (T)	733 (T)	733 (T)	733 (T)	639	533	581	595
STATISTICAL TESTS								
LIFE TABLE	P=0.543	P=0.743N	P=0.490	P=0.755	P=0.026 *	P=0.107	P=0.012 *	P=0.026 *
POLY 3	P=0.571	P=0.751N	P=0.493	P=0.755N	P=0.035 *	P=0.105	P=0.011 *	P=0.027 *
POLY 1.5	P=0.572	P=0.753N	P=0.497	P=0.755N	P=0.042 *	P=0.102	P=0.013 *	P=0.030 *
POLY 6	P=0.567	P=0.747N	P=0.488	P=0.755N	P=0.030 *	P=0.108	P=0.009 **	P=0.025 *
LOGISTIC REGRESSION	P=0.543	P=0.743N	P=0.490	P=0.755	P=0.046 *	P=0.101	P=0.014 *	P=0.035 *
COCH-ARM / FISHERS	P=0.569	P=0.753N	P=0.500	P=0.753N	P=0.056	P=0.100	P=0.020 *	P=0.036 *

C 03

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
All Organs Benign Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	29/50 (58%)	27/50 (54%)	30/50 (60%)	24/50 (48%)	22/50 (44%)	24/50 (48%)	26/50 (52%)	22/50 (44%)
POLY-3 ADJUSTED (b)	62.4%	54.1%	65.5%	51.6%	47.7%	52.4%	60.6%	49.7%
TERMINAL (d)	23/35 (66%)	16/38 (42%)	23/34 (68%)	18/34 (53%)	16/36 (44%)	21/34 (62%)	19/31 (61%)	17/29 (59%)
FIRST INCIDENCE	457	473	502	555	617	659	493	505
STATISTICAL TESTS								
LIFE TABLE	P=0.362N	P=0.292N	P=0.443	P=0.255N	P=0.210	P=0.351	P=0.318	P=0.273
POLY 3	P=0.304N	P=0.268N	P=0.461	P=0.198N	P=0.461	P=0.404	P=0.154	P=0.510
POLY 1.5	P=0.263N	P=0.311N	P=0.485	P=0.191N	P=0.510	P=0.405	P=0.187	P=0.543
POLY 6	P=0.364N	P=0.220N	P=0.434	P=0.209N	P=0.408	P=0.393	P=0.131	P=0.468
LOGISTIC REGRESSION	P=0.224N	P=0.430N	P=0.482	P=0.178N	P=0.402	P=0.451	P=0.142	P=0.494
COCH-ARM / FISHERS	P=0.230N	P=0.420N	P=0.500	P=0.212N	P=0.507N	P=0.421	P=0.274	P=0.580N

Dose	Males CONTROL	Males 0.1 MG/M3	Males 0.5 MG/M3	Males 1.0 MG/M3	Females CONTROL	Females 0.1 MG/M3	Females 0.5 MG/M3	Females 1.0 MG/M3
All Organs Malignant Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	23/50 (46%)	20/50 (40%)	26/50 (52%)	28/50 (56%)	26/50 (52%)	23/50 (46%)	26/50 (52%)	26/50 (52%)
POLY-3 ADJUSTED (b)	50.1%	41.3%	55.3%	57.0%	53.8%	48.1%	56.9%	54.2%
TERMINAL (d)	14/35 (40%)	13/38 (34%)	15/34 (44%)	15/34 (44%)	15/36 (42%)	12/34 (35%)	16/31 (52%)	8/29 (28%)
FIRST INCIDENCE	561	478	393	406	439	533	281	365
STATISTICAL TESTS								
LIFE TABLE	P=0.085	P=0.259N	P=0.324	P=0.254	P=0.183	P=0.402N	P=0.338	P=0.333
POLY 3	P=0.110	P=0.258N	P=0.383	P=0.320	P=0.380	P=0.362N	P=0.460	P=0.562
POLY 1.5	P=0.100	P=0.278N	P=0.375	P=0.290	P=0.403	P=0.365N	P=0.508	P=0.576
POLY 6	P=0.120	P=0.243N	P=0.390	P=0.349	P=0.357	P=0.356N	P=0.406	P=0.551
LOGISTIC REGRESSION	P=0.076	P=0.330N	P=0.339	P=0.214	P=0.437	P=0.344N	P=0.555N	P=0.518N
COCH-ARM / FISHERS	P=0.078	P=0.343N	P=0.345	P=0.212	P=0.408	P=0.345N	P=0.579N	P=0.579N

C 04

Statistical Analysis of Primary Tumors in Mice(B6C3F1) - GALLIUM ARSENIDE

Terminal Sacrifice at 105 weeks

Dose	Males CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3	Females CONTROL	0.1 MG/M3	0.5 MG/M3	1.0 MG/M3
All Organs Malignant and Benign Tumors								
TUMOR RATES	#	#	#	#	#	#	#	#
OVERALL (a)	39/50 (78%)	36/50 (72%)	43/50 (86%)	40/50 (80%)	36/50 (72%)	36/50 (72%)	40/50 (80%)	39/50 (78%)
POLY-3 ADJUSTED (b)	81.8%	72.0%	88.3%	80.0%	74.3%	75.1%	84.5%	80.3%
TERMINAL (d)	27/35 (77%)	24/38 (63%)	29/34 (85%)	24/34 (71%)	24/36 (67%)	24/34 (71%)	26/31 (84%)	20/29 (69%)
FIRST INCIDENCE	457	473	393	406	439	533	281	365
STATISTICAL TESTS								
LIFE TABLE	P=0.209	P=0.211N	P=0.246	P=0.478	P=0.047 *	P=0.498	P=0.092	P=0.110
POLY 3	P=0.318	P=0.183N	P=0.266	P=0.514N	P=0.202	P=0.555	P=0.158	P=0.320
POLY 1.5	P=0.298	P=0.210N	P=0.255	P=0.555N	P=0.218	P=0.552	P=0.185	P=0.330
POLY 6	P=0.336	P=0.160N	P=0.279	P=0.477N	P=0.185	P=0.560	P=0.131	P=0.311
LOGISTIC REGRESSION	P=0.235	P=0.301N	P=0.209	P=0.526	P=0.176	P=0.587	P=0.192	P=0.315
COCH-ARM / FISHERS	P=0.233	P=0.322N	P=0.218	P=0.500	P=0.208	P=0.588N	P=0.241	P=0.322

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

C 06

CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY that the microimages appearing on this microfiche are accurate and complete reproductions of the records of U.S. Environmental Protection Agency documents as delivered in the regular course of business for microfilming.

Date produced 09 (Month) 27 (Day) 1999 (Year) Mary Turbeck Camera Operator

Place Syracuse (City) New York (State)

AMTEK corp