NATIONAL TOXICOLOGY PROGRAM
Technical Report Series
No. 403

TOXICOLOGY AND CARCINOGENESIS

STUDIES OF

RESORCINOL

(CAS NO. 108-46-3)

IN F344/N RATS AND B6C3F$_1$ MICE

(GAVAGE STUDIES)

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
National Institutes of Health

FOREWORD

The National Toxicology Program (NTP) is made up of four charter agencies of the U.S. Department of Health and Human Services (DHHS): the National Cancer Institute (NCI), National Institutes of Health; the National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health; the National Center for Toxicological Research (NCTR), Food and Drug Administration; and the National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control. In July 1981, the Carcinogenesis Bioassay Testing Program, NCI, was transferred to the NIEHS. The NTP coordinates the relevant programs, staff, and resources from these Public Health Service agencies relating to basic and applied research and to biological assay development and validation.

The NTP develops, evaluates, and disseminates scientific information about potentially toxic and hazardous chemicals. This knowledge is used for protecting the health of the American people and for the primary prevention of disease.

The studies described in this Technical Report were performed under the direction of the NIEHS and were conducted in compliance with NTP laboratory health and safety requirements and must meet or exceed all applicable federal, state, and local health and safety regulations. Animal care and use were in accordance with the Public Health Service Policy on Humane Care and Use of Animals. The prechronic and chronic studies were conducted in compliance with Food and Drug Administration (FDA) Good Laboratory Practice Regulations, and all aspects of the chronic studies were subjected to retrospective quality assurance audits before being presented for public review.

These studies are designed and conducted to characterize and evaluate the toxicologic potential, including carcinogenic activity, of selected chemicals in laboratory animals (usually two species, rats and mice). Chemicals selected for NTP toxicology and carcinogenesis studies are chosen primarily on the bases of human exposure, level of production, and chemical structure. Selection *per se* is not an indicator of a chemical's carcinogenic potential.

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NTP TECHNICAL REPORT

ON THE

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NATIONAL TOXICOLOGY PROGRAM
P.O. Box 12233
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CONTRIBUTORS

National Toxicology Program

Evaluated and interpreted results and reported findings

C.J. Alden, Ph.D.
G.A. Boorman, D.V.M., Ph.D.
S.L. Eustis, D.V.M., Ph.D.
T.J. Goehl, Ph.D.
R.A. Griesemer, D.V.M., Ph.D.
J.K. Haseman, Ph.D.
R.D. Irwin, Ph.D.
C.W. Jameson, Ph.D.
M.P. Jokinen, D.V.M.
G.N. Rao, D.V.M., Ph.D.
M.B. Thompson, D.V.M., Ph.D.
D.B. Walters, Ph.D.
K.L. Witt, M.S., Oak Ridge Associated Universities

International Research and Development Corporation

Conducted studies, evaluated interim study pathology findings

B.M. Phillips, Ph.D., Principal Investigator
P.L. Lang, Ph.D.

Pathology Associates, Inc.

Evaluated 2-year study pathology findings

F. Voelker, Principal Investigator

Experimental Pathology Laboratories, Inc.

Provided pathology quality assessment

J.F. Hardisty, D.V.M., Principal Investigator
K. Yoshitomi, D.V.M., Ph.D.

Integrated Laboratory Systems

Performed quality assurance audits

J.C. Bhandari, D.V.M., Ph.D., Principal Investigator

NTP Pathology Working Group

Evaluated slides, prepared pathology report for rats (3/15/90)

L.H. Brennecke, D.V.M., Chair
Pathology Associates, Inc.
S. Imoto, D.V.M., Ph.D.
Shin Nippon BioMedical Laboratories
M.P. Jokinen, D.V.M.
National Toxicology Program
M.M. McDonald, D.V.M., Ph.D.
National Toxicology Program
D.J. Meuten, D.V.M., Ph.D.
North Carolina State University
K. Yoshitomi, D.V.M., Ph.D.
Experimental Pathology Laboratories, Inc.

NTP Pathology Working Group

Evaluated slides, prepared pathology report for mice (11/29/88)

D.G. Goodman, V.M.D., Chair
PATHCO, Inc.
R. Cattley, V.M.D., Ph.D.
North Carolina State University
S.L. Eustis, D.V.M., Ph.D.
National Toxicology Program
J.F. Hardisty, D.V.M.
Experimental Pathology Laboratories, Inc.
J.R. Leininger, D.V.M., Ph.D.
National Toxicology Program
M.M. McDonald, D.V.M., Ph.D.
National Toxicology Program
S. Motooka, M.S., D.V.M.
Eisai Pharmaceutical

Biotechnical Services, Inc.

Prepared Technical Report

L.G. Cockerham, Ph.D., Principal Investigator
P. Chaffin, M.S.
G.F. Corley, D.V.M.
J.A. Gregan, M.A.

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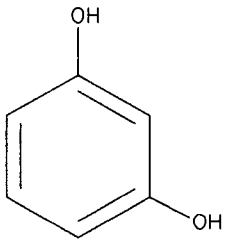
ABSTRACT



RESORCINOL

CAS No. 108-46-3

Chemical Formula: $C_6H_6O_2$ Molecular Weight: 110.11

Synonyms: 1,3-benzenediol; *m*-dihydroxybenzene; resorcin

Resorcinol is used in the manufacture of adhesives and dyes and as an ingredient in pharmaceutical preparations for the topical treatment of skin conditions. Toxicity and carcinogenicity studies were conducted by administering resorcinol (>99% pure) in water by gavage to groups of F344/N rats and B6C3F$_1$ mice of each sex for 17 days, 13 weeks, and 2 years. Genetic toxicology studies were conducted in *Salmonella typhimurium*, Chinese hamster ovary cells, mouse lymphoma cells, and *Drosophila melanogaster*.

17-Day Studies: Groups of five rats of each sex were administered 0, 27.5, 55, 110, 225, or 450 mg/kg resorcinol and groups of five mice of each sex were administered 0, 37.5, 75, 100, 300, or 600 mg/kg resorcinol in deionized water by oral gavage. No rats died during the studies. All female and four male mice receiving 600 mg/kg and one male receiving 300 mg/kg died as a result of resorcinol administration. Final mean body weights of dosed rats and mice were similar to those of the control groups. No gross or microscopic lesions attributable to resorcinol administration were observed.

13-Week Studies: Groups of 10 rats of each sex were administered 0, 32, 65, 130, 260, or 520 mg/kg resorcinol and groups of 10 mice of each sex were administered 0, 28, 56, 112, 225, or 420 mg/kg resorcinol in deionized water by oral gavage. All female and eight male rats receiving 520 mg/kg and eight mice of each sex receiving 420 mg/kg resorcinol died of chemical-related toxicity during the studies. The final mean body weights of dosed rats and mice were similar to those of the control groups. No chemical-related gross or microscopic lesions were observed.

2-Year Studies: Doses were selected for the 2-year studies based on the decreased survival observed in the 13-week studies. Groups of 60 male rats and male and female mice were administered 0, 112, or 225 mg/kg resorcinol in deionized water by gavage, five days per week for up to 104 weeks. Groups of 60 female rats were initially administered the same doses as male rats, but by week 22 of the study 16 of the high-dose females had died. Consequently, the female rat study was restarted using doses of 0, 50, 100, or 150 mg/kg. After 15 months of exposure interim evaluations were performed on 10 animals from each group. No chemical-related changes in clinical pathology parameters or incidence of neoplasms or nonneoplastic lesions were found during the 15-month interim evaluations.

Body Weights and Survival in the 2-Year Studies: Mean body weights of high-dose male rats were 10% to 15% lower than those of the controls from

week 87 to study termination. Mean body weights of high-dose female rats were 11% to 14% lower than those of controls from week 95 to study termination. Mean body weights of other dosed rat groups were similar to those of controls. Survival of high-dose male and female rats was significantly lower than controls. Decreased survival in high-dose groups was attributed to chemical-related toxicity.

Mean body weights of high-dose female mice were 10% to 15% lower than those of controls from week 85 to study termination, whereas those of the remaining dosed mouse groups were similar to those of the controls. Survival of dosed mice was similar to that of controls. Clinical signs suggestive of a chemical-related effect on the central nervous system, including ataxia, recumbency, and tremors, were observed in rats and mice in the 2-year studies.

Neoplasms and Nonneoplastic Lesions in the 2-Year Studies: There were no treatment-related increased incidences of neoplasms or nonneoplastic lesions in rats or mice administered resorcinol for 2 years.

Mammary gland fibroadenomas occurred at significantly reduced incidences in all exposed groups of female rats (25/50, 14/50, 12/50, 9/50). The incidence of subcutaneous fibroma or sarcoma in high-dose male mice was significantly lower than for the controls (8/50, 6/50, 1/50).

Genetic Toxicity: Resorcinol was not mutagenic in *Salmonella typhimurium* strains TA98, TA100, TA1535, or TA1537 with or without exogenous metabolic activation (S9). Induction of trifluorothymidine resistance was observed in mouse L5178Y lymphoma cells treated with resorcinol in the absence of S9 activation; this test was not performed with S9. Resorcinol induced sister chromatid exchanges in Chinese hamster ovary cells with and without S9. Resorcinol was positive for induction of chromosomal aberrations in Chinese hamster ovary cells in the presence of S9; an equivocal response was obtained in this test in the absence of S9. No induction of sex-linked recessive lethal mutations was observed in the germ cells of male *Drosophila melanogaster* when resorcinol was administered in the feed, but an equivocal response was observed when the chemical was administered by injection.

Conclusions: Under the conditions of these 2-year gavage studies, there was *no evidence of carcinogenic activity** of resorcinol in male F344/N rats given 112 or 225 mg/kg or female F344/N rats given 50, 100, or 150 mg/kg. There was *no evidence of carcinogenic activity* of resorcinol in male or female B6C3F_1 mice given 112 or 225 mg/kg.

Clinical signs suggestive of a chemical-related effect on the central nervous system, including ataxia, recumbency, and tremors, were observed in rats and mice in the 2-year studies.

* Explanation of Levels of Evidence of Carcinogenic Activity is on page 8. A summary of the peer review comments and the public discussion of this Technical Report appear on page 10.

Summary of the 2-Year Carcinogenicity and Genetic Toxicology Studies of Resorcinol

	Male F344/N Rats	Female F344/N Rats	Male $B6C3F_1$ Mice	Female $B6C3F_1$ Mice
Doses	0, 112, or 225 mg/kg in water by gavage 5 days a week	0, 50, 100, or 150 mg/kg in water 5 days a week	0, 112, or 225 mg/kg in water by gavage 5 days a week	0, 112, or 225 mg/kg in water by gavage 5 days a week
Body weights	High-dose group lower than controls	High-dose group lower than controls	Dosed groups similar to controls	High-dose group lower than controls
2-Year survival rates	28/50, 25/50, 9/50	34/50, 33/50, 28/50, 24/50	37/50, 43/50, 34/50	38/49, 33/49, 34/50
Nonneoplastic effects	None	None	None	None
Neoplastic effects	None	None	None	None
Level of evidence of carcinogenic activity	No evidence	No evidence	No evidence	No evidence
Genetic toxicology				
Salmonella typhimurium gene mutation:	Negative with and without S9 in strains TA98, TA100, TA1535, and TA1537			
L5178Y mouse lymphoma gene mutation:	Positive without S9			
Sister chromatid exchange				
Chinese hamster ovary cells *in vitro*:	Positive with and without S9			
Chromosomal aberrations				
Chinese hamster ovary cells *in vitro*:	Positive with S9 Equivocal without S9			
Sex-linked recessive lethal mutations				
Drosophila melanogaster male germ cells:	Negative when administered in feed Equivocal when administered by injection			

EXPLANATION OF LEVELS OF EVIDENCE OF CARCINOGENIC ACTIVITY

The National Toxicology Program describes the results of individual experiments on a chemical agent and notes the strength of the evidence for conclusions regarding each study. Negative results, in which the study animals do not have a greater incidence of neoplasia than control animals, do not necessarily mean that a chemical is not a carcinogen, inasmuch as the experiments are conducted under a limited set of conditions. Positive results demonstrate that a chemical is carcinogenic for laboratory animals under the conditions of the study and indicate that exposure to the chemical has the potential for hazard to humans. Other organizations, such as the International Agency for Research on Cancer, assign a strength of evidence for conclusions based on an examination of all available evidence including: animal studies such as those conducted by the NTP, epidemiologic studies, and estimates of exposure. Thus, the actual determination of risk to humans from chemicals found to be carcinogenic in laboratory animals requires a wider analysis that extends beyond the purview of these studies.

Five categories of evidence of carcinogenic activity are used in the Technical Report series to summarize the strength of the evidence observed in each experiment: two categories for positive results (**clear evidence** and **some evidence**); one category for uncertain findings (**equivocal evidence**); one category for no observable effects (**no evidence**); and one category for experiments that because of major flaws cannot be evaluated (**inadequate study**). These categories of interpretative conclusions were first adopted in June 1983 and then revised in March 1986 for use in the Technical Reports series to incorporate more specifically the concept of actual weight of evidence of carcinogenic activity. For each separate experiment (male rats, female rats, male mice, female mice), one of the following quintet is selected to describe the findings. These categories refer to the strength of the experimental evidence and not to potency or mechanism.

- **Clear evidence of carcinogenic activity** is demonstrated by studies that are interpreted as showing a dose-related (i) increase of malignant neoplasms, (ii) increase of a combination of malignant and benign neoplasms, or (iii) marked increase of benign neoplasms if there is an indication from this or other studies of the ability of such tumors to progress to malignancy.
- **Some evidence of carcinogenic activity** is demonstrated by studies that are interpreted as showing a chemical-related increased incidence of neoplasms (malignant, benign, or combined) in which the strength of the response is less than that required for clear evidence.
- **Equivocal evidence of carcinogenic activity** describes studies that are interpreted as showing a marginal increase of neoplasms that may be chemical related.
- **No evidence of carcinogenic activity** is demonstrated by studies that are interpreted as showing no chemical-related increases in malignant or benign neoplasms.
- **Inadequate study of carcinogenic activity** is demonstrated by studies that because of major qualitative or quantitative limitations cannot be interpreted as valid for showing either the presence or absence of carcinogenic activity.

When a conclusion statement is selected for a particular experiment, consideration must be given to key factors that would extend the actual boundary of an individual category of evidence. This should allow for incorporation of scientific experience and current understanding of long-term carcinogenesis studies in laboratory animals, especially for those evaluations that may be on the borderline between two adjacent levels. These considerations should include:

- adequacy of the experimental design and conduct;
- occurrence of common versus uncommon neoplasia;
- progression (or lack thereof) from benign to malignant neoplasia as well as from preneoplastic to neoplastic lesions;
- some benign neoplasms have the capacity to regress but others (of the same morphologic type) progress. At present, it is impossible to identify the difference. Therefore, where progression is known to be a possibility, the most prudent course is to assume that benign neoplasms of those types have the potential to become malignant;
- combining benign and malignant tumor incidences known or thought to represent stages of progression in the same organ or tissue;
- latency in tumor induction;
- multiplicity in site-specific neoplasia;
- metastases;
- supporting information from proliferative lesions (hyperplasia) in the same site of neoplasia or in other experiments (same lesion in another sex or species);
- presence or absence of dose relationships;
- statistical significance of the observed tumor increase;
- concurrent control tumor incidence as well as the historical control rate and variability for a specific neoplasm;
- survival-adjusted analyses and false positive or false negative concerns;
- structure-activity correlations; and
- in some cases, genetic toxicology.

PEER REVIEW PANEL

The members of the Peer Review Panel who evaluated the draft Technical Report on the gavage studies of resorcinol on March 11, 1991, are listed below. Panel members serve as independent scientists, not as representatives of any institution, company, or governmental agency. In this capacity, Panel members have five major responsibilities:

- to ascertain that all relevant literature data have been adequately cited and interpreted,
- to determine if the design and conditions of the NTP studies were appropriate,
- to ensure that the Technical Report presents the experimental results and conclusions fully and clearly,
- to judge the significance of the experimental results by scientific criteria, and
- to assess the evaluation of the evidence of carcinogenic activity and other observed toxic responses.

National Toxicology Program Board of Scientific Counselors Technical Reports Review Subcommittee

Daniel S. Longnecker, M.D., Chair
Department of Pathology
Dartmouth Medical School
Hanover, NH

Paul T. Bailey, Ph.D.
Toxicology Division
Mobil Oil Corporation
Princeton, NJ

Jay I. Goodman, Ph.D.
Department of Pharmacology and Toxicology
Michigan State University
East Lansing, MI

Ellen K. Silbergeld, Ph.D.*
University of Maryland Medical School
Environmental Defense Fund
Baltimore, MD

Ad Hoc Subcommittee Panel of Experts

Louis S. Beliczky, M.S., M.P.H.
Department of Industrial Hygiene
United Rubber Workers International Union
Akron, OH

Gary P. Carlson, Ph.D.
Department of Pharmacology and Toxicology
Purdue University
West Lafayette, IN

Harold Davis, D.V.M., Ph.D.
School of Aerospace Medicine
Brooks Air Force Base, TX

Robert H. Garman, D.V.M.
Consultants in Veterinary Medicine
Murrysville, PA

David W. Hayden, D.V.M, Ph.D., Principal Reviewer
Department of Veterinary Pathobiology
College of Veterinary Medicine
University of Minnesota
St. Paul, MN

Curtis D. Klaassen, Ph.D., Principal Reviewer
Department of Pharmacology and Toxicology
University of Kansas Medical Center
Kansas City, KS

Barbara McKnight, Ph.D.
Department of Biostatistics
University of Washington
Seattle, WA

Lauren Zeise, Ph.D.
California Department of Health Services/RCHAS
Berkeley, CA

* Did not attend

SUMMARY OF PEER REVIEW COMMENTS

On March 11, 1991, the draft Technical Report on the toxicology and carcinogenesis studies of resorcinol received public review by the National Toxicology Program Board of Scientific Counselors' Technical Reports Review Subcommittee and associated Panel of Experts. The review meeting was held at the National Institute of Environmental Health Sciences, Research Triangle Park, NC.

Dr. M.P. Jokinen, NIEHS, introduced the toxicology and carcinogenesis studies of resorcinol by discussing the uses and rationale for study, describing the experimental design, reporting on survival and body weight effects, and commenting that there were no chemical-related nonneoplastic or neoplastic lesions in rats or mice. The proposed conclusions were *no evidence of carcinogenic activity* of resorcinol in rats or mice.

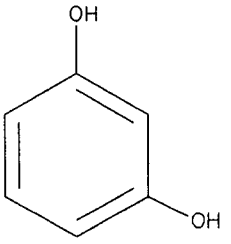
Dr. Klaassen, a principal reviewer, agreed with the proposed conclusions. He proposed that NTP measure blood levels of this chemical and others at various time points. Dr. R.D. Irwin, NIEHS, responded that NTP is now routinely incorporating the evaluation of blood levels as well as some basic pharmacokinetic parameters in 2-year studies and in many short-term toxicity studies.

Dr. Hayden, the second principal reviewer, agreed with the proposed conclusions. However, he questioned the adequacy of the study in male rats, noting the reduced survival in the 225 mg/kg dose group. Dr. J.K. Haseman, NIEHS, said that survival in this group was probably sufficient to detect a strong carcinogenic effect, and that survival in the 112 mg/kg dose group was unaffected, supporting the adequacy of the study for evaluating carcinogenicity. Dr. Hayden commented that he was struck by the apparent, and perhaps cumulative, neurotoxicity and suggested that a statement be added to the conclusions noting that clinical findings indicative of chemical-related toxicity to the central nervous system were observed. Dr. Jokinen responded that high-dose rats in the 2-year study seemed to have exaggerated clinical signs by the end of each 5-day dosing period, which might suggest effects on the central nervous system, although there were no morphologic lesions observed to support this. Dr. Hayden said this does not negate the possibility of interference with neurotransmitters. As to possible cumulative toxicity, Dr. Jokinen said chemical disposition studies indicated resorcinol was rapidly cleared from the blood and about 90% was excreted within 24 hours, primarily as a conjugate in the urine.

Further discussion ensued as to whether resorcinol could be considered to be a neurotoxin. Dr. Irwin said the observations were primarily empirical and he would have reservations about calling it a neurotoxin. Dr. Carlson urged caution in defining resorcinol as a neurotoxin without evidence that included a dose-response relationship. Mr. Beliczky reported that there is considerable exposure of workers in the rubber products industry where resorcinol has been used as part of an adhesive system.

Dr. Klaassen moved that the Technical Report on resorcinol be accepted with the revisions discussed and the conclusions as written for male and female rats and mice, *no evidence of carcinogenic activity.* Dr. Garman seconded the motion. Mr. Beliczky offered an amendment that the neurotoxic effects of resorcinol be addressed in the Conclusions. Dr. Hayden seconded the amendment. Dr. Haseman suggested that a statement addressing these concerns could be added to the Abstract, as well as the Conclusions: "Clinical signs suggestive of a chemical-related effect on the central nervous system, including ataxia, recumbency, and tremors, were observed in rats and mice in the 2-year studies." Dr. Hayden agreed. The amendment was accepted by seven yes votes to three no votes (Drs. Bailey, Goodman, and Klaassen). The original motion was then accepted unanimously with ten votes.

INTRODUCTION



RESORCINOL

CAS No. 108-46-3

Chemical Formula: $C_6H_6O_2$ Molecular Weight: 110.11

Synonyms: 1,3-benzenediol; *m*-dihydroxybenzene; resorcin

CHEMICAL AND PHYSICAL PROPERTIES, PRODUCTION, USE, AND EXPOSURE

Resorcinol is a white crystalline solid with a melting point ranging from 109° to 111° C. It is freely soluble in glycerol or ether and is soluble in water or alcohol up to 1 g in 0.9 mL solvent. The two hydroxyl groups of resorcinol have pK_a values of 9.51 and 11.32 in water at 30° C.

The major use of resorcinol is in the production of resorcinol-formaldehyde adhesives. These adhesives are mainly used in the manufacture of tires, automobile hoses and belts, and butyl and neoprene rubbers. Resorcinol-formaldehyde adhesives are also used in the bonding of wood laminates such as plywood and laminated wood beams; the production of composite wood products such as particle board, wafer board, and fiberboard; and as additives to starch resins used in shipping containers requiring a high degree of moisture resistance. Resorcinol is also used as an intermediate in the manufacture of xanthene and azo dyes and ultraviolet absorbers including benzophenones and substituted benzophenones, which are used as fluorescent brighteners in plastics, textiles, soaps, and laundry products (*Kirk-Othmer*, 1978a,b). A minor use of resorcinol is in cosmetics and nonprescription pharmaceutical preparations for the treatment of acne and other skin conditions. Exposure to resorcinol can occur during the manufacture of adhesives, dyes or other resorcinol-containing products, or directly from using cosmetics or dermatologic preparations containing resorcinol.

Exposure data taken from the National Institute of Occupational Safety and Health National Occupational Exposure Survey (1981-1983) indicate an estimated 100,792 workers are potentially exposed to resorcinol (NIOSH, 1990), including workers in health services, rubber and plastics manufacturing, and chemical and allied products industries. The threshold limit values for resorcinol exposure are 20 ppm (45 mg/m^3) for the time-weighted average and 20 ppm (90 mg/m^3) for the short-term exposure limit (ACGIH, 1990).

METABOLISM, DISPOSITION, AND PHARMACOKINETICS

In F344 rats, resorcinol is quickly absorbed by the gastrointestinal tract and then rapidly metabolized and excreted (Kim and Matthews, 1987). Twenty-four hours following an oral dose of 112 mg/kg containing ^{14}C-labeled resorcinol, 91% and 93% of the administered chemical was excreted in the urine of males and females, respectively, and

2% of the dose was detected in the feces. The remaining radioactivity was distributed among various tissues with no indication of bioaccumulation in any single tissue.

The major metabolite present in the urine of both males and females was the monoglucuronide conjugate, which accounted for approximately 70% of the total radioactivity in urine. Additional metabolites included a monosulfate conjugate excreted in a greater quantity by females, a mixed sulfate-glucuronide conjugate excreted in a greater quantity by males, and a diglucuronide conjugate present as a minor metabolite. Essentially the same results were obtained after a single administration of 225 mg/kg or after daily doses of 225 mg/kg for 5 consecutive days, indicating that under these conditions neither sulfation nor glucuronidation was saturated.

Following subcutaneous administration of a single dose of 50 or 100 mg/kg ^{14}C-labeled resorcinol to CD rats, radioactivity was rapidly lost from plasma with approximately 90% being cleared in the first 2 hours (Merker *et al.*, 1982). Elimination was biphasic and characterized by half-lives of 18 to 21 minutes and 8 to 10 hours. Within 1 hour after dosing, 63% of the administered radioactivity had been excreted in the urine. After 3 hours 87.5% had been excreted, and after 24 hours 98% had been excreted. Resorcinol equivalents were rapidly distributed to major tissues but showed no tendency to accumulate, and after 3 hours had essentially cleared from tissue. Following 14 or 30 days of daily subcutaneous administration of 100 mg/kg, both the rate and extent of clearance of resorcinol-derived radioactivity were the same as those observed in the single dose study in untreated animals.

TOXICITY AND CARCINOGENICITY

Few reports on the toxicity of resorcinol have been published. Oral ingestion in humans may cause methemoglobinemia, cyanosis, and convulsions, whereas dermal exposure has been reported to cause dermatitis, hyperemia, and pruritus (Deichman, 1983). In a study of 268 workers in a motorcycle tire manufacturing plant, the presence of dermatitis was directly correlated with exposure to the processes involving resorcinol use (Abbate *et al.*, 1989).

Acute toxicity data indicate an oral LD_{50} of 0.98 g/kg in rats and a single-dose skin penetration LD_{50} of 3.36 g/kg in rabbits. Rats tolerated resorcinol/water aerosols containing 7,800 mg/m^3 for 1 hour or 2,800 mg/m^3 for 8 hours (Flickinger, 1976).

Resorcinol was embryotoxic for 3-day-old chicken embryos with an ED_{50} of 2.4 μm (Korhonen *et al.*, 1983). Daily oral administration at doses of 125, 250, or 500 mg/kg to pregnant Sprague-Dawley rats from days 6 to 15 of gestation caused a slight reduction in maternal weight gain at the high-dose level; it was not embryotoxic, nor did it have any effect on the numbers of litters produced or cause any fetal abnormalities or malformations (DiNardo *et al.*, 1985). Similarly, resorcinol was not embryotoxic or teratogenic in pregnant rabbits given daily oral doses of 40, 80, or 250 mg/kg from day 6 through day 15 of gestation (Spengler *et al.*, 1986).

Resorcinol dissolved in acetone at concentrations of 5%, 10%, or 50% was applied twice weekly to the inside left ear of New Zealand white rabbits. After 180 weeks of treatment, no tumors or any indication of chemical-related toxicity were observed. A positive control group that received dimethylbenzanthracene in acetone developed squamous cell neoplasms (Stenbäck, 1977).

In a study designed to evaluate the potential of resorcinol and several other chemicals to act as promoters of urinary bladder carcinogenesis, 6-week-old male F344 rats were given drinking water containing 0.05% N-butyl-N-(4-hydroxybutyl)-nitrosamine (BBN) for 2 weeks. The rats were then fed diets containing 0.2% resorcinol for 21 additional weeks. No hyperplastic or papillomatous lesions were found in the bladders of animals that received resorcinol, though saccharin, the positive control, produced significant increases in the incidences of the lesions in BBN initiated rats (Miyata *et al.*, 1985).

In another study, 6-week-old F344 rats were given a single gavage dose of 150 mg/kg of N-methyl-N′-nitro-N-nitrosoguanidine (MNNG). A week later the rats were administered diets containing 0.8% resorcinol, or dietary formulations of several other chemicals, for an additional 51 weeks. Although both *p*-tert-butyl catechol and *p*-methyl catechol promote the development of neoplasms of the forestomach and glandular stomach in MNNG-

treated rats, resorcinol, hydroquinone, and *o*-methyl catechol exhibited no promotional activity (Hirose *et al.*, 1989)

In a similar experiment F344 rats received three intraperitoneal injections of methyl-N-amyl-nitrosamine (MNAN) over a 2-week period followed a week later by administration of diets containing 0.8% resorcinol, catechol, or hydroquinone for an additional 49 weeks. In MNAN-treated animals receiving resorcinol or catechol the incidences of lingual squamous cell papilloma and esophageal squamous cell carcinoma were significantly higher than in untreated controls or in animals that received only MNAN (Yamaguchi *et al.*, 1989).

The ability of a group of phenolic compounds to induce proliferative lesions of the urinary bladder and forestomach was evaluated in Syrian golden hamsters by administering several compounds in the diet for 20 weeks. One hour before sacrifice the animals were given an intraperitoneal injection of H^3-thymidine. The labeling indexes in the forestomach and bladder were then determined. Neither resorcinol nor hydroquinone induced forestomach or bladder lesions and neither compound increased the labeling indexes over control values (Hirose *et al.*, 1986).

Genetic Toxicity

Resorcinol did not induce gene mutation in any of several strains of *Salmonella typhimurium*, with or without S9 (McCann *et al.*, 1975; Florin *et al.*, 1980; Shahin *et al.*, 1980; Probst *et al.*, 1981; Haworth *et al.*, 1983; Crebelli *et al.*, 1985; McGregor *et al.*, 1988a) and did not induce the SOS response in the genetically engineered *Salmonella* strain TA1535/pSK1002, with or without S9 (Nakamura *et al.*, 1987). No induction of sex-linked recessive lethal mutations was observed in germ cells of adult male *Drosophila melanogaster* given 50 mM resorcinol in the feed (Gocke *et al.*, 1981). Resorcinol, tested only in the absence of S9, did not induce sister chromatid exchanges in hamster V79 cells (Wild *et al.*, 1981) or human peripheral lymphocytes (Jansson *et al.*, 1986). In the absence of S9, however, resorcinol induced a significant increase in the number of trifluorothymidine-resistant colonies of L5178Y mouse lymphoma cells (McGregor *et al.*, 1988a,b). It was also positive, with and without S9, in tests for induction of chromosomal aberrations in Chinese hamster lung fibroblasts (Sakano *et al.*, 1985) and Chinese hamster ovary cells (Stich *et al.*, 1981). Resorcinol was also reported to induce chromosomal aberrations in human lymphocytes (Schulz *et al.*, 1982; Darroudi and Natarajan, 1983) and human amniotic cells (Schulz *et al.*, 1982) *in vitro*.

Despite the positive responses observed with resorcinol in cytogenetic investigations *in vitro*, results from all reported *in vivo* tests for chromosomal effects have been negative. Treatment of mice with resorcinol did not induce micronuclei in bone marrow cells (Gocke *et al.*, 1981; Wild *et al.*, 1981; Darroudi and Natarajan, 1983; Paschin *et al.*, 1986), inhibition of DNA synthesis in testicular cells (Seiler, 1977), or sperm abnormalities (Wild *et al.*, 1981). In rat bone marrow, negative results were obtained in tests for induction of micronuclei (Hossack and Richardson, 1977) and sister chromatid exchanges (Bracher *et al.*, 1981).

In conclusion, resorcinol is not a gene mutagen in bacteria or *Drosophila*, but was reported to induce mutation and chromosomal damage in mammalian cells *in vitro*. The *in vivo* mutagenicity test data are limited, but do not confirm the chromosomal effects observed *in vitro*.

Genetic toxicity information is available for three metabolites of resorcinol: hydroxyquinol, 3-methoxyphenol, and pyrogallol. Similar to resorcinol, the first two of these metabolites were negative for gene mutation induction in *Salmonella* (Carlberg *et al.*, 1980; Florin *et al.*, 1980). Pyrogallol was positive, with the most consistent responses recorded in the base substitution strain TA100, with and without S9 (Sugimura *et al.*, 1976; Ben-Gurion, 1979, 1981; Carlberg *et al.*, 1980; Gocke *et al.*, 1981; Sakagami *et al.*, 1986). Mutagenic activity was also reported for pyrogallol in *Salmonella* strains TA1537 and TA98 (Ben-Gurion, 1979, 1981; Gocke *et al.*, 1981). In addition, pyrogallol was reported to be positive for induction of sex-linked recessive lethal mutations in germ cells of male *Drosophila* (Gocke *et al.*, 1981).

In mammalian cells, hydroxyquinol caused DNA synthesis inhibition (Pellack-Walker *et al.*, 1985) and DNA strand breaks (Pellack-Walker and Blumer, 1986; Pellack-Walker *et al.*, 1986) in mouse lymphoma L5178YS cells without S9. Hydroxyquinol (40 mg/kg by gavage) was reported to be

weakly positive for induction of micronuclei in mouse bone marrow erythrocytes, but negative in fetal liver cells exposed transplacentally by treated dams (Ciranni *et al.*, 1988). Pyrogallol was reported to induce chromosomal aberrations in Chinese hamster ovary cells with and without S9 (Stich *et al.*, 1981) and was positive in a mouse bone marrow micronucleus test when administered at a dose of 255 mg/kg by intraperitoneal injection (Gocke *et al.*, 1981).

Thus, the limited mutagenicity data available for the metabolites of resorcinol indicate both a mutagenic and clastogenic capability, most evident in tests with pyrogallol.

STUDY RATIONALE

Because of the potential for occupational and consumer exposure and the absence of data on the effects of long-term exposure, resorcinol was nominated by the National Cancer Institute for evaluation of carcinogenic potential.

MATERIALS AND METHODS

PROCUREMENT AND CHARACTERIZATION OF RESORCINOL

Resorcinol (USP grade) was obtained from NAPP Chemicals, Incorporated (Lodi, NJ) in one lot (lot number IN-79-7087). Conformity to USP tests was confirmed by the manufacturer. Identity, purity, and stability analyses were conducted by the analytical chemistry laboratory, Midwest Research Institute (Kansas City, MO), and confirmed by the study laboratory (Appendix H).

The study chemical, a white crystalline powder, was identified as resorcinol by elemental analysis and by infrared, ultraviolet/visible, and nuclear magnetic resonance spectroscopy. Its purity was found to be greater than 99% by Karl Fischer water analysis, titration, thin-layer chromatography, and high performance liquid chromatography (HPLC). Stability studies indicated that resorcinol was stable as a bulk chemical for 2 weeks at temperatures up to 60° C when stored under nitrogen headspace and protected from light. Throughout the studies, the bulk chemical was stored at approximately 22° C. Stability of the bulk chemical was monitored by the study laboratory with HPLC and acid titration; no change in the study material was detected throughout the studies.

PREPARATION AND ANALYSIS OF DOSE FORMULATIONS

The dose formulations for gavage administration were prepared by mixing appropriate amounts of resorcinol and deionized water (Table H1). Stability studies of the dose formulations were performed by the analytical chemistry laboratory using HPLC. The findings of the studies indicated that dose formulations are stable for at least 2 weeks at 25° C in the dark and under simulated dosing conditions (exposed to air and light for 3 hours). No special handling was required during routine dosing.

The study laboratory periodically analyzed the resorcinol dose formulations using the spectrophotometric method described in Appendix H. During the 2-year studies all of the dose formulations were within 10% of the target concentrations (Table H4). Results of the periodic referee analyses by the analytical chemistry laboratory agreed with the results of the study laboratory (Table H5).

17-DAY STUDIES

Male and female F344/N rats and B6C3F$_1$ mice from Charles River Breeding Laboratories (Portage, MI) were observed for 14 to 15 days before being placed on study. The rats were 6 to 7 weeks old at study initiation, and the mice were 7 to 8 weeks old.

Groups of five rats of each sex were administered 0, 27.5, 55, 110, 225, or 450 mg/kg resorcinol in deionized water by gavage; groups of five mice of each sex were administered 0, 37.5, 75, 150, 300, or 600 mg/kg resorcinol in deionized water by gavage. All doses were given once daily for 5 days per week so that 12 doses were dispensed over 17 days. The animals were observed daily for mortality and for clinical signs related to chemical administration. Body weights were recorded at study initiation, weekly, and at study termination. Details of study design and animal maintenance are described in Table 1.

A necropsy was performed on all animals. Organ weights were recorded for brain, heart, right kidney, liver, lungs, and thymus for all animals. Tissues were fixed in 10% neutral buffered formalin and processed for microscopic examination (trimmed, embedded, sectioned, and stained with hematoxylin and eosin). Histopathologic examinations were conducted on the brain, heart, kidney, liver, lung and thymus of rats receiving 450 mg/kg and mice receiving 300 and 600 mg/kg.

13-WEEK STUDIES

13-week studies were conducted to evaluate the cumulative toxic effects of repeated exposure to resorcinol and to determine appropriate doses for the 2-year studies. Both sexes of F344/N rats and $B6C3F_1$ mice from Charles River Breeding Laboratories (Portage, MI) were observed for 14 to 16 days before beginning the studies. The rats were 6 to 7 weeks old when the studies began, and the mice were 7 to 8 weeks old.

Groups of 10 rats of each sex were administered 0, 32, 65, 130, 260, or 520 mg/kg resorcinol in deionized water by gavage; groups of 10 mice of each sex were administered 0, 28, 56, 112, 225, or 420 mg/kg resorcinol in deionized water by gavage. Animals were observed twice daily for mortality and weekly for clinical signs of toxicity throughout the studies. Body weights were recorded at study initiation, weekly, and at study termination. Details of study design and animal maintenance are described in Table 1.

At study termination, blood samples were collected from the orbital sinus of each surviving animal for measurement of hematology and clinical chemistry parameters. Table 1 contains the complete list of the analyses performed on animals in the 13-week studies of resorcinol.

A gross necropsy was performed on all animals. During necropsy, all organs and tissues were examined for grossly visible lesions. Organ weights were recorded for adrenal gland, brain, heart, right kidney, liver, lung, and thymus for all animals, and the right testis of all males. Tissues were fixed in 10% neutral buffered formalin and processed for microscopic examination (trimmed, embedded, sectioned, and stained with hematoxylin and eosin). A complete histopathologic examination was conducted on all control animals, all rats receiving 260 or 520 mg/kg, all mice receiving 225 or 420 mg/kg, and all animals that died during the studies. Table 1 lists those tissues and organs that were examined microscopically.

2-YEAR STUDIES

Study Design

Groups of 60 male rats and 60 mice of each sex were administered 0, 112, or 225 mg/kg resorcinol in deionized water by gavage. Groups of 60 female rats were initially given the same doses as male rats. After 22 weeks on study, however, 16 females from the high-dose group had died, so the 2-year female rat study was restarted using lower dose levels of 0, 50, 100, or 150 mg/kg resorcinol. The doses were given by gavage at a volume of 5 mL/kg for rats and 10 mL/kg for mice, 5 days per week for 103 weeks (rats) or 104 weeks (mice).

Ten rats and mice of each sex per dose group were designated for interim evaluations (organ weights, hematology, clinical chemistry, and histopathology) after 15 months (66 weeks) of chemical administration. Because substantial early mortality occurred in high-dose male rats, animals from this group were not killed at 15 months. Instead, 10 high-dose male rats that either died or were killed in a moribund condition between weeks 62 and 67 of the study were used for the high-dose 15-month interim histopathologic evaluation; organ weight, hematology, and clinical chemistry data were not collected from this group.

Source and Specification of Animals

The male F344/N rats and male and female $B6C3F_1$ mice used in these studies were obtained from Charles River Breeding Laboratories (Stoneridge, NY); the female F344/N rats used in these studies were obtained from Frederick Cancer Research Facility (Frederick, MD). All animals were quarantined for 14 to 15 days, then five animals of each species and sex were randomly selected and sacrificed for parasite evaluation and gross observation of disease. The rats were 6 to 7 weeks old at the start of the studies; mice were 7 to 8 weeks old. Animal health was monitored by serologic analyses performed at 6-month intervals after study initiation according to the protocols of the NTP Sentinel Animal Program (Appendix J).

Animal Maintenance

Both rats and mice were housed five to a cage with feed and drinking water available *ad libitum*. Cages within racks were rotated once a week and positions of the racks within the room were changed once every 2 weeks. Further details of animal maintenance are given in Table 1.

Clinical Examinations and Pathology

All animals were observed twice daily. Clinical signs of toxicity were recorded every 4 weeks. Individual body weights were obtained weekly for the first 13 weeks and every 4 weeks thereafter until the last 3 months of the studies, when body weights were recorded every 2 weeks. After 15 months on study, 10 male and 10 female rats and mice from each dose group, except male rats in the 225 mg/kg dose group, were killed for evaluation of organ weights, hematology, and clinical chemistry. Table 1 contains the complete list of the analyses performed on animals in the 2-year studies of resorcinol.

A necropsy was performed on all animals. During necropsy, all organs and tissues were examined for grossly visible lesions. Tissues were fixed in 10% neutral buffered formalin, trimmed, and processed for microscopic examination (embedded in paraffin, sectioned to a thickness of 4 to 6 μm, and stained with hematoxylin and eosin). Complete histologic examination was conducted on all control and high-dose male rats and all mice from the 15-month interim evaluations, all rats from the 2-year studies, and all control and high-dose mice from the 2-year studies. Only tissues containing gross lesions observed at necropsy were examined from the low-dose mouse groups from the 15-month interim evaluations and 2-year studies and all female rat groups from the 15-month interim evaluation.

Pathology evaluations were completed by the study laboratory pathologist and the pathology data were entered into the Toxicology Data Management System (TDMS). The slides, paraffin blocks, and residual wet tissues were sent to the NTP Archives for inventory, slide/block match, and wet tissue audit for accuracy of labeling and animal identification and for thoroughness of tissue trimming. The slides, individual animal data records, and pathology tables were evaluated by an independent quality assessment laboratory. The individual animal records and tables were compared for accuracy, slides and tissue counts were verified, and histotechnique was evaluated. A quality assessment pathologist reviewed selected tissues from the 15-month interim evaluations and 2-year studies for accuracy and consistency of lesion diagnosis. All diagnosed neoplasms in all animals, brains from all male rats, and forestomachs from all female mice were reviewed. In addition, all tissues were examined from six rats and mice of each sex randomly selected from each control and high-dose group in the 15-month interim evaluations, and from five rats and mice of each sex randomly selected from each control and high-dose group in the 2-year studies.

The quality assessment report and slides were submitted to a PWG chair, who reviewed tissues for which there was a disagreement in diagnosis between the laboratory and quality assessment pathologists. The PWG chair reviewed diagnoses of mononuclear cell leukemia from selected microslides of liver and spleen tissue for control and dosed rats of each sex. The PWG chair also reviewed all diagnoses of squamous papilloma of the forestomach, as well as all disagreements in diagnoses of proliferative lesions occuring at this site in both male and female mice; subcutaneous mesenchymal tumors in male mice; lymphomas in control and high-dose female mice; and neoplasms of the jejunum, mammary gland, and ovary in dosed mice. Each PWG included the quality assessment pathologist as well as other pathologists experienced in rodent toxicologic pathology, who examined these tissues without knowledge of dose group or previously rendered diagnoses. When the consensus diagnosis of a PWG differed from that of the laboratory pathologist, the final diagnosis was changed to reflect the opinion of the PWG. Details of these review procedures have been described, in part, by Maronpot and Boorman (1982) and Boorman *et al.* (1985). For subsequent analysis of pathology data, the diagnosed lesions for each tissue type are evaluated separately or combined according to the guidelines of McConnell *et al.* (1986).

Statistical Methods

Survival Analyses

The probability of survival was estimated by the product-limit procedure of Kaplan and Meier (1958) and is presented in the Results section of this report. Animals were censored from the survival

analyses at the time they were found dead from other than natural causes; animals dying from natural causes were not censored. Statistical analyses for possible dose-related effects on survival used Cox's (1972) method for testing two groups for equality and Tarone's (1975) life table tests to identify dose-related trends. All reported P values for the survival analysis are two sided.

Calculation of Incidence

The incidence of neoplasms or nonneoplastic lesions is given as the ratio of the number of animals bearing such lesions at a specific anatomic site to the number of animals in which that site was examined. In most instances, the denominators include only those animals for which the site was examined histologically. However, when macroscopic examination was required to detect lesions (e.g., skin or mammary tumors) before tissue sampling for histopathology, or when lesions could have appeared at multiple sites (e.g., mononuclear cell leukemia), the denominators consist of the number of animals on which a necropsy was performed.

Analysis of Tumor Incidence

The majority of tumors in these studies were considered to be incidental to the cause of death or not rapidly lethal. Thus, the primary statistical method used was a logistic regression analysis, which assumed that the diagnosed tumors were discovered as the result of death from an unrelated cause and, thus, did not affect the risk of death. In this approach, tumor prevalence was modeled as a logistic function of chemical exposure and time. Both linear and quadratic terms in time were incorporated initially, and the quadratic term was eliminated if it did not significantly enhance the fit of the model. The dosed and control groups were compared on the basis of the likelihood score test for the regression coefficient of dose. This method of adjusting for intercurrent mortality is the prevalence analysis of Dinse and Lagakos (1983), further described and illustrated by Dinse and Haseman (1986). When tumors are incidental, this comparison of the time-specific tumor prevalences also provides a comparison of the time-specific tumor incidences (McKnight and Crowley, 1984).

In addition to logistic regression, alternative methods of statistical analysis were used, and the results of these tests are summarized in the appendixes. These include the life table test (Cox, 1972; Tarone, 1975), appropriate for rapidly lethal tumors, and the Fisher exact test and the Cochran-Armitage trend test (Armitage, 1971; Gart *et al.*, 1979), procedures based on the overall proportion of tumor-bearing animals.

Tests of significance include pairwise comparisons of each dosed group with controls and a test for an overall dose-response trend. Continuity-corrected tests were used in the analysis of tumor incidence, and reported P values are one sided. The procedures described above also were used to evaluate selected nonneoplastic lesions. For further discussion of these statistical methods, see Haseman, 1984.

Analysis of Continuous Variables

Two approaches were employed to assess the significance of pairwise comparisons between dosed and control groups in the analysis of continuous variables. Organ and body weight data, which have approximately normal distributions, were analyzed using the parametric multiple comparison procedures of Williams (1971, 1972) and Dunnett (1955). Clinical chemistry and hematology data, which have typically skewed distributions, were analyzed using the nonparametric multiple comparison methods of Shirley (1977) and Dunn (1964). Jonckheere's test (Jonckheere, 1954) was used to assess the significance of the dose-response trends and to determine whether a trend-sensitive test (Williams' or Shirley's test) was more appropriate for pairwise comparisons than a test that does not assume a monotonic dose-response trend (Dunnett's or Dunn's test).

Quality Assurance Methods

The 13-week and 2-year studies were conducted in compliance with FDA Good Laboratory Practice Regulations (21 CFR Part 58). In addition, as study records were submitted to the NTP Archives, they were audited retrospectively by an independent quality assurance contractor. Separate audits covering completeness and accuracy of the pathology data, pathology specimens, final pathology tables, and preliminary review draft of this NTP Technical Report were conducted. Audit procedures are presented in the reports, which are on file at the NIEHS. The audit findings were reviewed and assessed by the NTP staff so that all discrepancies

had been resolved or were otherwise addressed during the preparation of this Technical Report.

GENETIC TOXICOLOGY

The genetic toxicity of resorcinol was assessed by testing its ability to induce mutations in *Salmonella typhimurium*, sister chromatid exchanges and chromosomal aberrations in Chinese hamster ovary cells, sex-linked recessive lethal mutations in *Drosophila melanogaster*, and trifluorothymidine resistance in mouse L5178Y lymphoma cells. The protocols and results for these studies are given in Appendix E.

TABLE 1
Experimental Design and Materials and Methods in the Gavage Studies of Resorcinol

17-Day Studies	13-Week Studies	2-Year Studies
Study Laboratory		
International Research and Development Corporation (IRDC; Mattawan, MI)	Same as 17-day studies	Same as 17-day studies
Strain and Species		
Rats: F344/N Mice: $B6C3F_1$	Same as 17-day studies	Same as 17-day studies
Animal Source		
Charles River Breeding Laboratories (Portage, MI)	Same as 17-day studies	Male rats and all mice: Charles River Breeding Laboratories (Stoneridge, NY) Female rats: Frederick Cancer Research Facility (Frederick, MD)
Time Held Before Studies		
Rats: 14 days Mice: 15 days	Rats: 14 days Mice: 16 days	Male rats: 15 days Female rats: 14 days Mice: 15 days
Age When Placed on Studies		
Rats: 6-7 weeks Mice: 7-8 weeks	Rats: 6-7 weeks Mice: 7-8 weeks	Male rats: 6-7 weeks Female rats: 6 weeks Mice: 7-8 weeks
Date of First Dose		
Rats: 24 February 1981 Mice: 25 February 1981	Rats: 7 July 1981 Mice: 9 July 1981	Male rats: 19 August 1982 Female rats: 11 May 1983 Mice: 12 August 1982
Duration of Dosing		
17 days (5 days/week for 12 dose days)	13 weeks (5 days/week)	Rats: 103 weeks (5 days/week) - some received an additional 1 or 2 doses during week 104 Mice: 104 weeks (5 days/week)
Date of Last Dose		
Rats: 12 March 1981 Mice: 13 March 1981	Rats: 6 October 1981 Mice: 8 October 1981	Male rats: 9 August 1984 Female rats: 2 May 1985 Mice: 7 August 1984
Age When Killed		
Rats: 8-9 weeks Mice: 9-10 weeks	Rats: 19-20 weeks Mice: 20.5-21.5 weeks	Male rats: 110-111 weeks Female rats: 110 weeks Mice: 111-113 weeks

TABLE 1
Experimental Design and Materials and Methods in the Gavage Studies of Resorcinol (continued)

17-Day Studies	13-Week Studies	2-Year Studies
Size of Study Groups		
5 males and 5 females	10 males and 10 females	60 males and 60 females, of which 10 animals of each sex were for 15-month interim evaluation
Method of Animal Distribution		
Animals were randomly assigned numbers in blocks by body weight. The animals in each block were placed in groups by computer-generated random numbers.	Same as 17-day studies	Same as 17-day studies
Animals per Cage		
5	5	5
Method of Animal Identification		
Rats: ear tag Mice: toe clip	Same as 17-day studies	Same as 17-day studies
Diet		
NIH-07 open formula mash diet (Zeigler Bros., Gardners, PA), available *ad libitum*	Same as 17-day studies	Same as 17-day studies
Maximum Storage Time for Feed		
120 days from milling	Same as 17-day studies	Same as 17-day studies
Water		
Varied between Village of Mattawan Public Water Supply (Mattawan, MI) and IRDC wells (Mattawan, MI), available *ad libitum*	Same as 17-day studies	Same as 17-day studies
Cages		
Polycarbonate (Hazelton Systems, Aberdeen, MD), changed twice weekly	Same as 17-day studies	Same as 17-day studies
Bedding		
BetaChips, hardwood laboratory bedding (Northeastern Products, Warrensburg, NY), changed twice weekly	Same as 17-day studies	Same as 17-day studies
Cage Filters		
Bonded polyester (Snow Filtration, Cincinnati, OH), changed biweekly	Same as 17-day studies	Same as 17-day studies

TABLE 1
Experimental Design and Materials and Methods in the Gavage Studies of Resorcinol (continued)

17-Day Studies	13-Week Studies	2-Year Studies
Racks		
Changed biweekly	Same as 17-day studies	Same as 17-day studies
Animal Room Environment		
Rats: Temperature: 23.2° C Relative humidity: 49.2% Fluorescent light: 12 hours/day Room air changes: 6-12 hourly Mice: Temperature: 23.2° C Relative humidity: 49.1% Fluorescent light: 12 hours/day Room air changes: 6-12 hourly	Rats: Temperature: 22.4° C Relative humidity: 58.8% Fluorescent light: 12 hours/day Room air changes: 6-12 hourly Mice: Temperature: 23.1° C Relative humidity: 60.0% Fluorescent light: 12 hours/day Room air changes: 6-12 hourly	Rats: Temperature: 23° ± 2° C Relative humidity: 51% ± 16% Fluorescent light: 12 hours/day Room air changes: 6-12 hourly Mice: Temperature: 23° ± 2° C Relative humidity: 52% ± 11% Fluorescent light: 12 hours/day Room air changes: 6-12 hourly
Doses		
Rats: 0, 27.5, 55, 110, 225, or 450 mg/kg in deionized water by gavage at a volume of 10 mL/kg Mice: 0, 37.5, 75, 150, 300, or 600 mg/kg in deionized water by gavage at a volume of 10 mL/kg	Rats: 0, 32, 65, 130, 260, or 520 mg/kg in deionized water by gavage at a volume of 5 mL/kg Mice: 0, 28, 56, 112, 225, or 420 mg/kg in deionized water by gavage at a volume of 10 mL/kg	Rats: 0, 112, or 225 mg/kg for males and 0, 50, 100, or 150 mg/kg for females in deionized water by gavage at a volume of 5 mL/kg Mice: 0, 112, or 225 mg/kg in deionized water by gavage at a volume of 10 mL/kg
Type and Frequency of Observation		
Observed twice daily for days 1 and 2, daily thereafter; body weights taken initially, weekly, and at termination; clinical observations recorded daily.	Observed twice daily; body weights taken initially, weekly throughout the studies, and at termination; clinical observations recorded weekly.	Observed twice daily; body weights taken initially, weekly through week 13, monthly thereafter until the last 3 months of the studies when they were taken biweekly, and at 15-month interim evaluation or at death; clinical observations recorded every 4 weeks.
Necropsy		
Necropsy and tissue collection performed for all animals. Organ weights were recorded for the brain, heart, right kidney, liver, lung, and thymus of all animals.	Necropsy performed on all animals. Organ weights recorded for the adrenal gland, brain, heart, right kidney, liver, lungs, and thymus of all animals, and the right testis of all males.	Necropsy performed on all animals. Organ weights recorded for the brain, right kidney, and liver of all animals killed at the 15-month interim evaluations.
Histopathology		
Histopathologic examinations were conducted on the brain, heart, kidney, liver, lung, and thymus of rats receiving 450 mg/kg and mice receiving 300 and 600 mg/kg.	Complete histopathologic examination was performed on all animals that died on study, all control animals, all rats receiving 260 or 520 mg/kg, and all mice receiving 225 or 420 mg/kg. (continued on next page)	Complete histopathologic examination was performed on all control and high-dose male rats and male and female mice from the 15-month interim evaluations, all rats from the 2-year studies, and all control and high-dose mice from the 2-year studies. (continued on next page)

TABLE 1
Experimental Design and Materials and Methods in the Gavage Studies of Resorcinol (continued)

17-Day Studies	13-Week Studies	2-Year Studies
Histopathology (continued)		
	Tissues examined included: adrenal gland, bone (sternebrae including marrow), brain, clitoral gland (rats), esophagus, gallbladder (mice), heart, kidney, large intestine (cecum, colon, rectum), liver, lung, mammary gland, mandibular lymph node (rats), mesenteric lymph node, nose, ovaries, pancreas, parathyroid gland, pituitary gland, preputial gland (rats), prostate gland, salivary gland, skin (rats), small intestine (duodenum, jejunum, ileum), spleen, stomach, testes, thymus, thyroid gland, trachea, urinary bladder, and uterus.	Gross lesions were examined from low-dose male rats, all female rats, and low-dose mice from the 15-month studies and from low-dose mice from the 2-year studies. In addition to tissue masses and gross lesions, the following organs and/or tissues were included in complete histopathologic examinations: adrenal gland, bone (femur including marrow), brain, clitoral gland (rats), epididymis, esophagus, gallbladder (mice), heart, kidney, large intestine (cecum, colon, rectum), liver, lung, mammary gland, mesenteric lymph node, nose, ovaries, pancreas, parathyroid gland, pituitary gland, preputial gland (rats), prostate gland, salivary gland, skin, small intestine (duodenum, jejunum, ileum), spleen, stomach, testes, thymus, thyroid gland, trachea, urinary bladder, and uterus.
Clinical Pathology		
None performed	Blood samples were collected from all surviving animals. ***Hematology:*** hematocrit, hemoglobin, erythrocytes, mean cell volume, mean cell hemoglobin, mean cell hemoglobin concentration, leukocyte count and differential. ***Clinical chemistry:*** urea nitrogen, creatinine (rats), sodium (rats), potassium (rats), chloride (rats), calcium (rats and female mice), phosphorus, total protein, albumin, albumin/globulin ratio, total bilirubin (rats), methemoglobin, alanine aminotransferase, aspartate aminotransferase (rats), lactate dehydrogenase, ornithine carbamoyltransferase (rats), sorbitol dehydrogenase, cholinesterase (rats and male mice), triiodothyronine (rats), and thyroxine (rats).	Blood samples were collected from animals killed for the 15-month interim evaluations. ***Hematology:*** hematocrit, hemoglobin, erythrocytes, mean cell volume, mean cell hemoglobin, mean cell hemoglobin concentration, leukocyte count and differential. ***Clinical chemistry:*** urea nitrogen, alkaline phosphatase, alanine aminotransferase, aspartate aminotransferase, and sorbitol dehydrogenase.

RESULTS

RATS

17-Day Studies

All rats lived to the end of the studies (Table 2). The final mean body weights and body weight gains of rats receiving resorcinol were similar to those of the controls. Clinical signs of toxicity appeared within one-half hour of dosing and lasted 1 to 2 hours. Hyperexcitability and tachypnea were observed in males receiving 225 and 450 mg/kg. Females receiving doses of 55 mg/kg and greater showed hyperexcitability and those receiving 110 and 450 mg/kg showed tachypnea.

High-dose females had significantly decreased absolute and relative thymus weights (Table F1). No other biologically significant differences in organ weights were observed.

There were no gross or microscopic lesions attributable to resorcinol administration.

TABLE 2
Survival and Mean Body Weights of Rats in the 17-Day Gavage Studies of Resorcinol

Dose (mg/kg)	Survival[a]	Mean Body Weights[b] (g)			Final Weight Relative to Control (%)
		Initial	Final	Change	
Male					
0	5/5	141 ± 3	201 ± 4	60 ± 1	
27.5	5/5	144 ± 5	211 ± 6	67 ± 2	105
55	5/5	144 ± 5	203 ± 6	59 ± 2	101
110	5/5	144 ± 5	205 ± 6	61 ± 2	102
225	5/5	141 ± 3	200 ± 3	59 ± 1	99
450	5/5	142 ± 5	198 ± 7	56 ± 2	98
Female					
0	5/5	117 ± 2	148 ± 2	30 ± 1	
27.5	5/5	118 ± 2	147 ± 2	29 ± 2	99
55	5/5	116 ± 2	149 ± 3	32 ± 2	101
110	5/5	117 ± 4	146 ± 5	29 ± 1	99
225	5/5	114 ± 4	145 ± 3	31 ± 1	98
450	5/5	115 ± 3	143 ± 2	28 ± 2	97

[a] Number of animals surviving/number of animals initially in group
[b] Weights and weight changes given as mean ± standard error. Differences from the control group are not significant by Williams' or Dunnett's test.

13-Week Studies

All female rats and all but two male rats receiving 520 mg/kg died from chemical-related toxicity during the first four weeks of the studies (Table 3). On day 2 of the studies, rats receiving 260 mg/kg were given 520 mg/kg by mistake. Within 5 days, two males and four females in the 260 mg/kg group died. These deaths were attributed to incorrect dosing because no further deaths occurred for rats receiving this dose during the studies. The final mean body weights and changes in mean body weights of rats receiving resorcinol were similar to those of the controls. Tremors were observed in high-dose rats of both sexes.

Males receiving 130 or 260 mg/kg and females receiving 65, 130, or 260 mg/kg had significantly increased absolute and relative liver weights (Table F2). Absolute and relative adrenal gland weights were significantly increased in all surviving male dosed groups.

No differences in hematology or clinical chemistry parameters attributable to resorcinol administration were observed (Table G1). A few significant differences in various parameters were scattered among the groups, but none were considered biologically significant.

There were no gross or microscopic lesions attributable to resorcinol administration.

Dose selection rationale: The findings from the 17-day and 13-week studies in rats and mice were considered together when selecting doses for the 2-year studies. The death of a mouse receiving 300 mg/kg resorcinol indicated that the high dose for the 2-year studies should be lower than 300 mg/kg. Administration of 260 mg/kg to rats was not associated with early death, except for those rats that died as a result of incorrect dosing; however, this dose was considered too close to 300 mg/kg for the 2-year studies. The next highest dose evaluated

TABLE 3
Survival and Mean Body Weights of Rats in the 13-Week Studies of Resorcinol

Dose (mg/kg)	Survival[a]	Mean Body Weights[b] (g)			Final Weight Relative to Control (%)
		Initial	Final	Change	
Male					
0	10/10	146 ± 3	361 ± 6	215 ± 4	
32	10/10	146 ± 3	358 ± 5	212 ± 3	99
65	10/10	145 ± 4	362 ± 5	217 ± 2	100
130	10/10	147 ± 3	362 ± 3	215 ± 2	99
260	8/10[c]	147 ± 3	365 ± 6	218 ± 6	101
520	2/10[d]	146 ± 3	358 ± 0	207 ± 1	99
Female					
0	10/10	117 ± 2	202 ± 3	85 ± 3	
32	10/10	117 ± 3	206 ± 3	89 ± 2	102
65	10/10	116 ± 3	203 ± 4	87 ± 3	100
130	10/10	118 ± 3	206 ± 4	88 ± 2	102
260	6/10[e]	117 ± 2	201 ± 4	85 ± 3	99
520	0/10[f]	117 ± 3	-	-	-

[a] Number of animals surviving/number of animals initially in group
[b] Weights and weight changes given as mean ± standard error. Differences from the control group are not significant by Williams' or Dunnett's test.
[c] Week of death: 1,1 (due to dosing error)
[d] Week of death: 1,1,1,1,1,1,2,4
[e] Week of death: 1,1,1,1 (due to dosing error)
[f] Week of death: 1,1,1,1,1,2,3,3,3,4

in both species was 225 mg/kg. This dose did not cause mortality or toxicity in rats during the 17-day studies or in mice during the 13-week studies. Therefore, 225 mg/kg was selected as the high dose and 112 mg/kg as the low dose for the 2-year studies for both species. After 22 weeks of the 2-year studies, 16 of the 60 high-dose female rats had died. Therefore, the 2-year female rat study was restarted using lower dose levels of 0, 50, 100, and 150 mg/kg resorcinol.

2-Year Studies

15-Month Interim Evaluations

At the start of the studies, ten rats in each dose group were designated for 15-month interim evaluations. Due to early mortality in the high-dose males, animals from this group were not evaluated at 15 months. Instead, 10 high-dose males that died or were killed in a moribund condition near month 15 were considered part of the 15-month interim evaluation. Relative brain weight was significantly increased for males receiving 112 mg/kg and relative liver weight was significantly increased for females receiving 150 mg/kg (Table F3). These differences in relative weights were considered to be associated with the decreased body weights in these groups. No treatment-related differences in hematology or clinical chemistry parameters were seen (Table G2). No treatment-related neoplasms or nonneoplastic lesions were found during histopathologic examination. Neoplasms observed during the 15-month interim evaluations are listed in Table 4.

Body Weights and Clinical Findings

The mean body weights of males receiving 225 mg/kg and females receiving 150 mg/kg were lower than those of the controls throughout the studies (Figure 1 and Tables 5 and 6). Males given 225 mg/kg had body weights 10% to 15% lower than those of the control from week 87 to study termination. Females given 150 mg/kg had mean body weights from 11% to 14% lower than those of the controls from week 95 to study termination. The mean body weights of low-dose males and females were similar to those of the controls. Clinical findings including ataxia, prostration, salivation, and tremors were seen in treated males and in females receiving 100 and 150 mg/kg. These clinical signs of toxicity began shortly after chemical administration, lasted from 30 minutes to an hour, and became more pronounced at the end of each 5-day dose period.

Survival

The survival of high-dose males and females was significantly lower than that of the controls (Table 7 and Figure 2). The remaining dose groups had survival rates similar to those of the controls.

Sentinel Animals

Positive serological titers for Sendai virus and rat corona virus/sialodacryoadenitis were found in sentinel animals at 6, 12, 18, and 24 months (Table J1). However, there was no clinical or histopathologic evidence of disease.

Pathology and Statistical Analysis of Results

Summaries of the incidences of neoplasms and nonneoplastic lesions, individual animal tumor diagnoses, and statistical analyses of primary tumors that occurred with an incidence of at least 5% in at least one animal group mentioned in this section are presented in Appendixes A and B for male and female rats.

Administration of resorcinol by gavage to male and female F344/N rats for 2 years did not result in any statistically or biologically significant increases in the incidences of neoplasms or nonneoplastic lesions at any site. Incidences of a variety of neoplasms in high-dose males and nonneoplastic lesions in high-dose males and females were decreased as compared with controls due to the lower survival in the dosed groups.

Mammary gland: The incidences of fibroadenomas in females occurred with a negative trend and incidences in each of the female groups that received resorcinol were significantly lower than controls (25/50, 14/50, 12/50, 9/50; Table B3). A single fibroadenoma occurred in a control female in the 15-month interim evaluation. The incidences in all groups fell within the range of historical control incidences for F344/N females from NTP 2-year water gavage studies (101/265, 38%, range 16%-53%). However, the incidence in controls was near the upper end of the range while the incidences in treated groups were nearer the lower end.

TABLE 4
Incidence of Neoplasms in Rats at the 15-Month Interim Evaluation in the 2-Year Gavage Studies of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Male			
Preputial gland			
Adenoma	1/10	0/10	1/10
Skin			
Sarcoma	1/10	0/10	0/10
Basal cell adenoma	1/10	0/10	0/10
Testis			
Interstitial cell tumor	9/10	5/10	9/10
Capsule, mesothelioma	0/10	0/10	1/10
Thyroid gland, C-cell			
Adenoma	0/10	0/10	1/10

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Female				
Clitoral gland				
Adenoma	1/10	0/10	0/10	0/10
Mammary gland				
Fibroadenoma	1/10	0/10	0/10	0/10
Pituitary gland, pars distalis				
Adenoma	3/10	1/10	2/10	1/10
Skin				
Keratoacanthoma	0/10	0/10	1/10	0/10
Thyroid gland, C-cell				
Adenoma	0/10	0/10	0/10	1/10
Uterus				
Deciduoma	0/10	0/10	0/10	1/10
Stromal polyp	1/10	2/10	0/10	0/10
Stromal sarcoma	0/10	0/10	0/10	1/10

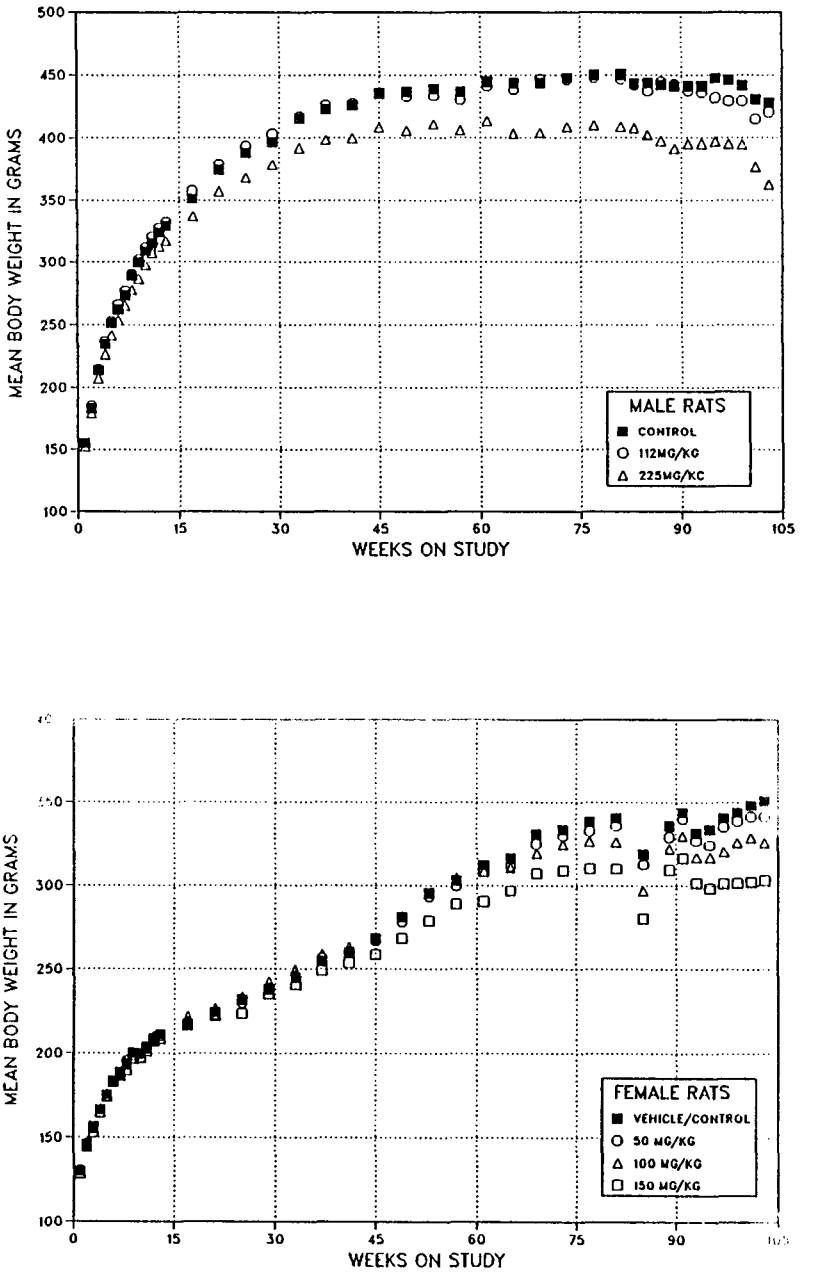


FIGURE 1
Growth Curves for Male and Female Rats Administered Resorcinol by Gavage for 2 Years

TABLE 5
Mean Body Weights and Survival of Male Rats in the 2-Year Gavage Study of Resorcinol

Weeks on Study	Vehicle Control		112 mg/kg			225 mg/kg		
	Av. Wt. (g)	No. of Survivors	Av. Wt. (g)	Wt. (% of control)	No. of Survivors	Av. Wt. (g)	Wt. (% of control)	No. of Survivors
1	142	60	142	100	60	139	98	60
2	184	60	186	101	60	179	97	59
3	214	60	215	101	60	207	97	59
4	235	60	237	101	60	226	96	59
5	252	60	254	101	60	241	96	59
6	263	60	267	102	60	253	96	59
7	274	60	278	102	60	265	97	58
8	289	60	292	101	60	277	96	58
9	300	60	303	101	60	286	95	57
10	309	60	313	101	60	297	96	57
11	316	60	322	102	60	306	97	57
12	325	60	330	102	60	312	96	57
13	330	60	334	101	60	317	96	57
17	351	60	360	103	60	337	96	56
21	374	60	380	102	60	356	95	56
25	388	60	395	102	60	366	95	56
29	397	60	406	102	60	377	95	55
33	416	60	420	101	60	390	94	54
37	423	60	429	101	60	397	94	53
41	425	58	430	101	59	398	94	50
45	435	58	439	101	59	407	94	47
49	436	58	437	100	59	405	93	43
53	438	58	436	100	59	409	93	43
57	436	57	434	100	58	405	93	42
61	445	57	445	100	58	413	93	39
65	443	57	442	100	58	404	91	32
69[a]	444	46	447	101	48	404	91	27
73	448	45	447	100	46	409	91	25
77	450	45	448	100	44	410	91	22
81	451	43	447	99	42	409	91	21
83	443	42	443	100	42	408	92	18
85	444	41	438	99	41	403	91	16
87	442	41	444	101	39	398	90	16
89	441	40	443	100	38	391	89	15
91	442	39	438	99	35	395	90	14
93	441	37	437	99	32	396	90	14
95	448	33	432	97	32	397	89	13
97	446	32	430	96	30	395	89	13
99	442	31	430	97	29	395	89	13
101	431	30	415	96	29	377	88	12
103	428	29	421	98	25	363	85	10
Terminal sacrifice		28			25			9
Mean for weeks								
1-13	264		267	101		254	96	
14-52	405		411	101		381	94	
53-103	442		438	99		399	90	

[a] Interim evaluation occurred at week 66 for animals receiving the vehicle and 112 mg/kg.

TABLE 6
Mean Body Weights and Survival of Female Rats in the 2-Year Gavage Study of Resorcinol

Weeks on Study	Vehicle Control		50 mg/kg			100 mg/kg			150 mg/kg		
	Av. Wt. (g)	No. of Survivors	Av. Wt. (g)	Wt. (% of control)	No. of Survivors	Av. Wt. (g)	Wt. (% of control)	No. of Survivors	Av. Wt. (g)	Wt. (% of control)	No. of Survivors
1	123	60	123	101	60	122	100	60	120	98	60
2	145	60	145	101	60	148	102	60	146	101	60
3	157	60	153	98	60	156	99	60	156	99	60
4	167	60	165	99	60	168	101	60	165	99	60
5	176	60	176	100	60	177	101	60	174	99	60
6	184	60	184	100	60	185	101	60	183	100	60
7	189	60	188	100	60	189	100	60	187	99	60
8	194	60	195	101	60	197	102	60	190	98	60
9	201	60	200	100	60	199	99	60	197	98	60
10	201	60	200	100	60	200	100	60	197	98	60
11	204	60	203	100	60	204	100	60	201	99	60
12	209	60	208	100	60	211	101	60	207	99	60
13	211	60	210	100	60	212	100	60	209	99	60
17	218	60	219	100	59	222	102	60	217	99	60
21	225	60	223	99	59	227	101	60	222	99	60
25	232	60	230	99	59	234	101	60	224	97	60
29	238	60	239	100	59	243	102	60	236	99	60
33	245	60	246	100	59	250	102	60	241	98	58
37	255	60	257	101	59	259	102	60	249	98	58
41	260	60	261	100	59	264	101	60	254	98	58
45	268	60	267	100	59	269	100	60	259	96	55
49	281	60	279	99	59	282	100	60	269	95	54
53	296	60	294	99	59	295	100	60	279	94	54
57	303	60	300	99	59	305	101	60	289	95	52
61	313	60	309	99	59	309	99	60	291	93	52
65	316	60	312	99	59	311	98	58	297	94	49
69[a]	331	50	325	98	48	319	97	47	308	93	39
73	334	49	330	99	48	325	97	47	309	93	39
77	339	48	333	98	47	327	97	46	310	92	39
81	341	46	336	99	47	326	96	46	310	91	39
85	319	45	313	98	47	297	93	45	281	88	38
89	336	44	329	98	47	322	96	43	310	92	35
91	344	42	340	99	46	330	96	40	317	92	33
93	332	42	327	99	45	317	96	39	302	91	33
95	334	40	325	97	43	317	95	38	299	89	32
97	341	40	336	98	38	321	94	34	301	88	31
99	344	37	339	99	35	326	95	32	302	88	29
101	349	36	342	98	34	329	94	31	302	87	25
103	351	34	342	97	33	326	93	28	303	86	24
Terminal sacrifice		34			33			28			24
Mean for weeks											
1-13	182		181	99		182	100		179	98	
14-52	247		247	100		250	101		241	98	
53-103	331		325	98		318	96		301	91	

[a] Interim evaluation occurred at week 66.

TABLE 7
Survival of Rats in the 2-Year Gavage Studies of Resorcinol

Male	Vehicle Control	112 mg/kg	225 mg/kg
Animals initially in study	60	60	60
15-month interim evaluation[a]	10	10	–[b]
Natural deaths	5	10	27
Moribund kills	17	15	19
Accidental deaths[a]	0	0	5
Animals surviving to study termination[c]	28	25	9
Percent survival at end of study[d]	57	50	15
Mean survival (days)[e]	631	629	472
Survival analysis[f]	P<0.001	P=0.647	P<0.001

Female	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Animals initially in study	60	60	60	60
15-month interim evaluation[a]	10	10	10	10
Natural deaths	1	5	6	13
Moribund kills	15	11	16	12
Accidental deaths[a]	0	1	0	1
Animals surviving to study termination[d]	34	33	28	24
Percent survival at end of study[e]	68	66	56	50
Mean survival (days)[f]	658	653	646	595
Survival analysis[g]	P=0.014	P=0.996	P=0.281	P=0.038

[a] Censored from survival analysis
[b] Due to high mortality of males receiving 225 mg/kg, no animals in this group were evaluated at 15 months.
[c] Rats killed moribund or found dead during the last week of the studies were considered survivors.
[d] Kaplan-Meier determinations
[e] Mean of all deaths (uncensored, censored, and terminal sacrifice)
[f] The entry in the control column is the trend test (Tarone, 1975) result. Subsequent entries are the results of pairwise tests (Cox, 1972).

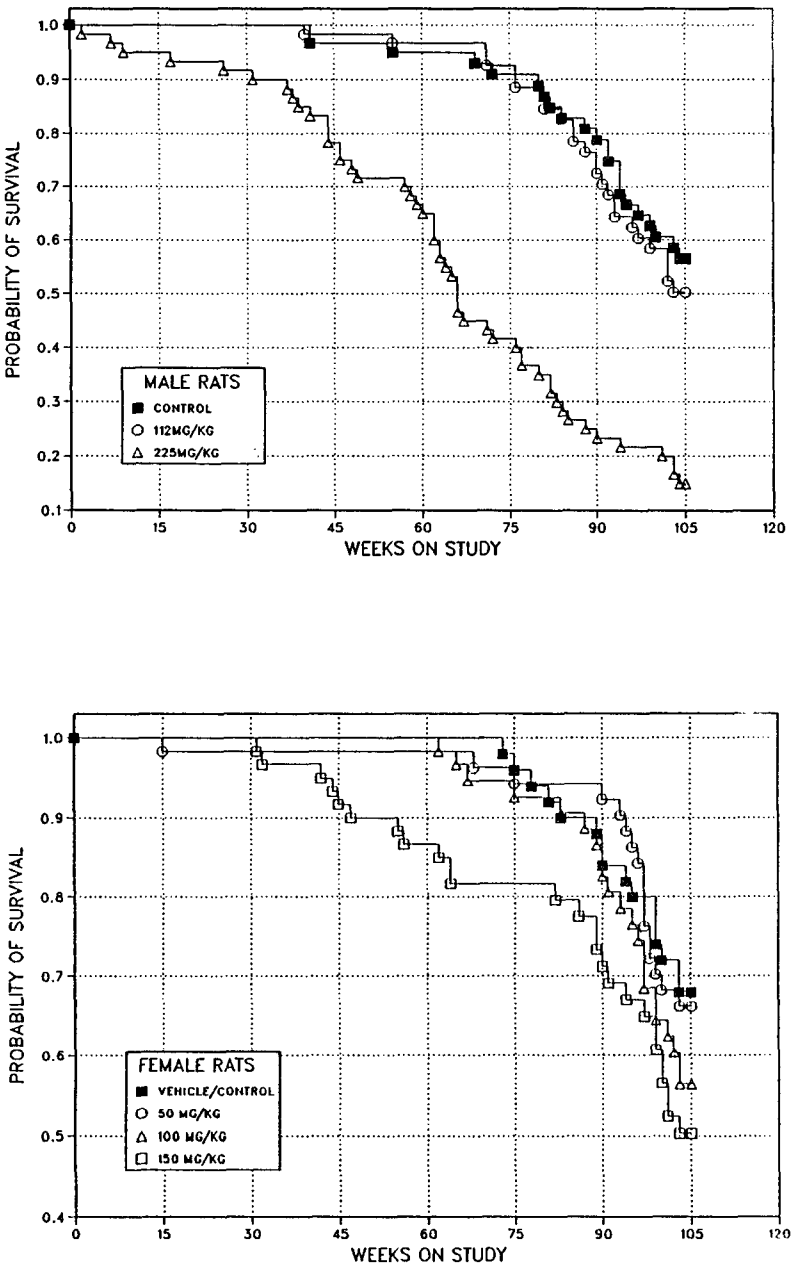


FIGURE 2
Kaplan-Meier Survival Curves for Male and Female Rats Administered Resorcinol by Gavage for 2 Years

MICE

17-Day Studies

All females and four males receiving 600 mg/kg died on the first day; one male receiving 300 mg/kg died before study termination (Table 8). The death of a control male was due to a gavage accident. The final mean body weights and changes in mean body weights of mice receiving resorcinol were similar to those of the controls.

Clinical findings, including prostration and tremors, were recorded among males receiving 150, 300, and 600 mg/kg and among females receiving 300 and 600 mg/kg. These clinical findings usually appeared within an hour of dosing and lasted 1 to 2 hours in surviving animals. No biologically significant changes in organ weights were observed (Table F4). There were no gross or microscopic lesions attributable to resorcinol administration.

TABLE 8
Survival and Mean Body Weights of Mice in the 17-Day Gavage Studies of Resorcinol

Dose (mg/kg)	Survival[a]	Mean Body Weights[b] (g)			Final Weight Relative to Control (%)
		Initial	Final	Change	
Male					
0	4/5[c]	23.0 ± 0.7	25.0 ± 0.8	1.8 ± 0.3	
37.5	5/5	22.6 ± 0.8	23.6 ± 0.9	1.0 ± 0.3	94
75	5/5	22.6 ± 0.9	23.6 ± 0.8	1.0 ± 0.3	94
150	5/5	22.8 ± 0.9	24.8 ± 0.6	2.0 ± 0.3	99
300	4/5[d]	23.4 ± 0.8	24.0 ± 1.0	0.8 ± 0.3	96
600	1/5[e]	22.4 ± 0.8	24.0	-	-
Female					
0	5/5	18.4 ± 0.6	20.2 ± 0.4	1.8 ± 0.4	
37.5	5/5	18.4 ± 0.7	21.0 ± 0.6	2.6 ± 0.4	104
75	5/5	18.6 ± 0.5	20.2 ± 0.4	1.6 ± 0.4	100
150	5/5	18.0 ± 0.6	20.2 ± 0.6	2.2 ± 0.4	100
300	5/5	18.6 ± 0.2	21.0 ± 0.5	2.4 ± 0.5	104
600	0/5[f]	18.2 ± 0.2	-	-	-

[a] Number of animals surviving/number of animals initially in group
[b] Weights and weight changes given as mean ± standard error. Differences from the control group are not significant by Williams' or Dunnett's test. No standard error was calculated for groups with high mortality. No data were calculated for groups with 100% mortality.
[c] Day of death: 7 (due to gavage accident)
[d] Day of death: 6
[e] Day of death: 1,1,1,1
[f] Day of death: 1,1,1,1,1

13-Week Studies

Seven mice of each sex receiving 420 mg/kg died during the first week of the studies from compound-related toxicity (Table 9); another male died during week 4 and another female during week 12. The death of one male receiving 112 mg/kg was due to improper gavage technique. The final mean body weight of the two surviving high-dose male mice was significantly less than controls. The final mean body weights and changes in mean body weights of all other mice receiving resorcinol were similar to those of the controls. Clinical signs of toxicity recorded for high-dose animals included dyspnea, prostration, and tremors. Clinical signs generally appeared within one-half hour of dosing.

Significant decreases were noted in absolute and relative adrenal gland weights for males receiving 28, 56, 112, and 225 mg/kg (Table F5). A few other differences in various organ weights were scattered among the study groups, but none were considered biologically significant.

No chemical-related, biologically significant changes in hematology or clinical chemistry parameters were seen (Table G3). There were no gross or microscopic lesions attributable to resorcinol administration.

TABLE 9
Survival and Mean Body Weights of Mice in the 13-Week Gavage Studies of Resorcinol

Dose (mg/kg)	Survival[a]	Body Weights and Weight Changes[b] (g) Initial	Final	Change	Final Weight Relative to Control (%)
Male					
0	10/10	24.4 ± 0.6	32.4 ± 0.8	8.0 ± 0.6	
28	10/10	23.8 ± 0.6	30.7 ± 0.8	6.9 ± 0.4	95
56	10/10	24.1 ± 0.6	31.6 ± 0.9	7.5 ± 0.5	98
112	9/10[c]	23.7 ± 0.6	31.0 ± 0.4	7.6 ± 0.6	96
225	10/10	23.8 ± 0.4	30.3 ± 0.7	6.5 ± 0.5	94
420	2/10[d]	23.8 ± 0.6	29.5 ± 1.5	4.0 ± 1.0**	91
Female					
0	10/10	20.2 ± 0.3	24.0 ± 0.3	3.8 ± 0.3	
28	10/10	20.0 ± 0.3	23.8 ± 0.5	3.8 ± 0.4	99
56	10/10	19.6 ± 0.3	24.2 ± 0.3	4.6 ± 0.3	99
112	10/10	19.7 ± 0.4	24.3 ± 0.5	4.6 ± 0.2	101
225	10/10	19.8 ± 0.3	24.2 ± 0.3	4.4 ± 0.2	101
420	2/10[e]	19.9 ± 0.4	23.5 ± 0.5	4.0 ± 1.0	98

** Significantly different (P≤0.01) from the control group by Williams' or Dunnett's test.
[a] Number of animals surviving/number of animals initially in group
[b] Weights and weight changes given as mean ± standard error.
[c] Week of death: 7 (due to gavage accident)
[d] Week of death: 1,1,1,1,1,1,1,4
[e] Week of death: 1,1,1,1,1,1,1,12

2-Year Studies

15-Month Interim Evaluations

There were no significant differences in absolute or relative organ weights (Table F6). No chemical-related changes in hematology or clinical chemistry parameters were seen (Table G4). No chemical-related neoplasms or nonneoplastic lesions were found during histopathologic examination. Neoplasms observed at the 15-month interim evaluation are listed in Table 10.

Body Weights and Clinical Findings

The mean body weights of dosed male mice were similar to those of the controls throughout the studies (Table 11 and Figure 3). The mean body weights of high-dose females were 10% to 15% lower than those of the controls from week 85 until study termination (Table 12). The mean body weights of low-dose female mice were similar to those of the controls throughout the studies. Clinical findings included recumbency and tremors occurring for a short period after dosing in mice of both sexes.

Survival

The terminal survival of males and females receiving resorcinol was similar to that of the controls (Table 13 and Figure 4). By week 45 of the study, no male mice in the control and low-dose groups had died, but eight high-dose male mice had died.

Sentinel Animals

Positive titers for mouse hepatitis virus were found in sentinel animals examined at 6, 12, 18, and 24 months (Table J1). However, there was no clinical or histopathologic evidence of disease.

Pathology and Statistical Analysis of Results

Summaries of the incidences of neoplasms and nonneoplastic lesions, individual animal tumor diagnoses, and statistical analyses of primary tumors that occurred with an incidence of at least 5% in at least one animal group mentioned in this section are presented in Appendixes C and D for male and female mice.

Administration of resorcinol by gavage to male and female B6C3F$_1$ mice for 2 years did not result in any statistically or biologically significant increased incidence in neoplasms or nonneoplastic lesions at any site.

Subcutaneous tissue: The incidence of subcutaneous sarcoma or fibroma (combined) in males occurred with a significant negative trend and the incidence was significantly lower in the high-dose group (8/50, 6/50, 1/50; Table C3).

GENETIC TOXICITY

Resorcinol at doses from 33 to 3,333 μg/plate did not induce gene mutations in any of the four strains of *Salmonella typhimurium* when tested with a preincubation protocol in the presence or absence of Aroclor 1254-induced male Sprague-Dawley rat or Syrian hamster liver S9 (Haworth *et al.*, 1983) (Table E1). In the mouse lymphoma assay for induction of trifluorothymidine resistance in L5178Y cells, resorcinol gave a positive response in the absence of S9 at concentrations ranging from 156.25 to 2,500 μg/mL; it was not tested with S9 (McGregor *et al.*, 1988b) (Table E2). In cytogenetic tests with Chinese hamster ovary (CHO) cells, resorcinol induced sister chromatid exchanges (SCE) at doses of 167 and 500 μg/mL in the absence of S9 and at 1,670 and 5,000 μg/mL in the presence of Aroclor 1254-induced male Sprague-Dawley rat liver S9 (Table E3). A delayed harvest protocol was used for all but the 1,670 μg/mL dose with S9 to offset the cell cycle delay produced by resorcinol exposure and to allow accumulation of sufficient numbers of second metaphase cells for SCE analysis. The response observed at the 500 μg/mL dose in the SCE test without S9 was quite strong, with more than one SCE per chromosome induced by resorcinol compared to the background rate of 0.46 SCE/chromosome. Resorcinol also induced chromosomal aberrations (Abs) in CHO cells (Table E4). Without S9, the response in this test was equivocal, with a significant increase in Abs observed only at 1,000 μg/mL; with S9, a significant increase in Abs was observed at all three doses (4,000, 4,500, and 5,000 μg/mL). As with the SCE test, delayed harvest was employed in the Abs test to provide sufficient metaphases for scoring. Resorcinol (11,000 ppm) was negative for induction of sex-linked recessive lethal mutations in germ cells of male *Drosophila melanogaster* when administered to adult flies in the feed (Table E5); administration of resorcinol (11,940 ppm) by injection yielded an increase in mutations which was equivocal ($P=0.06$ and mutation frequency of 0.12% in the treated group).

TABLE 10
Incidence of Neoplasms in Mice at the 15-Month Interim Evaluation in the 2-Year Gavage Studies of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Male			
Intestine, small			
Adenocarcinoma	0/10	0/10	1/10
Liver			
Hepatocellular carcinoma	2/10	0/10	0/10
Lung			
Alveolar/bronchiolar adenoma	0/10	0/10	1/10
Female			
Liver			
Hepatocellular adenoma	0/10	0/10	1/10

TABLE 11
Mean Body Weights and Survival of Male Mice in the 2-Year Gavage Study of Resorcinol

Weeks on Study	Vehicle Control		112 mg/kg			225 mg/kg		
	Av. Wt. (g)	No. of Survivors	Av. Wt. (g)	Wt. (% of control)	No. of Survivors	Av. Wt. (g)	Wt. (% of control)	No. of Survivors
1	22.6	60	22.5	100	60	22.4	99	59
2	24.2	60	24.2	100	60	23.7	98	59
3	25.3	60	25.1	99	60	25.0	99	58
4	26.0	60	25.9	100	60	25.7	99	58
5	26.8	60	26.1	97	60	26.2	98	58
6	27.6	60	27.7	100	60	27.6	100	58
7	28.0	60	27.6	99	60	27.5	98	58
8	28.7	60	28.4	99	60	28.1	98	58
9	28.9	60	28.7	99	60	28.5	99	58
10	29.8	60	29.5	99	60	28.5	96	58
11	29.9	60	29.5	99	60	28.9	97	58
12	30.3	60	30.1	99	60	29.5	97	58
13	31.0	60	30.7	99	60	29.9	97	58
17	32.5	60	31.8	98	60	31.2	96	58
21	33.0	60	33.1	100	60	32.1	97	55
25	33.9	60	33.2	98	60	32.7	97	55
29	33.8	60	33.7	100	60	32.9	97	55
33	33.8	60	33.6	99	60	32.6	96	54
37	34.3	60	34.5	101	60	34.0	99	53
41	35.1	60	34.9	99	60	33.9	97	53
45	35.7	60	34.5	97	60	34.9	98	52
49	35.6	59	35.0	98	60	35.3	99	52
53	36.2	59	34.9	96	60	34.9	96	52
57	36.4	59	34.3	94	60	34.6	95	52
61	35.8	59	35.5	99	60	35.1	98	52
65	36.0	59	35.5	99	60	35.4	98	51
69[a]	36.4	49	35.5	98	50	35.4	97	41
73	36.2	49	36.1	100	50	35.6	98	41
77	37.1	48	36.2	98	50	35.9	97	41
81	36.7	47	35.9	98	50	35.5	97	41
85	37.1	47	35.9	97	50	35.8	97	39
89	37.4	46	36.1	97	50	36.1	97	39
91	36.6	44	35.5	97	49	35.7	98	38
93	36.3	44	35.2	97	48	35.2	97	37
95	36.9	44	35.7	97	47	36.1	98	36
97	35.9	44	34.6	96	47	35.1	98	35
100	35.8	41	35.2	98	45	34.9	98	35
101	35.5	41	34.7	98	45	35.0	99	35
103	36.2	38	34.3	95	43	35.5	98	34
Terminal sacrifice		37			43			34
Mean for weeks								
1-13	27.6		27.4	99		27.0	98	
14-52	34.2		33.8	99		33.3	97	
53-103	36.4		35.4	97		35.4	97	

[a] Interim evaluation occurred at week 66.

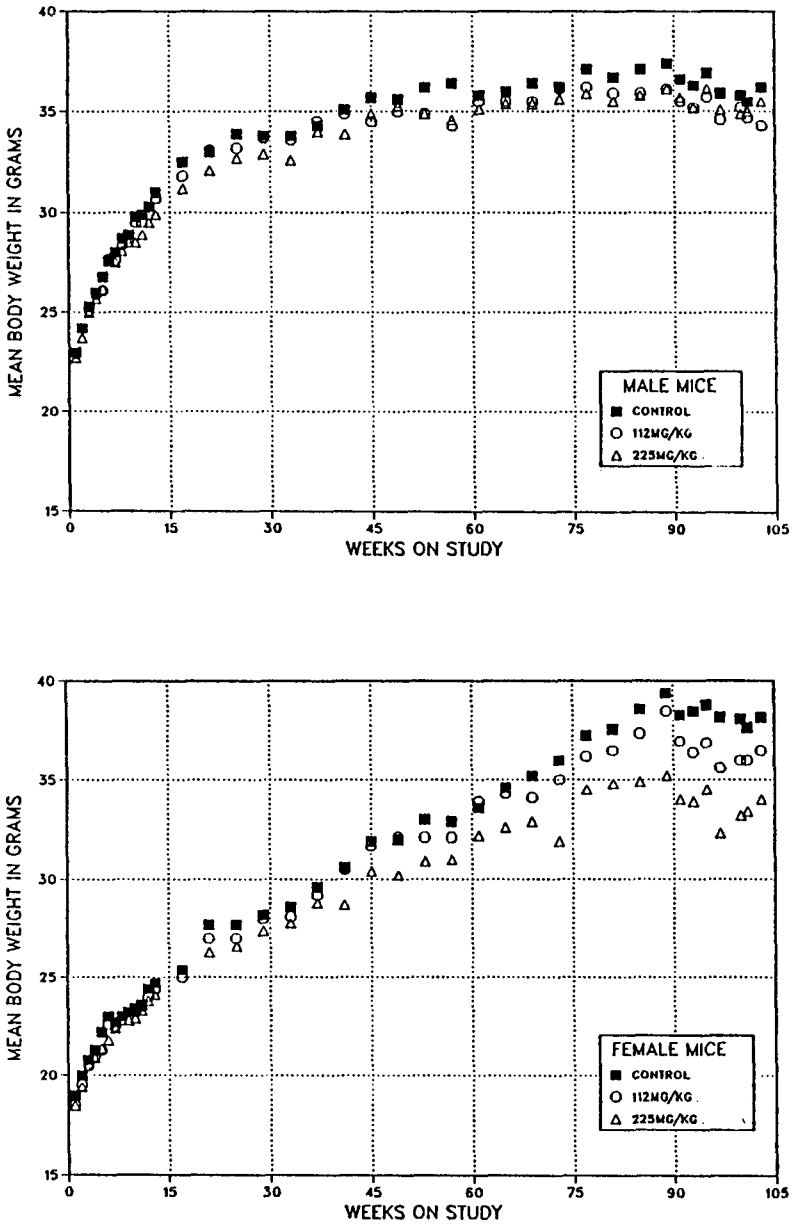


FIGURE 3
Growth Curves for Male and Female Mice Administered Resorcinol by Gavage for 2 Years

TABLE 12
Mean Body Weights and Survival of Female Mice in the 2-Year Gavage Study of Resorcinol

Weeks on Study	Vehicle Control		112 mg/kg			225 mg/kg		
	Av. Wt. (g)	No. of Survivors	Av. Wt. (g)	Wt. (% of control)	No. of Survivors	Av. Wt. (g)	Wt. (% of control)	No. of Survivors
1	18.5	60	18.2	98	58	18.2	98	60
2	20.0	60	19.5	98	58	19.4	97	60
3	20.8	60	20.5	99	58	20.6	99	60
4	21.3	60	21.0	99	58	20.9	98	60
5	22.2	60	21.3	96	58	21.4	96	60
6	23.0	60	22.6	98	58	21.8	95	60
7	22.7	60	22.5	99	58	22.4	99	59
8	23.0	60	23.0	100	58	22.8	99	59
9	23.2	60	23.2	100	58	22.8	98	59
10	23.4	60	23.2	99	58	22.9	98	59
11	23.6	60	23.5	100	58	23.3	99	59
12	24.4	60	24.0	98	58	23.8	98	59
13	24.7	60	24.4	99	58	24.1	98	59
17	25.4	60	25.0	98	58	25.4	100	59
21	27.7	59	27.0	98	57	26.3	95	58
25	27.7	59	27.0	98	57	26.6	96	57
29	28.2	59	28.0	99	57	27.4	97	57
33	28.6	59	28.1	98	57	27.8	97	57
37	29.6	59	29.2	99	57	28.8	97	57
41	30.6	59	30.5	100	56	28.7	94	57
45	31.9	59	31.7	99	56	30.4	95	56
49	32.0	59	32.1	100	56	30.2	94	56
53	33.0	59	32.1	97	56	30.9	94	56
57	33.0	58	32.1	97	56	31.0	94	56
61	33.6	58	33.9	101	56	32.2	96	55
65	34.6	58	34.3	99	56	32.6	94	55
69[a]	35.2	48	34.1	97	46	32.9	94	45
73	36.0	47	35.0	97	45	31.9	89	44
77	37.3	47	36.2	97	45	34.5	93	44
81	37.6	47	36.5	97	45	34.8	93	44
85	38.6	47	37.4	97	44	34.9	90	44
89	39.4	44	38.5	98	40	35.2	89	43
91	38.3	43	37.0	97	39	34.0	89	41
93	38.5	42	36.4	95	38	33.9	88	41
95	38.8	42	36.9	95	38	34.5	89	41
97	38.2	41	35.6	93	37	32.3	85	40
100	38.1	40	36.0	95	34	33.2	87	35
101	37.7	40	36.0	96	34	33.4	89	35
103	38.2	39	36.5	96	33	34.0	89	34
Terminal sacrifice		38			33			34
Mean for weeks								
1-13	22.4		22.1	99		21.9	98	
14-52	29.1		28.7	99		28.0	96	
53-103	36.8		35.6	97		33.3	90	

[a] Interim evaluation occurred at week 66.

TABLE 13
Survival of Mice in the 2-Year Gavage Studies of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Male			
Animals initially in study	60	60	60
15-month interim evaluation[a]	10	10	10
Natural deaths	6	3	11
Moribund kills	6	4	3
Accidental deaths[a]	1	0	2
Animals surviving to study termination[b]	37	43	34
Percent survival at end of study[c]	76	86	72
Mean survival (days)[d]	664	678	591
Survival analysis[e]	P=0.381	P=0.280N	P=0.462
Female			
Animals initially in study	60	60	60
15-month interim sacrifice[a]	10	10	10
Natural deaths	9	8	11
Moribund kills	2	7	5
Accidental deaths[a]	1	2	0
Animals surviving to study termination[b]	38	33	34
Percent survival at end of study[c]	77	67	69
Mean survival (days)[d]	654	621	627
Survival analysis[e]	P=0.429	P=0.321	P=0.474

[a] Censored from survival analyses
[b] Mice killed moribund or found dead during the last week of the studies were considered survivors.
[c] Kaplan-Meier determinations; survival rates are adjusted for accidental deaths.
[d] Mean of all deaths (uncensored, censored, and terminal sacrifice)
[e] The entry in the control column is the trend test (Tarone, 1975) result. Subsequent entries are the results of pairwise tests (Cox, 1972). A lower mortality in a dose group is indicated by N.

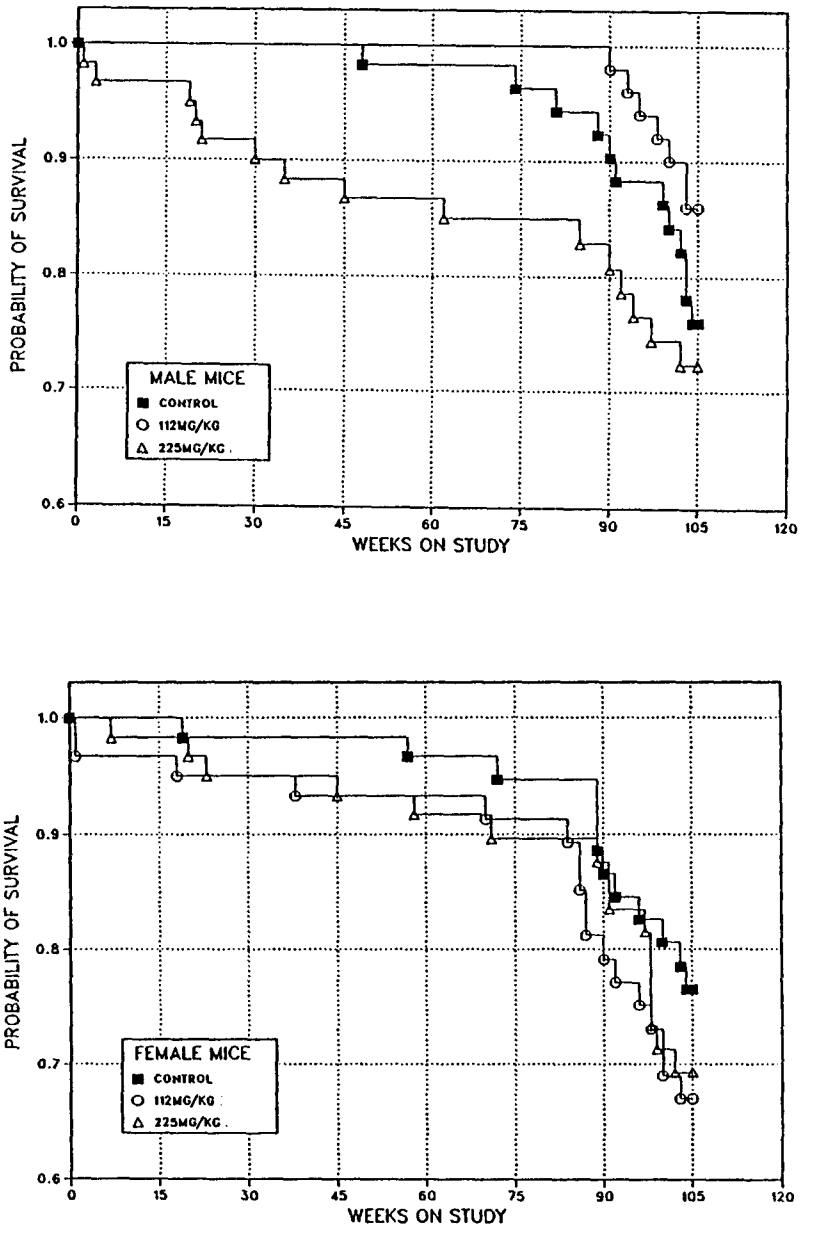


FIGURE 4
Kaplan-Meier Survival Curves for Male and Female Mice Administered Resorcinol by Gavage for 2 Years

DISCUSSION AND CONCLUSIONS

Resorcinol is used principally in the production of resorcinol-formaldehyde adhesives. Uses of these adhesives include the manufacture of rubber products, the bonding of wood laminates, and the production of composite wood products. It is also used as an intermediate in the production of dyes, as a brightening agent, and to a minor extent as an ingredient in cosmetics and pharmaceutical preparations used to treat skin conditions. Because of the potential for occupational and consumer exposure and the absence of data on the effects of long-term exposure, resorcinol was evaluated for potential toxicity and carcinogenicity in F344/N rats and B6C3F$_1$ mice. Exposure to resorcinol may occur by the dermal and inhalation routes as well as orally. However, animal tests have shown that resorcinol is readily absorbed from the gastrointestinal tract and is most toxic by the oral route. The oral LD_{50} for rats is 0.98 g/kg, while the LD_{50} for a single skin exposure in rabbits is 3.36 g/kg. Rats tolerated resorcinol/water aerosols containing 7,800 mg/m^3 for 1 hour and containing 2,800 mg/m^3 for 8 hours (Flickinger, 1976). Thus the oral gavage route of administration was chosen for this study to maximize systemic exposure without having to use excessively high dose levels.

During the 17-day studies, there were no deaths in groups of rats receiving 27.5 to 450 mg/kg of resorcinol. In contrast, all but one of the mice receiving 600 mg/kg, the highest dose used, and one male mouse receiving 300 mg/kg died during the studies. Clinical signs resulting from resorcinol administration, including hyperexcitability, prostration, and tremors, were observed among treated rats and mice. No compound-related body weight changes or gross or microscopic lesions were seen in either species.

In the 13-week studies, the highest dose administered to rats was increased to 520 mg/kg due to the lack of compound-related effects from the doses administered in the 17-day studies. Conversely, the highest dose administered to mice was decreased to 420 mg/kg because of the high mortality that occurred with the high dose (600 mg/kg) used in the 17-day studies. All female rats and eight male rats receiving 520 mg/kg and eight mice of each sex receiving 420 mg/kg died during the studies. As in the 17-day studies, clinical signs indicative of chemical toxicity, including prostration and tremors, were seen in treated rats and mice; no compound-related body weight changes or gross or microscopic lesions were observed in treated animals.

The data from rats and mice in these studies indicate a very sharp dose response for lethality. While no deaths occurred in rats administered doses up to 450 mg/kg during the 17-day studies, nearly all rats given 520 mg/kg died during the first 14 days of the 13-week studies. A similar pattern of mortality occurred with mice. Nine mice receiving 600 mg/kg died on the first day of dosing; one male mouse survived to the end of the study. One male receiving 300 mg/kg died on day 6 of the 17-day studies. Of the eight male and eight female mice receiving 420 mg/kg that died during the 13-week studies, seven deaths in each group occurred during the first week of the studies, while the remaining male and female died during week 4 and week 12, respectively. Necropsy and histologic evaluation of animals that died during the studies revealed no lesions explaining the cause of death of these animals. Thus the deaths seemed to be the result of acute toxic reaction. The deaths of one male mouse and one female mouse during the later weeks of the 13-week studies, however, suggest the possibility of a cumulative toxic effect associated with continued exposure.

At doses that were not lethal, the only potential toxic effects associated with resorcinol exposure were slight differences in organ weights observed in the 13-week studies. These included slight increases in the liver weights of dosed rats, increases in the adrenal weights of dosed male rats, and decreases in the adrenal gland weights of dosed male mice. Therefore, toxicity data contributed relatively little to the selection of dose levels for the 2-year studies.

Doses for the 2-year studies were selected based on mortality data from the 17-day and 13-week rat and mouse studies. The death of one mouse that received 300 mg/kg indicated that the high dose for the 2-year studies should be lower than 300 mg/kg. Administration of 260 mg/kg to rats was not associated with early death except for those animals that died as a result of incorrect dosing. However, this dose was considered too close to 300 mg/kg for 2-year studies because of the possibility of cumulative toxicity. The next highest dose examined, 225 mg/kg, caused no mortality or toxicity in rats during the 17-day studies or in mice during the 13-week studies. Therefore, 225 mg/kg was selected as the high dose and 112 mg/kg as the low dose for the 2-year rat and mouse studies.

Within four weeks after initiation of the 2-year studies, several female rats receiving the 225 mg/kg dose died. By week 13, ten high-dose female rats had died, and by week 22 a total of 16 high-dose females had died. Pathology evaluations were performed and no compound-related gross or microscopic lesions were found in any of these early death females. Consequently, death was attributed to acute toxicity. From these results it was evident that 225 mg/kg was too high for use in a 2-year study in female rats. Therefore, the female rat portion of these studies was terminated, and a second study was begun using lower doses. During the 13-week study 130 mg/kg was well tolerated by female rats, so 150 mg/kg was selected as the high dose for the new female rat study. Because female rats appeared to be more sensitive to resorcinol than males, two lower doses, 100 and 50 mg/kg, were selected for the second study to ensure there would be dose groups with adequate survival.

Survival and mean body weights of male rats receiving 112 mg/kg were similar to those of control male rats. Mean body weights of male rats receiving 225 mg/kg were lower than controls during most of the study; from week 87 to study termination they ranged from 10% to 15% lower than those of the controls. As in the 17-day and 13-week rat studies, clinical signs indicative of a chemical-related effect on the central nervous system, including ataxia, prostration, and tremors, were observed in the 2-year studies soon after dosing and disappeared after approximately 30 to 60 minutes. It was noted during the 2-year studies that the severity of the chemical-related clinical signs became more pronounced at the end of the 5-day dose period, suggesting a possible cumulative effect with repeated dosing. Survival of male rats that received 225 mg/kg was significantly lower than the controls throughout the 2-year study. The decreased survival in this group was considered due to acute toxicity of resorcinol administration because no gross or microscopic lesions were found to explain the cause of death.

During the 2-year study, mean body weights of the 150 mg/kg group of female rats were slightly lower than controls throughout most of the study and ranged from 11% to 14% lower than the controls during the final 10 weeks. Mean body weights of the 100 mg/kg group were slightly lower than the controls during the second half of the study, while mean body weights of the 50 mg/kg group were similar to the controls throughout the study. Survival of female rats that received 50 or 100 mg/kg was similar to survival of the controls, whereas survival of female rats receiving 150 mg/kg was significantly lower than that of controls because of early deaths occurring between weeks 30 and 60. As with high-dose male rats, these early deaths were considered due to resorcinol toxicity.

Resorcinol exposure was not associated with an increase in the incidence of neoplasms or nonneoplastic lesions at any site in rats. The early deaths and lower mean body weights in the 150 mg/kg female rats indicated that the toxic effects were still present at this dose. However, survival of this group was 66% (33/50) at week 91, and survival at study termination was still nearly 50% (24/50). In addition, survival in lower-dose female groups was similar to controls. Thus, the doses used were considered adequate to assess the potential carcinogenicity of resorcinol in female F344/N rats. Because the early survival of male rats administered 225 mg/kg was reduced, the sensitivity of this group for detecting carcinogenic effects was also reduced; survival in the 112 mg/kg group was unaffected, supporting the adequacy of the study for evaluating carcinogenicity.

Exposure to resorcinol was not associated with an increased incidence of any neoplasm or nonneoplastic lesion in male or female mice. Survival of mice exposed to resorcinol for 2 years was similar

to survival of controls. Although several high-dose male mice died during the early part of the study from apparent chemical-related toxicity, terminal survival of this group was not significantly different from survival of control male mice. Mean body weights of male mice receiving 225 mg/kg and of male and female mice receiving 112 mg/kg were similar to mean body weights of controls throughout the 2-year studies. However, mean body weights of female mice that received 225 mg/kg were lower than controls during approximately the last half of the study and were from 10% to 15% lower from week 85 to study termination, indicating toxicity at this dose level. Thus it appears unlikely female mice would have tolerated higher doses. The occurrence of some chemical-related deaths in male mice administered 225 mg/kg in the 2-year studies, the death of a male mouse administered the somewhat higher dose of 300 mg/kg during the 17-day studies, and the toxic effects seen in female mice given 225 mg/kg, all suggest that male mice would not have tolerated higher doses. Based on these results, 225 mg/kg was considered an adequate high dose for mice.

A significant finding of the 2-year studies was the lack of chemical-related neoplasms or nonneoplastic lesions in dosed rats or mice of either sex. In addition, clinical signs indicative of chemical-related toxicity to the central nervous system were observed in dosed animals of both species and sexes, while a number of deaths attributed to chemical toxicity occurred in dosed rats and male mice.

Indications of neurotoxicity resulting from resorcinol administration have been reported previously. Merker *et al.* (1982) conducted a study of the pharmacokinetics of resorcinol administered subcutaneously to CD rats and reported seeing body tremors and convulsions in rats administered doses of 140 mg/kg or greater. In their study, clinical signs ceased by 1 to 1.5 hours after dosing, coinciding with the clearance of resorcinol from the blood. In the present study, clinical signs of toxicity usually ended by 1 hour after chemical administration, presumably due to clearance of the chemical. Signs of a central nervous system effect, occasionally followed by death, have been reported in severe cases of resorcinol toxicity in humans (Deichmann, 1983). Thus, the chemical-related early deaths in the present study may have been due to a direct action of resorcinol on the central nervous system. Gatgounis and Walton (1962) have reported that resorcinol and its isomers catechol and hydroquinone administered to dogs and rabbits can act on the brainstem medulla and the spinal cord to produce sympathetic nervous system stimulation. An interesting finding of their study was that in dogs, it was necessary to administer a series of "priming doses" before the maximum stimulatory effect of the chemical was seen. In the present study it was noted that the clinical effects seen in rats after dosing became more pronounced toward the end of each 5-day dosing period. These findings indicate a possible cumulative effect of resorcinol administration.

Hydroquinone (1,4-dihydroxybenzene), an isomer of resorcinol, has also been evaluated by the National Toxicology Program in 14-day, 13-week, and 2-year studies (NTP, 1989). During the 14-day and 13-week studies, doses of 200 mg/kg and greater of hydroquinone caused lethargy and tremors, and doses from 500 to 1,000 mg/kg caused convulsions and death in both rats and mice.

In contrast to resorcinol, chemical-related neoplastic effects were observed in the NTP 2-year studies of hydroquinone. Doses of 25 and 50 mg/kg hydroquinone were administered by gavage to F344/N rats, and doses of 50 and 100 mg/kg were administered by gavage to $B6C3F_1$ mice. The incidence of renal tubule adenomas was increased in dosed male rats (vehicle control, 0/55; 25 mg/kg, 4/55; 50 mg/kg, 8/55) with a significant increase in the high-dose group. The incidence of mononuclear cell leukemia in female rats occurred with a significant dose-related trend and was significantly increased in the high-dose group. The incidences of hepatocellular neoplasms were significantly increased in the groups of female mice administered hydroquinone.

Structurally, resorcinol and hydroquinone differ very little. Both are dihydroxybenzene isomers with the two hydroxyl groups located at positions 1 and 3 in resorcinol and at 1 and 4 in hydroquinone. Both are primarily metabolized to glucuronide and sulfate conjugates which are excreted in urine. Hydroquinone readily undergoes oxidation to *p*-benzoquinone via *p*-benzosemiquinone, a free radical intermediate (Irons and Sawahata, 1985).

This reaction is catalyzed by mixed function oxidases as well as other redox enzymes. Both the free radical semiquinone and *p*-benzoquinone are reactive compounds capable of arylating cellular nucleophiles. Resorcinol, on the other hand, may not easily form a reactive quinone or semiquinone because of the 1,3 arrangement of the two hydroxyl groups. This may explain the difference in carcinogenic response between resorcinol and hydroquinone.

In the 2-year study of resorcinol, mammary gland fibroadenomas in female rats occurred with a significantly decreased incidence (by survival adjusted analysis) in dosed groups compared with controls. Part of the decreased incidence in the high-dose female group may have been due to the lower body weights in this group. Rao *et al.* (1987) have shown a direct relationship between body weight and the incidence of mammary gland tumors in female F344/N rats. However, there were no differences in body weights in the 50 and 100 mg/kg groups as compared to controls. A possible explanation for the decreased incidences in these groups is that resorcinol may affect dopamine levels. Dopamine is responsible for inhibiting release of prolactin from the pituitary gland. Compounds that stimulate dopaminergic activity inhibit prolactin release and, subsequently, the development of mammary tumors.

Conclusions: Under the conditions of these 2-year gavage studies, there was *no evidence of carcinogenic activity** of resorcinol in male F344/N rats given 112 or 225 mg/kg or female F344/N rats given 50, 100, or 150 mg/kg. There was *no evidence of carcinogenic activity* of resorcinol in male or female B6C3F$_1$ mice given 112 or 225 mg/kg.

Clinical signs suggestive of a chemical-related effect on the central nervous system, including ataxia, recumbency, and tremors, were observed in rats and mice in the 2-year studies.

* Explanation of Levels of Evidence of Carcinogenic Activity is on page 8. A summary of the peer review comments and the public discussion on this Technical Report appears on page 10.

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APPENDIX A
SUMMARY OF LESIONS IN MALE RATS
IN THE 2-YEAR GAVAGE STUDY OF RESORCINOL

TABLE A1
Summary of the Incidence of Neoplasms in Male Rats in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Disposition Summary			
Animals initially in study	60	60	60
15-Month interim evaluation[a]	10	10	
Early deaths			
Natural deaths	5	10	27
Moribund kills	17	15	19
Accidental deaths			5
Survivors			
Terminal sacrifice	28	25	9
Animals examined microscopically	50	50	50
Alimentary System			
Esophagus	(50)	(50)	(50)
Intestine large, cecum	(47)	(46)	(44)
Intestine large, colon	(47)	(47)	(46)
Schwannoma malignant, metastatic, epididymis		1 (2%)	
Intestine large, rectum	(47)	(49)	(47)
Intestine small	(50)	(50)	(50)
Histiocytic sarcoma, metastatic, liver	1 (2%)		
Intestine small, duodenum	(47)	(47)	(44)
Leiomyosarcoma		1 (2%)	
Intestine small, ileum	(45)	(47)	(43)
Intestine small, jejunum	(46)	(47)	(44)
Liver	(50)	(50)	(50)
Hepatocellular adenoma	1 (2%)		
Histiocytic sarcoma, metastatic	1 (2%)		
Neoplastic nodule	1 (2%)		
Mesentery	(3)	(5)	(1)
Lipoma		1 (20%)	
Schwannoma malignant, metastatic, epididymis		1 (20%)	
Pancreas	(49)	(50)	(50)
Pheochromocytoma malignant, metastatic, adrenal gland	1 (2%)		
Schwannoma malignant, metastatic, epididymis		1 (2%)	
Salivary glands	(50)	(50)	(50)
Histiocytic sarcoma, metastatic, liver	1 (2%)		
Schwannoma malignant	1 (2%)		
Stomach, forestomach	(49)	(50)	(50)
Stomach, glandular	(49)	(50)	(49)
Schwannoma malignant, metastatic, epididymis		1 (2%)	
Tongue			(1)
Papilloma squamous			1 (100%)
Tooth	(1)	(1)	
Cardiovascular System			
Heart	(50)	(50)	(50)
Histiocytic sarcoma, metastatic, liver	1 (2%)		

TABLE A1
Summary of the Incidence of Neoplasms in Male Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Endocrine System			
Adrenal gland, cortex	(49)	(50)	(49)
Adenoma	1 (2%)		
Schwannoma malignant, metastatic, epididymis		1 (2%)	
Adrenal gland, medulla	(49)	(50)	(49)
Pheochromocytoma malignant	5 (10%)	2 (4%)	
Pheochromocytoma benign	9 (18%)	8 (16%)	5 (10%)
Pheochromocytoma benign, multiple		1 (2%)	
Islets, pancreatic	(49)	(49)	(50)
Adenoma	2 (4%)	2 (4%)	
Pituitary gland	(50)	(50)	(49)
Pars distalis, adenoma	14 (28%)	9 (18%)	3 (6%)
Thyroid gland	(49)	(49)	(49)
C-cell, adenoma	3 (6%)	4 (8%)	5 (10%)
Follicular cell, carcinoma	1 (2%)		
General Body System			
None			
Genital System			
Epididymis	(50)	(50)	(50)
Schwannoma malignant		1 (2%)	
Preputial gland	(50)	(49)	(50)
Adenocarcinoma		1 (2%)	
Adenoma	8 (16%)	4 (8%)	2 (4%)
Adenoma, multiple		2 (4%)	
Carcinoma	1 (2%)	1 (2%)	1 (2%)
Squamous cell carcinoma		1 (2%)	
Prostate	(50)	(50)	(49)
Testes	(50)	(50)	(50)
Schwannoma malignant, metastatic, epididymis		1 (2%)	
Interstitial cell, adenoma	8 (16%)	7 (14%)	3 (6%)
Interstitial cell, adenoma, multiple	37 (74%)	37 (74%)	28 (56%)
Hematopoietic System			
Bone marrow	(50)	(50)	(49)
Histiocytic sarcoma, metastatic, liver	1 (2%)		
Lymph node	(50)	(50)	(50)
Histiocytic sarcoma, metastatic, liver	1 (2%)		
Lymph node, mesenteric	(50)	(50)	(49)
Schwannoma malignant, metastatic, epididymis		1 (2%)	
Spleen	(50)	(50)	(49)
Histiocytic sarcoma, metastatic, liver	1 (2%)		
Thymus	(46)	(46)	(48)
Thymoma benign		1 (2%)	

TABLE A1
Summary of the Incidence of Neoplasms in Male Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Integumentary System			
Mammary gland	(49)	(50)	(49)
Adenocarcinoma	1 (2%)		
Fibroadenoma	2 (4%)	1 (2%)	
Skin	(50)	(50)	(50)
Epidermis, keratoacanthoma	1 (2%)	2 (4%)	1 (2%)
Epidermis, papilloma squamous		2 (4%)	
Epidermis, trichoepithelioma		1 (2%)	
Subcutaneous tissue, fibroma	3 (6%)	1 (2%)	1 (2%)
Subcutaneous tissue, fibrosarcoma		1 (2%)	
Subcutaneous tissue, sarcoma	1 (2%)		
Musculoskeletal System			
Skeletal muscle	(3)		(1)
Nervous System			
Brain	(50)	(50)	(50)
Astrocytoma malignant		1 (2%)	1 (2%)
Glioma NOS	1 (2%)		
Histiocytic sarcoma, metastatic, liver	1 (2%)		
Respiratory System			
Lung	(50)	(50)	(50)
Carcinoma, metastatic, thyroid gland	1 (2%)		
Chordoma, metastatic, uncertain primary site			1 (2%)
Histiocytic sarcoma, metastatic, liver	1 (2%)		
Pheochromocytoma malignant, metastatic, adrenal gland	1 (2%)		
Sarcoma, metastatic, uncertain primary site	1 (2%)		
Squamous cell carcinoma	1 (2%)		
Nose	(49)	(49)	(50)
Trachea	(50)	(50)	(49)
Carcinoma, metastatic, thyroid gland	1 (2%)		
Special Senses System			
Ear			(1)
Pinna, schwannoma malignant			1 (100%)
Zymbal's gland			(1)
Carcinoma			1 (100%)
Urinary System			
Kidney	(50)	(50)	(50)
Histiocytic sarcoma, metastatic, liver	1 (2%)		
Schwannoma malignant, metastatic, epididymis		1 (2%)	
Cortex, adenoma			1 (2%)
Pelvis, transitional epithelium, papilloma		1 (2%)	1 (2%)
Urinary bladder	(50)	(50)	(49)

TABLE A1
Summary of the Incidence of Neoplasms in Male Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Systemic Lesions			
Multiple organs[b]	(50)	(50)	(50)
Leukemia mononuclear	17 (34%)	25 (50%)	8 (16%)
Lymphoma malignant undifferentiated cell	1 (2%)		
Mesothelioma malignant	4 (8%)	2 (4%)	1 (2%)
Tumor Summary			
Total animals with primary neoplasms[c]	47	49	31
Total primary neoplasms	124	120	64
Total animals with benign neoplasms	46	48	31
Total benign neoplasms	90	84	51
Total animals with malignant neoplasms	27	32	12
Total malignant neoplasms	33	36	13
Total animals with metastatic neoplasms	4	1	1
Total metastatic neoplasms	15	8	1
Total animals with malignant neoplasms of uncertain primary site	1		1
Total animals with neoplasms uncertain-benign or malignant	1		
Total uncertain neoplasms	1		

[a] Due to high mortality of males receiving 225 mg/kg, no animals in this group were sacrificed at 15 months.
[b] Number of animals with any tissue examined microscopically
[c] Primary tumors: all tumors except metastatic tumors

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control

Number of Days on Study	2 8 7	2 8 7	3 8 4	4 7 8	4 9 9	5 5 8	5 6 3	5 6 9	5 8 5	6 1 0	6 2 9	6 4 2	6 4 4	6 5 2	6 5 7	6 5 7	6 6 0	6 7 7	6 9 2	6 9 4	7 2 1	7 2 8	7 2 9	7 2 9	7 2 9
Carcass ID Number	0 5 1	0 5 2	0 5 5	0 9 1	0 5 3	0 1 2	0 2 1	0 6 4	0 8 4	0 4 4	0 9 4	0 7 3	0 4 5	1 0 3	0 5 4	1 1 1	0 2 5	0 1 5	0 4 2	1 0 5	1 2 4	1 0 4	0 1 3	0 1 5	0 2 3
Alimentary System																									
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	+	+	+	+	+	+	A	+	+	+	+	A	+	+	+	A	+	+	+	+	+	+	+	+	+
Intestine large, colon	+	+	+	+	+	+	A	+	+	+	+	A	M	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, rectum	+	+	+	+	+	+	A	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	+	+	+	+	+	+	A	+	A	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, ileum	+	+	+	+	+	+	A	+	A	+	+	A	+	+	+	+	+	+	+	+	A	+	+	+	+
Histiocytic sarcoma, metastatic, liver													X												
Intestine small, jejunum	+	+	+	+	+	+	A	+	A	+	+	A	+	+	+	+	+	+	+	+	A	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hepatocellular adenoma																							X		
Histiocytic sarcoma, metastatic													X												
Neoplastic nodule						X																			
Mesentery				+											+										
Pancreas	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pheochromocytoma malignant, metastatic, adrenal gland																									
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Histiocytic sarcoma, metastatic, liver													X												
Schwannoma malignant																									
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+
Tooth														+											
Cardiovascular System																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Histiocytic sarcoma, metastatic, liver													X												
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma						X																			
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pheochromocytoma malignant													X							X					
Pheochromocytoma benign						X						X							X		X				

+: Tissue examined microscopically
A: Autolysis precludes examination
M: Missing tissue
I: Insufficient tissue
X: Lesion present
Blank: Not examined

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	
Carcass ID Number	0 2 4	0 3 3	0 3 4	0 6 5	0 8 5	0 9 5	1 0 2	1 1 4	1 1 5	1 2 2	1 2 5	1 2 2	0 2 2	0 3 2	0 4 3	0 5 5	0 6 2	0 6 3	0 7 4	0 7 5	0 9 2	0 9 3	1 1 2	1 1 3	1 2 1	1 2 3	**Total Tissues/ Tumors**
Alimentary System																											
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	47
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Histiocytic sarcoma, metastatic, liver																											1
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hepatocellular adenoma																											1
Histiocytic sarcoma, metastatic																											1
Neoplastic nodule																											1
Mesentery			+																								3
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Pheochromocytoma malignant, metastatic, adrenal gland																									X		1
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Histiocytic sarcoma, metastatic, liver																											1
Schwannoma malignant																						X					1
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Tooth																											1
Cardiovascular System																											
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Histiocytic sarcoma, metastatic, liver																											1
Endocrine System																											
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	49
Adenoma																											1
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	49
Pheochromocytoma malignant		X	X															X							X		5
Pheochromocytoma benign	X						X		X											X							9

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	2 8 7	2 8 7	3 8 4	4 7 8	4 9 9	5 5 8	5 6 3	5 6 9	5 8 5	6 1 0	6 2 9	6 4 2	6 4 4	6 5 2	6 5 7	6 5 7	6 6 0	6 7 7	6 9 2	6 9 4	7 2 1	7 2 8	7 2 9	7 2 9	7 2 9
Carcass ID Number	0 5 1	0 5 2	0 3 5	0 9 1	0 5 3	0 1 2	0 2 1	0 6 4	0 8 4	0 4 4	0 9 4	0 7 3	0 4 5	1 0 3	0 5 4	1 1 1	0 2 5	0 1 5	0 4 2	0 0 5	0 2 4	1 0 4	0 1 3	0 1 5	0 1 3
Endocrine System (continued)																									
Islets, pancreatic	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma																									
Parathyroid gland	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	M
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars distalis, adenoma								X		X					X				X	X		X		X	
Thyroid gland	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, adenoma					X																X				
Follicular cell, carcinoma																									
General Body System																									
None																									
Genital System																									
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Penis																	+								
Preputial gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma					X																				
Carcinoma																			X						
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Seminal vesicle		+																							
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Interstitial cell, adenoma						X		X								X			X			X			
Interstitial cell, adenoma, multiple				X	X		X				X	X	X	X	X		X	X		X	X		X	X	X
Hematopoietic System																									
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Histiocytic sarcoma, metastatic, liver													X												
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Histiocytic sarcoma, metastatic, liver													X												
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Histiocytic sarcoma, metastatic, liver													X												
Thymus	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+
Integumentary System																									
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenocarcinoma																									
Fibroadenoma															X										
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Epidermis, keratoacanthoma																X									
Subcutaneous tissue, fibroma				X																					
Subcutaneous tissue, sarcoma																									

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	
Carcass ID Number	0 2 4	0 3 3	0 3 4	0 6 5	0 8 5	0 9 5	1 0 2	1 1 4	1 1 5	1 2 2	1 2 5	0 2 2	0 3 2	0 4 3	0 5 5	0 6 2	0 6 3	0 7 4	0 7 5	0 9 2	0 9 3	1 1 2	1 1 3	1 2 1	1 2 3	**Total Tissues/ Tumors**
Endocrine System (continued)																										
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Adenoma					X																		X			2
Parathyroid gland	+	M	+	+	+	M	+	+	M	M	+	+	+	+	+	+	+	+	+	+	+	+	M	M	+	41
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pars distalis, adenoma															X		X		X	X	X	X			X	14
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
C-cell, adenoma															X											3
Follicular cell, carcinoma												X														1
General Body System																										
None																										
Genital System																										
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Penis																										1
Preputial gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenoma								X	X		X			X		X				X				X		8
Carcinoma																										1
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Seminal vesicle																										1
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Interstitial cell, adenoma					X										X		X									8
Interstitial cell, adenoma, multiple	X	X	X	X		X	X	X	X	X	X	X	X	X		X		X	X	X	X	X	X	X	X	37
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Histiocytic sarcoma, metastatic, liver																										1
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Histiocytic sarcoma, metastatic, liver																										1
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Histiocytic sarcoma, metastatic, liver																										1
Thymus	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	46
Integumentary System																										
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	49
Adenocarcinoma							X																			1
Fibroadenoma																				X						2
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Epidermis, keratoacanthoma																										1
Subcutaneous tissue, fibroma															X										X	3
Subcutaneous tissue, sarcoma																			X							1

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	2 2 3 4 4 5 5 5 5 6 6 6 6 6 6 6 6 6 6 7 7 7 7 7 8 8 8 7 9 5 6 6 8 1 2 4 4 5 5 5 6 7 9 9 2 2 2 2 2 7 7 4 8 9 8 3 9 5 0 9 2 4 2 7 7 0 7 2 4 1 8 9 9 9
Carcass ID Number	0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 0 0 0 1 1 1 0 0 0 5 5 3 9 5 1 2 6 8 4 9 7 4 0 5 1 2 1 4 0 2 0 1 1 2 1 2 5 1 3 2 1 4 4 4 4 3 5 3 4 1 5 4 2 5 4 4 3 5 3
Musculoskeletal System	
Bone	+ +
Skeletal muscle	+ +
Nervous System	
Brain	+ +
Glioma NOS	X
Histiocytic sarcoma, metastatic, liver	X
Respiratory System	
Lung	+ +
Carcinoma, metastatic, thyroid gland	
Histiocytic sarcoma, metastatic, liver	X
Pheochromocytoma malignant, metastatic, adrenal gland	
Sarcoma, metastatic, uncertain primary site	X
Squamous cell carcinoma	X
Nose	+ +
Trachea	+ +
Carcinoma, metastatic, thyroid gland	
Special Senses System	
Eye	+ + + + + +
Urinary System	
Kidney	+ +
Histiocytic sarcoma, metastatic, liver	X
Urinary bladder	+ +
Systemic Lesions	
Multiple organs	+ +
Leukemia mononuclear	X X X X X X X
Lymphoma malignant undifferentiated cell type	X
Mesothelioma malignant	X X X

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	
Carcass ID Number	0 2 4	0 3 3	0 3 4	0 6 5	0 8 5	0 9 5	1 0 2	1 1 4	1 1 5	1 2 2	1 2 5	0 2 2	0 3 2	0 4 3	0 5 5	0 6 2	0 6 3	0 7 4	0 7 5	0 9 2	0 9 3	1 1 2	1 1 3	1 2 1	1 2 3	**Total Tissues/ Tumors**
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Skeletal muscle													+													3
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Glioma NOS																										1
Histiocytic sarcoma, metastatic, liver																										1
Respiratory System																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Carcinoma, metastatic, thyroid gland												X														1
Histiocytic sarcoma, metastatic, liver																										1
Pheochromocytoma malignant, metastatic, adrenal gland																								X		1
Sarcoma, metastatic, uncertain primary site																										1
Squamous cell carcinoma																										1
Nose	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Carcinoma, metastatic, thyroid gland												X														1
Special Senses System																										
Eye								+																		6
Urinary System																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Histiocytic sarcoma, metastatic, liver																										1
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Systemic Lesions																										
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Leukemia mononuclear	X	X	X						X	X					X	X		X	X					X		17
Lymphoma malignant undifferentiated cell type																										1
Mesothelioma malignant																		X								4

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 112 mg/kg

Number of Days on Study	2 7 9	3 8 0	4 9 2	4 9 2	5 3 2	5 3 2	5 6 2	5 6 6	5 8 8	5 9 6	6 0 1	6 1 6	6 2 4	6 2 9	6 3 7	6 3 9	6 5 0	6 5 0	6 6 6	6 7 9	6 9 2	7 0 8	7 1 2	7 1 4	7 1 9
Carcass ID Number	3 5 1	2 7 5	3 5 3	3 6 4	2 5 1	3 1 2	3 3 3	3 4 4	3 4 5	2 5 3	2 8 4	3 0 2	3 3 5	2 8 5	3 6 3	2 8 3	2 6 5	2 7 4	3 1 4	2 7 1	2 7 3	2 5 5	3 1 5	2 8 2	3 2 1
Alimentary System																									
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	A	+	+	+	+	+	+	+	+	+	+	+	+	A	A	A	+	+	+	+	+	+	+	+	+
Intestine large, colon	A	+	+	+	+	+	+	+	+	+	+	+	+	A	+	A	+	+	+	+	+	+	+	+	+
Schwannoma malignant, metastatic, epididymis																									
Intestine large, rectum	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	A	+	+	+	+	+	+	+	+	+	+	+	+	A	+	A	+	+	+	+	+	+	+	+	+
Leiomyosarcoma																									
Intestine small, ileum	A	+	+	+	+	+	+	+	+	+	+	+	+	A	+	A	+	+	+	+	+	+	+	+	+
Intestine small, jejunum	A	+	+	+	+	+	+	+	+	+	+	+	+	A	+	A	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Mesentery		+							+																
Lipoma																									
Schwannoma malignant, metastatic, epididymis																									
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma malignant, metastatic, epididymis																									
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma malignant, metastatic, epididymis																									
Tooth				+																					
Cardiovascular System																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma malignant, metastatic, epididymis																									
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pheochromocytoma malignant																		X							
Pheochromocytoma benign																			X						X
Pheochromocytoma benign, multiple																									

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	
Carcass ID Number	2 5 2	2 5 4	2 6 2	2 6 4	2 7 2	2 9 2	3 0 3	3 0 4	3 1 3	3 2 3	3 3 4	3 5 5	3 6 1	2 6 3	2 9 1	2 9 3	2 9 4	2 9 5	3 0 5	3 2 2	3 2 4	3 2 5	3 5 4	3 6 2	3 6 5	**Total Tissues/ Tumors**
Alimentary System																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Schwannoma malignant, metastatic, epididymis											X															1
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Leiomyosarcoma													X													1
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Mesentery	+	+									+															5
Lipoma	X																									1
Schwannoma malignant, metastatic, epididymis											X															1
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma malignant, metastatic, epididymis											X															1
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma malignant, metastatic, epididymis											X															1
Tooth																										1
Cardiovascular System																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Endocrine System																										
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma malignant, metastatic, epididymis											X															1
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pheochromocytoma malignant																			X							2
Pheochromocytoma benign		X				X			X	X					X					X						8
Pheochromocytoma benign, multiple											X															1

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	2 7 9	3 8 0	4 9 2	4 9 2	5 3 2	5 3 2	5 3 6	5 6 6	5 6 8	5 8 6	6 9 1	6 0 6	6 1 4	6 2 9	6 2 7	6 3 9	6 3 0	6 5 0	6 5 6	6 6 9	6 7 2	6 9 8	7 0 2	7 1 4	7 1 9
Carcass ID Number	3 5 1	2 7 5	3 5 3	3 6 4	2 5 1	3 1 2	3 3 3	3 4 4	3 4 5	2 5 3	2 8 4	3 0 2	3 3 5	2 8 5	3 6 3	2 8 3	2 6 5	2 7 4	3 1 4	2 7 1	2 7 3	2 5 5	3 1 5	2 8 2	3 2 1
Endocrine System (continued)																									
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma							X																		
Parathyroid gland	M	+	M	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars distalis, adenoma					X		X			X		X	X										X		
Thyroid gland	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, adenoma																					X				
General Body System																									
None																									
Genital System																									
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma malignant																									
Preputial gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+
Adenocarcinoma																	X								
Adenoma															X									X	
Adenoma, multiple			X																						
Carcinoma																	X								
Squamous cell carcinoma																									
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Seminal vesicle					+																				
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma malignant, metastatic, epididymis																									
Interstitial cell, adenoma		X			X	X										X			X			X			
Interstitial cell, adenoma, multiple				X					X		X			X	X		X	X		X	X		X	X	X	X
Hematopoietic System																									
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma malignant, metastatic, epididymis																									
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	M	+	I	+	+	M	+	+	+
Thymoma benign																									

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	
Carcass ID Number	2 5 2	2 5 4	2 6 2	2 6 4	2 7 2	2 9 2	3 0 3	3 0 4	3 1 3	3 2 3	3 3 4	3 5 5	3 6 1	2 6 3	2 9 1	2 9 3	2 9 4	2 9 5	3 0 5	3 2 2	3 2 4	3 2 5	3 5 4	3 6 2	3 6 5	**Total Tissues/ Tumors**
Endocrine System (continued)																										
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	49
Adenoma																								X		2
Parathyroid gland	+	+	+	M	+	M	+	+	+	+	+	+	+	+	M	M	+	+	+	+	+	M	+	+	+	42
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pars distalis, adenoma			X																					X	X	9
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
C-cell, adenoma		X			X																		X			4
General Body System																										
None																										
Genital System																										
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma malignant											X															1
Preputial gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Adenocarcinoma																										1
Adenoma						X														X						4
Adenoma, multiple																		X								2
Carcinoma																										1
Squamous cell carcinoma												X														1
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Seminal vesicle																										1
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma malignant, metastatic, epididymis											X															1
Interstitial cell, adenoma												X														7
Interstitial cell, adenoma, multiple	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	37
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma malignant, metastatic, epididymis											X															1
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Thymoma benign																		X								1

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	2 7 9	3 8 0	4 9 2	4 9 2	5 3 2	5 3 2	5 6 2	5 6 6	5 8 8	5 9 6	6 0 1	6 1 6	6 2 4	6 2 9	6 3 7	6 3 9	6 5 0	6 5 0	6 6 6	6 7 9	6 9 2	7 0 8	7 1 2	7 1 4	7 1 9
Carcass ID Number	3 5 1	2 7 5	3 5 3	3 6 4	2 5 1	3 1 2	3 3 3	3 4 4	3 4 5	2 5 3	2 8 4	3 0 2	3 3 5	2 8 5	3 6 3	2 8 3	2 6 5	2 7 4	3 1 4	2 7 1	2 7 3	2 5 5	3 1 5	2 8 2	3 2 1
Integumentary System																									
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Fibroadenoma																									
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Epidermis, keratoacanthoma																									X
Epidermis, papilloma squamous				X																					
Epidermis, trichoepithelioma																								X	
Subcutaneous tissue, fibroma																		X							
Subcutaneous tissue, fibrosarcoma													X												
Musculoskeletal System																									
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nervous System																									
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Astrocytoma malignant																							X		
Respiratory System																									
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nose	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Special Senses System																									
Eye					+							+					+							+	
Lacrimal gland				+																					
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma malignant, metastatic, epididymis																									
Pelvis, transitional epithelium, papilloma																									
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Leukemia mononuclear				X		X		X			X	X		X	X		X	X	X	X	X	X	X		X
Mesothelioma malignant																									

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	
Carcass ID Number	2 5 2	2 5 4	2 6 2	2 6 4	2 7 2	2 9 2	3 0 3	3 0 4	3 1 3	3 2 3	3 3 4	3 5 5	3 6 1	2 6 3	2 9 1	2 9 3	2 9 4	2 9 5	3 0 5	3 2 2	3 3 4	3 3 5	3 5 4	3 6 2	3 6 5	**Total Tissues/ Tumors**
Integumentary System																										
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Fibroadenoma														X												1
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Epidermis, keratoacanthoma						X																				2
Epidermis, papilloma squamous					X																					2
Epidermis, trichoepithelioma																										1
Subcutaneous tissue, fibroma																										1
Subcutaneous tissue, fibrosarcoma																										1
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Astrocytoma malignant																										1
Respiratory System																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Special Senses System																										
Eye																										4
Lacrimal gland																										1
Urinary System																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma malignant, metastatic, epididymis											X															1
Pelvis, transitional epithelium, papilloma													X													1
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Systemic Lesions																										
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Leukemia mononuclear		X		X			X	X	X	X		X			X	X							X			25
Mesothelioma malignant																		X				X				2

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 225 mg/kg

Number of Days on Study	0 1 0	0 4 4	0 5 8	1 1 9	1 8 2	2 1 7	2 5 5	2 6 2	2 6 9	2 8 2	3 0 3	3 0 3	3 0 7	3 1 7	3 1 7	3 3 0	3 3 9	3 9 9	4 0 0	4 1 2	4 1 9	4 2 9	4 2 9	4 6 2	4 7 3
Carcass ID Number	5 7 1	4 9 1	5 9 1	5 0 1	5 2 1	5 3 1	5 4 1	5 4 2	5 9 2	5 8 1	5 0 2	5 0 3	5 5 1	4 9 2	4 9 3	5 8 5	5 8 4	5 5 2	5 0 4	5 1 1	5 9 3	5 2 2	5 6 1	5 7 3	5 7 4
Alimentary System																									
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	+	+	+	A	A	A	A	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, colon	+	+	+	A	A	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
Intestine large, rectum	+	+	+	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	+	+	+	A	A	A	A	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, ileum	+	+	+	A	A	A	A	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, jejunum	+	+	+	A	A	A	A	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Mesentery																									
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, glandular	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tongue																									
Papilloma squamous																									
Cardiovascular System																									
Blood vessel																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, medulla	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pheochromocytoma benign																									
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Parathyroid gland	M	M	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+
Pituitary gland	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars distalis, adenoma																									
Thyroid gland	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, adenoma																				X					
General Body System																									
None																									

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	5 2 7	5 3 7	5 3 8	5 6 0	5 7 4	5 7 4	5 7 6	5 8 6	5 9 4	6 1 1	6 2 5	6 5 3	7 0 6	7 2 1	7 2 1	7 2 1	7 2 2	7 2 2	7 2 2	7 2 2	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	
Carcass ID Number	5 2 4	5 8 2	6 0 3	5 6 5	5 3 3	5 3 5	5 4 3	5 1 4	5 3 4	5 5 3	5 5 5	5 9 5	5 8 3	6 0 4	6 0 5	5 0 5	5 1 3	5 1 5	5 2 5	5 4 5	4 9 5	5 3 5	5 4 5	5 5 4	5 9 4	**Total Tissues/ Tumors**
Alimentary System																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	44
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	47
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	44
Intestine small, ileum	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	43
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	44
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Mesentery															+											1
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Tongue															+											1
Papilloma squamous															X											1
Cardiovascular System																										
Blood vessel																					+					1
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Endocrine System																										
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Pheochromocytoma benign							X								X	X		X						X		5
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Parathyroid gland	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	44
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Pars distalis, adenoma															X		X	X								3
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
C-cell, adenoma							X											X			X		X			5
General Body System																										
None																										

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	0	0	0	1	1	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	5
	1	4	5	1	8	1	5	6	6	8	0	0	0	1	1	3	3	9	0	1	1	2	2	9	0
	0	4	8	9	2	7	5	2	9	2	3	3	7	7	7	0	9	9	0	2	9	9	9	2	3
Carcass ID Number	5	4	5	5	5	5	5	5	5	5	5	5	5	4	4	5	5	5	5	5	5	5	5	5	5
	7	9	9	0	2	3	4	4	9	8	0	0	5	9	9	8	8	5	0	1	9	2	6	7	7
	1	1	1	1	1	1	1	2	2	1	2	3	1	2	3	5	4	2	4	1	3	2	1	3	4
Genital System																									
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Preputial gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma																									
Carcinoma																									
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Interstitial cell, adenoma																			X	X					
Interstitial cell, adenoma, multiple																					X	X	X	X	X
Hematopoietic System																									
Bone marrow	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node, mesenteric	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Spleen	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Integumentary System																									
Mammary gland	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Epidermis, keratoacanthoma																									
Subcutaneous tissue, fibroma																									
Musculoskeletal System																									
Bone	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Skeletal muscle																									
Nervous System																									
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Astrocytoma malignant																									
Respiratory System																									
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Chordoma, metastatic, uncertain primary site																									
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	5 2 7	5 3 7	5 3 8	5 6 0	5 7 4	5 7 4	5 7 6	5 8 6	5 9 4	6 1 1	6 2 5	6 5 3	7 0 6	7 2 1	7 2 1	7 2 8	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	
Carcass ID Number	5 2 4	5 8 2	6 0 3	5 6 5	5 3 3	5 7 5	5 4 3	5 1 4	5 3 4	5 5 3	5 5 5	5 9 5	5 8 3	6 0 4	6 0 5	5 0 5	5 1 3	5 1 5	5 2 5	5 4 4	4 9 5	5 3 5	5 4 5	5 5 4	5 9 4	**Total Tissues/ Tumors**
Genital System																										
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Preputial gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenoma				X													X									2
Carcinoma																									X	1
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	49
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Interstitial cell, adenoma										X																3
Interstitial cell, adenoma, multiple	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	28
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	M	+	+	+	+	+	48
Integumentary System																										
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Epidermis, keratoacanthoma																		X								1
Subcutaneous tissue, fibroma															X											1
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Skeletal muscle													+													1
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Astrocytoma malignant											X															1
Respiratory System																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Chordoma, metastatic, uncertain primary site																X										1
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+		49

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	0	0	0	1	1	2	2	2	2	2	3	3	3	3	3	3	3	4	4	4	4	4	4	5
	1	4	5	1	8	1	5	6	6	8	0	0	0	1	1	3	3	9	0	1	1	2	2	9	0
	0	4	8	9	2	7	5	2	9	2	3	3	7	7	7	0	9	9	0	2	9	9	9	2	3
Carcass ID Number	5	4	5	5	5	5	5	5	5	5	5	5	5	4	4	5	5	5	5	5	5	5	5	5	5
	7	9	9	0	2	3	4	4	9	8	0	0	5	9	9	8	8	5	0	1	9	2	6	7	7
	1	1	1	1	1	1	1	2	2	1	2	3	1	2	3	5	4	2	4	1	3	2	1	3	4
Special Senses System																									
Ear																								+	
Pinna, schwannoma malignant																								X	
Eye					A										+	+								+	
Zymbal's gland																									
Carcinoma																									
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cortex, adenoma																									
Pelvis, transitional epithelium, papilloma																									
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Leukemia mononuclear																									X
Mesothelioma malignant																									

TABLE A2
Individual Animal Tumor Pathology of Male Rats in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	5 2 7	5 3 7	5 3 8	5 6 0	5 7 4	5 7 4	5 7 6	5 8 6	5 9 4	6 1 1	6 2 5	6 5 3	7 0 6	7 2 1	7 2 1	7 2 8	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	
Carcass ID Number	5 2 4	5 8 2	6 0 3	5 6 5	5 3 3	5 7 5	5 4 3	5 1 4	5 3 4	5 5 3	5 5 5	5 9 5	5 8 3	6 0 4	6 0 5	6 0 5	5 1 3	5 1 5	5 2 5	5 4 4	4 9 5	5 3 5	5 4 5	5 5 4	5 9 4	**Total Tissues/ Tumors**
Special Senses System																									
Ear																									1
Pinna, schwannoma malignant																									1
Eye		+	+	+																					6
Zymbal's gland									+																1
Carcinoma									X																1
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Cortex, adenoma														X											1
Pelvis, transitional epithelium, papilloma																				X					1
Urinary bladder		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Leukemia mononuclear		X		X					X					X				X	X				X		8
Mesothelioma malignant													X												1

TABLE A3
Statistical Analysis of Primary Neoplasms in Male Rats in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Adrenal Medulla: Benign Pheochromocytoma			
Overall rates[a]	9/49 (18%)	9/50 (18%)	5/49 (10%)
Adjusted rates[b]	27.3%	32.9%	39.2%
Terminal rates[c]	5/27 (19%)	7/25 (28%)	2/9 (22%)
First incidence (days)	558	666	576
Life table tests[d]	P=0.272	P=0.525	P=0.323
Logistic regression tests[d]	P=0.425	P=0.592	P=0.525
Cochran-Armitage test[d]	P=0.164N		
Fisher exact test[d]		P=0.584N	P=0.194N
Adrenal Medulla: Malignant Pheochromocytoma			
Overall rates	5/49 (10%)	2/50 (4%)	0/49 (0%)
Adjusted rates	16.2%	6.8%	0.0%
Terminal rates	3/27 (11%)	1/25 (4%)	0/9 (0%)
First incidence (days)	644	650	-[e]
Life table tests	P=0.089N	P=0.255N	P=0.200N
Logistic regression tests	P=0.053N	P=0.216N	P=0.136N
Cochran-Armitage test	P=0.016N		
Fisher exact test		P=0.210N	P=0.028N
Adrenal Medulla: Pheochromocytoma (Benign or Malignant)			
Overall rates	14/49 (29%)	11/50 (22%)	5/49 (10%)
Adjusted rates	40.8%	38.5%	39.2%
Terminal rates	8/27 (30%)	8/25 (32%)	2/9 (22%)
First incidence (days)	558	650	576
Life table tests	P=0.493N	P=0.415N	P=0.591N
Logistic regression tests	P=0.284N	P=0.327N	P=0.347N
Cochran-Armitage test	P=0.016N		
Fisher exact test		P=0.301N	P=0.020N
Mammary Gland: Fibroadenoma or Adenocarcinoma			
Overall rates	3/50 (6%)	1/50 (2%)	0/50 (0%)
Adjusted rates	9.7%	4.0%	0.0%
Terminal rates	2/28 (7%)	1/25 (4%)	0/9 (0%)
First incidence (days)	657	729 (T)	-
Life table tests	P=0.179N	P=0.348N	P=0.367N
Logistic regression tests	P=0.142N	P=0.321N	P=0.289N
Cochran-Armitage test	P=0.061N		
Fisher exact test		P=0.309N	P=0.121N
Pituitary Gland (Pars Distalis): Adenoma			
Overall rates	14/50 (28%)	9/50 (18%)	3/49 (6%)
Adjusted rates	40.1%	24.9%	28.7%
Terminal rates	8/28 (29%)	3/25 (12%)	2/9 (22%)
First incidence (days)	569	532	721
Life table tests	P=0.176N	P=0.250N	P=0.289N
Logistic regression tests	P=0.041N	P=0.173N	P=0.132N
Cochran-Armitage test	P=0.003N		
Fisher exact test		P=0.171N	P=0.004N

TABLE A3
Statistical Analysis of Primary Neoplasms in Male Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Preputial Gland: Adenoma			
Overall rates	8/50 (16%)	6/49 (12%)	2/50 (4%)
Adjusted rates	26.6%	19.3%	15.2%
Terminal rates	7/28 (25%)	3/25 (12%)	1/9 (11%)
First incidence (days)	499	492	560
Life table tests	P=0.349N	P=0.459N	P=0.456N
Logistic regression tests	P=0.166N	P=0.409N	P=0.263N
Cochran-Armitage test	P=0.038N		
Fisher exact test		P=0.403N	P=0.046N
Preputial Gland: Adenoma, Adenocarcinoma, or Carcinoma			
Overall rates	9/50 (18%)	7/49 (14%)	3/50 (6%)
Adjusted rates	28.9%	21.6%	25.8%
Terminal rates	7/28 (25%)	3/25 (12%)	2/9 (22%)
First incidence (days)	499	492	560
Life table tests	P=0.472N	P=0.471N	P=0.593N
Logistic regression tests	P=0.238N	P=0.415N	P=0.379N
Cochran-Armitage test	P=0.050N		
Fisher exact test		P=0.410N	P=0.061N
Skin (Subcutaneous Tissue): Fibroma			
Overall rates	3/50 (6%)	1/50 (2%)	1/50 (2%)
Adjusted rates	9.1%	2.9%	8.3%
Terminal rates	2/28 (7%)	0/25 (0%)	0/9 (0%)
First incidence (days)	478	650	721
Life table tests	P=0.457N	P=0.334N	P=0.658N
Logistic regression tests	P=0.300N	P=0.305N	P=0.506N
Cochran-Armitage test	P=0.202N		
Fisher exact test		P=0.309N	P=0.309N
Skin (Subcutaneous Tissue): Fibroma or Fibrosarcoma			
Overall rates	3/50 (6%)	2/50 (4%)	1/50 (2%)
Adjusted rates	9.1%	5.5%	8.3%
Terminal rates	2/28 (7%)	0/25 (0%)	0/9 (0%)
First incidence (days)	478	624	721
Life table tests	P=0.520N	P=0.531N	P=0.658N
Logistic regression tests	P=0.325N	P=0.500N	P=0.506N
Cochran-Armitage test	P=0.222N		
Fisher exact test		P=0.500N	P=0.309N
Skin (Subcutaneous Tissue): Fibroma, Fibrosarcoma, or Sarcoma			
Overall rates	4/50 (8%)	2/50 (4%)	1/50 (2%)
Adjusted rates	12.6%	5.5%	8.3%
Terminal rates	3/28 (11%)	0/25 (0%)	0/9 (0%)
First incidence (days)	478	624	721
Life table tests	P=0.376N	P=0.375N	P=0.549N
Logistic regression tests	P=0.211N	P=0.336N	P=0.395N
Cochran-Armitage test	P=0.118N		
Fisher exact test		P=0.339N	P=0.181N

TABLE A3
Statistical Analysis of Primary Neoplasms in Male Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	250 mg/kg
Testes: Adenoma			
Overall rates	45/50 (90%)	44/50 (88%)	31/50 (62%)
Adjusted rates	100.0%	100.0%	100.0%
Terminal rates	28/28 (100%)	25/25 (100%)	9/9 (100%)
First incidence (days)	478	380	400
Life table tests	P<0.001	P=0.363	P<0.001
Logistic regression tests	P=0.134	P=0.446N	P=0.159
Cochran-Armitage test	P<0.001N		
Fisher exact test		P=0.500N	P<0.001N
Thyroid Gland (C-cell): Adenoma			
Overall rates	3/49 (6%)	4/49 (8%)	5/49 (10%)
Adjusted rates	8.8%	14.9%	38.9%
Terminal rates	1/28 (4%)	3/25 (12%)	3/9 (33%)
First incidence (days)	499	692	412
Life table tests	P=0.028	P=0.446	P=0.041
Logistic regression tests	P=0.099	P=0.498	P=0.158
Cochran-Armitage test	P=0.290		
Fisher exact test		P=0.500	P=0.357
All Organs: Mononuclear Cell Leukemia			
Overall rates	17/50 (34%)	25/50 (50%)	8/50 (16%)
Adjusted rates	48.5%	61.5%	49.4%
Terminal rates	11/28 (39%)	10/25 (40%)	3/9 (33%)
First incidence (days)	569	492	503
Life table tests	P=0.183	P=0.066	P=0.347
Logistic regression tests	P=0.463N	P=0.072	P=0.443N
Cochran-Armitage test	P=0.035N		
Fisher exact test		P=0.078	P=0.032N
All Organs: Malignant Mesothelioma			
Overall rates	4/50 (8%)	2/50 (4%)	1/50 (2%)
Adjusted rates	10.9%	8.0%	7.7%
Terminal rates	1/28 (4%)	2/25 (8%)	0/9 (0%)
First incidence (days)	478	729 (T)	706
Life table tests	P=0.375N	P=0.382N	P=0.523N
Logistic regression tests	P=0.220N	P=0.337N	P=0.305N
Cochran-Armitage test	P=0.118N		
Fisher exact test		P=0.339N	P=0.181N
All Organs: Benign Tumors			
Overall rates	46/50 (92%)	48/50 (96%)	31/50 (62%)
Adjusted rates	100.0%	100.0%	100.0%
Terminal rates	28/28 (100%)	25/25 (100%)	9/9 (100%)
First incidence (days)	478	380	400
Life table tests	P=0.001	P=0.212	P=0.001
Logistic regression tests	P=0.304	P=0.420	P=0.325
Cochran-Armitage test	P<0.001N		
Fisher exact test		P=0.339	P<0.001N

TABLE A3
Statistical Analysis of Primary Neoplasms in Male Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
All Organs: Malignant Tumors			
Overall rates	28/50 (56%)	32/50 (64%)	13/50 (26%)
Adjusted rates	66.1%	75.7%	68.5%
Terminal rates	14/28 (50%)	15/25 (60%)	4/9 (44%)
First incidence (days)	384	492	492
Life table tests	P=0.210	P=0.198	P=0.324
Logistic regression tests	P=0.217N	P=0.262	P=0.208N
Cochran-Armitage test	P=0.002N		
Fisher exact test		P=0.270	P=0.002N
All Organs: Benign or Malignant Tumors			
Overall rates	47/50 (94%)	49/50 (98%)	31/50 (62%)
Adjusted rates	100.0%	100.0%	100.0%
Terminal rates	28/28 (100%)	25/25 (100%)	9/9 (100%)
First incidence (days)	384	380	400
Life table tests	P=0.002	P=0.217	P=0.002
Logistic regression tests	P=0.534N	P=0.400	P=0.718
Cochran-Armitage test	P<0.001N		
Fisher exact test		P=0.309	P<0.001N

(T)Terminal sacrifice.
[a] Number of tumor-bearing animals/number of animals examined. Denominator is number of animals examined microscopically for adrenal gland, bone marrow, brain, clitoral gland, epididymis, gallbladder (mouse), heart, kidney, larynx, liver, lung, nose, ovary, pancreas, parathyroid gland, pituitary gland, preputial gland, prostate gland, salivary gland, spleen, testes, thyroid gland, and urinary bladder; for other tissues, denominator is number of animals necropsied.
[b] Kaplan-Meier estimated lifetime tumor incidence after adjustment for intercurrent mortality
[c] Observed incidence at terminal kill
[d] Beneath the control incidence are the P values associated with the trend test. Beneath the dosed group incidence are the P values corresponding to pairwise comparisons between the controls and that dosed group. The life table analysis regards tumors in animals dying prior to terminal kill as being (directly or indirectly) the cause of death. The logistic regression tests regard these lesions as non-fatal. The Cochran-Armitage and Fisher exact tests compare directly the overall incidence rates. For all tests, a negative trend or a lower incidence in a dose group is indicated by N.
[e] Not applicable; no tumors in animal group

TABLE A4
Summary of the Incidence of Nonneoplastic Lesions in Male Rats in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Disposition Summary			
Animals initially in study	60	60	60
15-Month interim evaluation[a]	10	10	
Early deaths			
Natural deaths	5	10	27
Moribund kills	17	15	19
Accidental deaths			5
Survivors			
Terminal sacrifice	28	25	9
Animals examined microscopically	50	50	50
Alimentary System			
Esophagus	(50)	(50)	(50)
Inflammation, granulomatous, chronic			1 (2%)
Perforation			1 (2%)
Intestine large, cecum	(47)	(46)	(44)
Parasite metazoan	1 (2%)		1 (2%)
Intestine large, colon	(47)	(47)	(46)
Parasite metazoan	7 (15%)	5 (11%)	6 (13%)
Intestine large, rectum	(47)	(49)	(47)
Parasite metazoan	9 (19%)	4 (8%)	5 (11%)
Intestine small, duodenum	(47)	(47)	(44)
Ectopic tissue			1 (2%)
Erosion, multifocal	1 (2%)		
Hyperplasia, glandular, diffuse	2 (4%)		
Inflammation, chronic active, diffuse			1 (2%)
Intestine small, ileum	(45)	(47)	(43)
Inflammation, chronic active, diffuse			1 (2%)
Parasite metazoan			1 (2%)
Intestine small, jejunum	(46)	(47)	(44)
Hyperplasia, diffuse	1 (2%)		
Inflammation, chronic, focal	1 (2%)		
Inflammation, chronic active, diffuse			1 (2%)
Liver	(50)	(50)	(50)
Angiectasis, focal	3 (6%)	4 (8%)	1 (2%)
Basophilic focus	7 (14%)	8 (16%)	3 (6%)
Basophilic focus, multiple	14 (28%)	13 (26%)	6 (12%)
Clear cell focus	5 (10%)	10 (20%)	
Clear cell focus, multiple	8 (16%)	10 (20%)	3 (6%)
Congestion		1 (2%)	2 (4%)
Cytoplasmic alteration, focal	1 (2%)		1 (2%)
Cytoplasmic alteration, multifocal		1 (2%)	
Degeneration, cystic, focal	1 (2%)		
Degeneration, cystic, multifocal		1 (2%)	
Eosinophilic focus	1 (2%)		1 (2%)
Fatty change, focal	1 (2%)	1 (2%)	
Granuloma		1 (2%)	
Hematopoietic cell proliferation, multifocal	1 (2%)		
Hemorrhage, focal	1 (2%)		
Hepatodiaphragmatic nodule	4 (8%)	3 (6%)	3 (6%)
Hyperplasia, focal	1 (2%)	3 (6%)	
Inflammation, chronic, multifocal	4 (8%)	6 (12%)	5 (10%)
Inflammation, subacute, multifocal			1 (2%)

TABLE A4
Summary of the Incidence of Nonneoplastic Lesions in Male Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Alimentary System (continued)			
Liver (continued)	(50)	(50)	(50)
Mixed cell focus	1 (2%)		
Necrosis, focal		1 (2%)	2 (4%)
Necrosis, multifocal			3 (6%)
Vacuolization cytoplasmic, diffuse	1 (2%)		
Bile duct, hyperplasia	45 (90%)	46 (92%)	42 (84%)
Centrilobular, fatty change	14 (28%)	1 (2%)	1 (2%)
Centrilobular, necrosis	3 (6%)	2 (4%)	
Periportal, fatty change		1 (2%)	
Mesentery	(3)	(5)	(1)
Fat, necrosis	1 (33%)	3 (60%)	1 (100%)
Pancreas	(49)	(50)	(50)
Atrophy, diffuse	1 (2%)		
Atrophy, focal	15 (31%)	11 (22%)	9 (18%)
Atrophy, multifocal	20 (41%)	16 (32%)	9 (18%)
Cyst		1 (2%)	
Hyperplasia, focal		2 (4%)	
Inflammation, chronic, diffuse			1 (2%)
Artery, inflammation, chronic	2 (4%)		2 (4%)
Duct, ectasia, focal	1 (2%)		
Interlobular, edema, diffuse	1 (2%)		
Salivary glands	(50)	(50)	(50)
Atrophy, focal		1 (2%)	
Hyperplasia, focal		1 (2%)	1 (2%)
Hyperplasia, multifocal	1 (2%)		
Infiltration cellular, mononuclear cell, focal			1 (2%)
Stomach, forestomach	(49)	(50)	(50)
Cyst epithelial inclusion			1 (2%)
Erosion, focal		2 (4%)	
Erosion, multifocal	1 (2%)		
Hyperplasia, squamous, diffuse	2 (4%)		
Hyperplasia, squamous, focal	2 (4%)	1 (2%)	2 (4%)
Inflammation, acute		3 (6%)	1 (2%)
Inflammation, chronic	5 (10%)	2 (4%)	1 (2%)
Ulcer, focal	2 (4%)	1 (2%)	
Ulcer, multifocal	2 (4%)	1 (2%)	
Stomach, glandular	(49)	(50)	(49)
Ectopic tissue		1 (2%)	
Erosion, focal	4 (8%)		2 (4%)
Erosion, multifocal	1 (2%)	2 (4%)	
Hemorrhage, focal	1 (2%)		
Hyperplasia, glandular, focal	2 (4%)		
Hyperplasia, lymphoid, focal		1 (2%)	
Inflammation, acute		1 (2%)	
Inflammation, chronic	1 (2%)	2 (4%)	1 (2%)
Mineralization, diffuse	1 (2%)		1 (2%)
Ulcer, focal	2 (4%)		

TABLE A4
Summary of the Incidence of Nonneoplastic Lesions in Male Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Cardiovascular System			
Blood vessel			(1)
Aorta, mineralization			1 (100%)
Heart	(50)	(50)	(50)
Inflammation, chronic, focal	6 (12%)	5 (10%)	6 (12%)
Inflammation, chronic, multifocal	14 (28%)	19 (38%)	10 (20%)
Mineralization, multifocal	1 (2%)		
Atrium, thrombus	3 (6%)	1 (2%)	1 (2%)
Epicardium, inflammation, chronic, diffuse	1 (2%)		
Endocrine System			
Adrenal gland, cortex	(49)	(50)	(49)
Angiectasis	1 (2%)	1 (2%)	
Congestion	2 (4%)	1 (2%)	
Cytoplasmic alteration, focal	3 (6%)	4 (8%)	1 (2%)
Cytoplasmic alteration, multifocal	1 (2%)		
Degeneration, fatty, focal	10 (20%)	6 (12%)	5 (10%)
Degeneration, fatty, multifocal	3 (6%)	2 (4%)	2 (4%)
Granuloma		1 (2%)	
Hematopoietic cell proliferation, multifocal	1 (2%)	4 (8%)	1 (2%)
Hyperplasia, focal	10 (20%)	7 (14%)	2 (4%)
Hyperplasia, multifocal	2 (4%)		3 (6%)
Hypertrophy, focal	1 (2%)		2 (4%)
Adrenal gland, medulla	(49)	(50)	(49)
Atypia nuclear		1 (2%)	
Hyperplasia, focal	7 (14%)	7 (14%)	6 (12%)
Hyperplasia, multifocal	2 (4%)		
Islets, pancreatic	(49)	(49)	(50)
Angiectasis, focal	1 (2%)		
Hyperplasia, focal	3 (6%)	2 (4%)	2 (4%)
Parathyroid gland	(41)	(42)	(44)
Hyperplasia, diffuse	2 (5%)		1 (2%)
Hyperplasia, focal	1 (2%)	1 (2%)	
Pituitary gland	(50)	(50)	(49)
Angiectasis, focal		1 (2%)	
Pars distalis, angiectasis, focal	1 (2%)		
Pars distalis, congestion	1 (2%)		
Pars distalis, cyst	5 (10%)	3 (6%)	
Pars distalis, hyperplasia, focal	8 (16%)	5 (10%)	3 (6%)
Pars distalis, hyperplasia, multifocal	2 (4%)	1 (2%)	2 (4%)
Pars distalis, infiltration cellular, histiocytic, focal		1 (2%)	
Pars intermedia, cyst		2 (4%)	
Thyroid gland	(49)	(49)	(49)
Congestion			1 (2%)
C-cell, hyperplasia, focal	9 (18%)	3 (6%)	2 (4%)
C-cell, hyperplasia, multifocal	4 (8%)	2 (4%)	1 (2%)
Follicular cell, depletion secretory	1 (2%)		2 (4%)
Follicular cell, hyperplasia, cystic, focal		1 (2%)	

TABLE A4
Summary of the Incidence of Nonneoplastic Lesions in Male Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
General Body System			
None			
Genital System			
Epididymis	(50)	(50)	(50)
Atrophy, diffuse	1 (2%)		
Granuloma sperm, focal		1 (2%)	
Inflammation, acute	2 (4%)		1 (2%)
Necrosis		1 (2%)	
Penis	(1)		
Concretion	1 (100%)		
Preputial gland	(50)	(49)	(50)
Abscess	1 (2%)		1 (2%)
Atrophy	1 (2%)		
Cyst	3 (6%)		
Dilatation		1 (2%)	1 (2%)
Hyperplasia			1 (2%)
Hyperplasia, multifocal	2 (4%)		
Inflammation, chronic, focal	2 (4%)	6 (12%)	8 (16%)
Inflammation, chronic, multifocal	32 (64%)	29 (59%)	18 (36%)
Prostate	(50)	(50)	(49)
Hyperplasia, focal	4 (8%)	9 (18%)	1 (2%)
Hyperplasia, multifocal	1 (2%)	1 (2%)	1 (2%)
Inflammation, acute, focal	1 (2%)	1 (2%)	
Inflammation, chronic, diffuse	1 (2%)		
Inflammation, chronic, focal	8 (16%)	7 (14%)	8 (16%)
Seminal vesicle	(1)	(1)	
Depletion secretory		1 (100%)	
Testes	(50)	(50)	(50)
Mineralization, multifocal	2 (4%)		
Interstitial cell, hyperplasia, multifocal	30 (60%)	17 (34%)	22 (44%)
Seminiferous tubule, degeneration	26 (52%)	12 (24%)	9 (18%)
Serosa, necrosis, focal	1 (2%)		
Hematopoietic System			
Bone marrow	(50)	(50)	(49)
Crystals, multifocal	1 (2%)		
Mineralization, multifocal	1 (2%)		
Myelofibrosis, focal		1 (2%)	1 (2%)
Erythroid cell, proliferation	8 (16%)	7 (14%)	4 (8%)
Myeloid cell, proliferation		2 (4%)	2 (4%)
Lymph node	(50)	(50)	(50)
Congestion	1 (2%)		1 (2%)
Ectasia			1 (2%)
Axillary, hyperplasia, lymphoid			1 (2%)
Axillary, infiltration cellular, plasma cell			1 (2%)
Inguinal, hyperplasia, plasma cell	1 (2%)	2 (4%)	
Mediastinal, hyperplasia, plasma cell	1 (2%)		
Mediastinal, inflammation, suppurative	1 (2%)		
Mediastinal, pigmentation	1 (2%)		
Pancreatic, angiectasis	1 (2%)		
Popliteal, hyperplasia, lymphoid		1 (2%)	

TABLE A4
Summary of the Incidence of Nonneoplastic Lesions in Male Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Hematopoietic System (continued)			
Lymph node, mesenteric	(50)	(50)	(49)
Congestion	1 (2%)		
Cyst, multiple		1 (2%)	
Erythrophagocytosis		1 (2%)	
Hemorrhage	2 (4%)		
Hyperplasia, lymphoid		1 (2%)	1 (2%)
Sinus, ectasia		2 (4%)	
Spleen	(50)	(50)	(49)
Congestion		1 (2%)	
Developmental malformation	1 (2%)		
Fibrosis, diffuse		1 (2%)	
Fibrosis, focal	4 (8%)	3 (6%)	1 (2%)
Fibrosis, multifocal	1 (2%)	1 (2%)	
Hematocyst		1 (2%)	
Hematopoietic cell proliferation	8 (16%)	4 (8%)	6 (12%)
Metaplasia, osseous, focal		1 (2%)	
Pigmentation, hemosiderin, diffuse	1 (2%)	2 (4%)	
Thymus	(46)	(46)	(48)
Cyst	2 (4%)	1 (2%)	
Hemorrhage	4 (9%)	4 (9%)	15 (31%)
Hemorrhage, multifocal			2 (4%)
Epithelial cell, hyperplasia, focal	1 (2%)		
Integumentary System			
Mammary gland	(49)	(50)	(49)
Galactocele	5 (10%)	3 (6%)	
Mineralization, multifocal	1 (2%)		
Skin	(50)	(50)	(50)
Subcutaneous tissue, abscess			1 (2%)
Subcutaneous tissue, edema		1 (2%)	
Musculoskeletal System			
Bone	(50)	(50)	(49)
Fibrous osteodystrophy	2 (4%)		2 (4%)
Cranium, hyperostosis	1 (2%)		
Trabecula, hyperostosis, multifocal	1 (2%)		
Skeletal muscle	(3)		(1)
Abdominal, necrosis, focal	1 (33%)		
Nervous System			
Brain	(50)	(50)	(50)
Inflammation, chronic, focal	1 (2%)		
Mineralization, multifocal			1 (2%)

TABLE A4
Summary of the Incidence of Nonneoplastic Lesions in Male Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Respiratory System			
Lung	(50)	(50)	(50)
Congestion	5 (10%)	6 (12%)	11 (22%)
Edema, focal	1 (2%)		1 (2%)
Emphysema		1 (2%)	1 (2%)
Foreign body			1 (2%)
Hemorrhage, focal		2 (4%)	2 (4%)
Infiltration cellular, mononuclear cell, multifocal			1 (2%)
Infiltration cellular, histiocytic, diffuse			1 (2%)
Infiltration cellular, histiocytic, multifocal			1 (2%)
Inflammation, acute			1 (2%)
Inflammation, suppurative, multifocal			1 (2%)
Mineralization, multifocal	1 (2%)		
Necrosis, acute			1 (2%)
Pigmentation, multifocal			1 (2%)
Alveolar epithelium, hyperplasia, focal	2 (4%)	1 (2%)	
Alveolus, infiltration cellular, histiocytic, multifocal		1 (2%)	
Alveolus, inflammation, chronic, focal		2 (4%)	1 (2%)
Alveolus, inflammation, chronic, multifocal		1 (2%)	
Interstitium, inflammation, chronic, diffuse		1 (2%)	
Interstitium, inflammation, chronic, focal	2 (4%)		1 (2%)
Perivascular, edema, multifocal			1 (2%)
Nose	(49)	(49)	(50)
Congestion			2 (4%)
Foreign body	4 (8%)	2 (4%)	4 (8%)
Fungus	4 (8%)		2 (4%)
Inflammation, acute	1 (2%)		
Inflammation, chronic	4 (8%)	1 (2%)	5 (10%)
Inflammation, suppurative	2 (4%)	2 (4%)	7 (14%)
Metaplasia, squamous		1 (2%)	
Mucosa, thrombus, multifocal	2 (4%)		
Nasolacrimal duct, inflammation, chronic	1 (2%)	3 (6%)	
Nasolacrimal duct, inflammation, suppurative	1 (2%)	1 (2%)	2 (4%)
Olfactory epithelium, metaplasia	1 (2%)		
Trachea	(50)	(50)	(49)
Infiltration cellular, mononuclear cell	1 (2%)		
Inflammation, chronic			1 (2%)
Inflammation, suppurative			1 (2%)
Epithelium, metaplasia	1 (2%)		
Glands, ectasia, focal		1 (2%)	
Special Senses System			
Eye	(6)	(4)	(6)
Ectopic tissue, multifocal	1 (17%)		
Anterior chamber, hemorrhage		1 (25%)	
Anterior chamber, iris, posterior chamber, inflammation		1 (25%)	
Cornea, inflammation		1 (25%)	
Lens, cataract	1 (17%)	3 (75%)	
Retina, degeneration	1 (17%)	2 (50%)	

TABLE A4
Summary of the Incidence of Nonneoplastic Lesions in Male Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Urinary System			
Kidney	(50)	(50)	(50)
Congestion	1 (2%)		2 (4%)
Cyst		4 (8%)	3 (6%)
Hydronephrosis, chronic			1 (2%)
Hyperplasia, tubular, multifocal	2 (4%)	1 (2%)	5 (10%)
Necrosis, acute, focal	1 (2%)		
Nephropathy, chronic	48 (96%)	49 (98%)	43 (86%)
Pigmentation			1 (2%)
Pigmentation, diffuse	1 (2%)	2 (4%)	1 (2%)
Cortex, mineralization, multifocal	2 (4%)		1 (2%)
Cortex, necrosis, diffuse		1 (2%)	
Papilla, transitional epithelium, hyperplasia	2 (4%)		2 (4%)
Pelvis, inflammation, chronic	1 (2%)		
Pelvis, mineralization	1 (2%)		
Pelvis, parasite metazoan		1 (2%)	
Proximal convoluted renal tubule, degeneration, hyaline	2 (4%)		
Urinary bladder	(50)	(50)	(49)
Concretion	1 (2%)	1 (2%)	4 (8%)
Cyst	1 (2%)		
Inflammation, chronic, diffuse	2 (4%)		

[a] Due to high mortality of males receiving 225 mg/kg, no animals in this group were sacrificed at 15 months.

APPENDIX B
SUMMARY OF LESIONS IN FEMALE RATS IN THE 2-YEAR GAVAGE STUDY OF RESORCINOL

TABLE B1
Summary of the Incidence of Neoplasms in Female Rats in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Disposition Summary				
Animals initially in study	60	60	60	60
15-Month interim evaluation	10	10	10	10
Early deaths				
Natural deaths	1	5	6	13
Moribund kills	15	11	16	12
Accidental deaths		1		1
Survivors				
Terminal sacrifice	34	33	27	24
Died last week of studies			1	
Animals examined microscopically	50	50	50	50
Alimentary System				
Esophagus	(48)	(47)	(46)	(48)
Schwannoma malignant, metastatic, salivary glands				1 (2%)
Intestine large, cecum	(50)	(50)	(49)	(46)
Adenocarcinoma		1 (2%)		
Intestine large, colon	(50)	(50)	(50)	(48)
Intestine large, rectum	(50)	(50)	(50)	(47)
Intestine small, duodenum	(50)	(50)	(49)	(48)
Intestine small, ileum	(50)	(50)	(49)	(47)
Intestine small, jejunum	(50)	(50)	(49)	(48)
Leiomyosarcoma			1 (2%)	
Liver	(50)	(50)	(50)	(50)
Hepatocellular adenoma	1 (2%)			
Histiocytic sarcoma			1 (2%)	
Mesentery	(2)		(2)	(3)
Pancreas	(50)	(49)	(50)	(49)
Pharynx	(1)			
Papilloma squamous	1 (100%)			
Salivary glands	(50)	(50)	(48)	(50)
Schwannoma malignant				1 (2%)
Stomach, forestomach	(50)	(50)	(48)	(50)
Stomach, glandular	(50)	(50)	(50)	(50)
Tooth	(1)	(3)		(1)
Cardiovascular System				
Heart	(50)	(50)	(50)	(50)
Schwannoma malignant			1 (2%)	

TABLE B1
Summary of the Incidence of Neoplasms in Female Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Endocrine System				
Adrenal gland, cortex	(50)	(50)	(50)	(50)
Adenoma	1 (2%)	1 (2%)		
Adrenal gland, medulla	(48)	(49)	(45)	(48)
Pheochromocytoma complex	1 (2%)			
Pheochromocytoma benign	1 (2%)		6 (13%)	1 (2%)
Bilateral, pheochromocytoma benign		1 (2%)		
Islets, pancreatic	(50)	(47)	(49)	(49)
Adenoma		1 (2%)		
Carcinoma			1 (2%)	
Parathyroid gland	(46)	(39)	(42)	(41)
Pituitary gland	(49)	(50)	(50)	(50)
Pars distalis, adenoma	25 (51%)	26 (52%)	19 (38%)	22 (44%)
Pars distalis, adenoma, multiple				1 (2%)
Pars distalis, carcinoma	1 (2%)		1 (2%)	
Thyroid gland	(50)	(49)	(50)	(49)
Schwannoma malignant, metastatic, salivary glands				1 (2%)
C-cell, adenoma	2 (4%)	3 (6%)	4 (8%)	3 (6%)
C-cell, carcinoma	2 (4%)	1 (2%)		1 (2%)
Follicular cell, adenoma	2 (4%)		1 (2%)	1 (2%)
Follicular cell, carcinoma	2 (4%)		1 (2%)	
General Body System				
None				
Genital System				
Clitoral gland	(45)	(41)	(42)	(48)
Adenoma	7 (16%)	7 (17%)	6 (14%)	4 (8%)
Adenoma, multiple	1 (2%)	1 (2%)		
Carcinoma	3 (7%)			
Ovary	(50)	(50)	(49)	(50)
Granulosa cell tumor benign	1 (2%)			
Uterus	(50)	(50)	(50)	(50)
Polyp stromal	8 (16%)	9 (18%)	10 (20%)	8 (16%)
Vagina	(2)		(1)	
Hematopoietic System				
Bone marrow	(50)	(50)	(50)	(48)
Lymph node	(50)	(50)	(50)	(50)
Pancreatic, histiocytic sarcoma			1 (2%)	
Lymph node, mesenteric	(50)	(50)	(48)	(50)
Spleen	(50)	(50)	(50)	(50)
Thymus	(47)	(45)	(48)	(48)

TABLE B1
Summary of the Incidence of Neoplasms in Female Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Integumentary System				
Mammary gland	(50)	(50)	(50)	(50)
Adenocarcinoma	1 (2%)	2 (4%)	1 (2%)	3 (6%)
Adenoma	1 (2%)			
Adenoma, multiple				1 (2%)
Fibroadenoma	22 (44%)	14 (28%)	9 (18%)	8 (16%)
Fibroadenoma, multiple	3 (6%)		3 (6%)	1 (2%)
Skin	(50)	(50)	(50)	(50)
Epidermis, basal cell adenoma	1 (2%)	1 (2%)		
Epidermis, papilloma squamous	1 (2%)		1 (2%)	
Subcutaneous tissue, fibroma	1 (2%)		1 (2%)	
Subcutaneous tissue, fibrosarcoma		1 (2%)		
Subcutaneous tissue, liposarcoma		1 (2%)		
Subcutaneous tissue, sarcoma			1 (2%)	
Musculoskeletal System				
Bone	(50)	(50)	(50)	(49)
Nervous System				
Brain	(50)	(50)	(50)	(49)
Carcinoma, metastatic, pituitary gland			1 (2%)	
Spinal cord				(1)
Respiratory System				
Larynx	(1)			(1)
Carcinoma, metastatic, thyroid gland	1 (100%)			
Schwannoma malignant, metastatic, salivary glands				1 (100%)
Lung	(50)	(50)	(50)	(50)
Histiocytic sarcoma			1 (2%)	
Osteosarcoma, metastatic, uncertain primary site	1 (2%)			
Nose	(49)	(50)	(50)	(50)
Adenoma	1 (2%)			
Trachea	(50)	(50)	(50)	(50)
Carcinoma, metastatic, thyroid gland	1 (2%)			
Special Senses System				
Harderian gland		(1)		
Zymbal's gland			(2)	
Carcinoma			2 (100%)	
Urinary System				
Kidney	(50)	(50)	(50)	(50)
Urinary bladder	(50)	(49)	(48)	(49)
Leiomyosarcoma				1 (2%)

TABLE B1
Summary of the Incidence of Neoplasms in Female Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Systemic Lesions				
Multiple organs[a]	(50)	(50)	(50)	(50)
Histiocytic sarcoma			1 (2%)	
Leukemia mononuclear	14 (28%)	16 (32%)	11 (22%)	15 (30%)
Lymphoma malignant mixed				1 (2%)
Tumor Summary				
Total animals with primary neoplasms[b]	49	46	44	42
Total primary neoplasms	101	86	84	72
Total animals with benign neoplasms	43	41	36	33
Total benign neoplasms	80	64	60	50
Total animals with malignant neoplasms	20	21	21	20
Total malignant neoplasms	21	22	24	22
Total animals with metastatic neoplasms	2		1	1
Total metastatic neoplasms	3		1	3
Total animals with malignant neoplasms of uncertain primary site	1			

[a] Number of animals with any tissue examined microscopically
[b] Primary tumors: all tumors except metastatic tumors

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control

Number of Days on Study	5 0 9	5 2 1	5 4 5	5 6 1	5 7 9	6 2 3	6 2 9	6 3 0	6 5 3	6 6 2	6 8 8	6 9 3	6 9 3	6 9 5	7 1 7	7 1 7	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9
Carcass ID Number	0 9 3	0 3 2	0 1 1	0 5 5	0 4 4	0 2 1	1 1 3	1 0 2	0 7 5	0 9 5	0 8 3	0 3 5	0 0 5	1 2 3	0 4 1	0 1 2	1 1 2	0 1 4	0 1 1	0 3 4	0 4 3	0 4 5	0 6 4	0 8 4	0 8 5	1 0 4
Alimentary System																									
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hepatocellular adenoma																									
Mesentery															+	+									
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pharynx																									+
Papilloma squamous																									X
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tooth																									
Cardiovascular System																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma												X													
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+
Pheochromocytoma complex																									
Pheochromocytoma benign																									
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Parathyroid gland	+	+	+	+	M	M	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	M	+	+	+
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars distalis, adenoma		X								X		X	X	X				X		X		X			X
Pars distalis, carcinoma			X																						

+: Tissue examined microscopically
A: Autolysis precludes examination
M: Missing tissue
I: Insufficient tissue
X: Lesion present
Blank: Not examined

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	
Carcass ID Number	1 1 5	1 2 1	1 2 4	0 2 2	0 2 4	0 2 5	0 3 4	0 4 2	0 6 1	0 6 2	0 6 3	0 8 1	1 1 4	1 2 2	0 2 3	0 5 1	0 5 2	0 5 4	0 6 5	0 7 1	0 7 2	0 8 2	0 9 4	1 0 1	1 1 1	**Total Tissues/ Tumors**
Alimentary System																										
Esophagus	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	48
Intestine large	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hepatocellular adenoma						X																				1
Mesentery																										2
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pharynx																										1
Papilloma squamous																										1
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Tooth					+																					1
Cardiovascular System																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Endocrine System																										
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenoma																										1
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	48
Pheochromocytoma complex																						X				1
Pheochromocytoma benign								X																		1
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Parathyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	49
Pars distalis, adenoma		X	X	X	X		X				X			X	X		X	X	X	X	X		X	X	X	25
Pars distalis, carcinoma																										1

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	5 0 9	5 2 1	5 4 5	5 6 1	5 7 9	6 2 3	6 2 9	6 3 0	6 5 3	6 6 2	6 8 8	6 9 3	6 9 3	6 9 5	7 1 7	7 1 7	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9
Carcass ID Number	0 9 3	0 3 2	0 1 1	0 5 5	0 4 4	0 2 1	1 1 3	1 0 2	0 7 5	0 9 5	0 8 3	0 3 5	0 0 5	1 2 3	0 4 1	0 1 2	1 1 2	0 1 4	0 3 1	0 4 3	0 4 5	0 6 4	0 8 4	0 8 5	1 0 4
Endocrine System (continued)																									
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, adenoma																X									
C-cell, carcinoma																X									
Follicular cell, adenoma															X										
Follicular cell, carcinoma							X																		
General Body System																									
None																									
Genital System																									
Clitoral gland	+	M	+	+	+	M	+	+	+	+	+	+	M	+	M	+	+	+	+	+	+	+	+	+	+
Adenoma														X									X		
Adenoma, multiple																X									
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Granulosa cell tumor benign																									
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Polyp stromal					X	X														X		X			
Vagina									+																
Hematopoietic System																									
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thymus	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+
Integumentary System																									
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenocarcinoma																								X	
Adenoma																									
Fibroadenoma				X		X		X				X	X		X	X	X				X	X	X		
Fibroadenoma, multiple							X												X						
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Epidermis, basal cell adenoma																									
Epidermis, papilloma squamous																					X				
Subcutaneous tissue, fibroma																	X								
Musculoskeletal System																									
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	
Carcass ID Number	1 1 5	1 2 1	1 2 4	0 2 2	0 2 4	0 2 5	0 3 4	0 4 2	0 6 1	0 6 2	0 6 3	0 8 1	1 1 4	1 2 2	0 1 3	0 5 1	0 5 2	0 5 4	0 6 5	0 7 1	0 7 2	0 8 2	0 9 4	1 0 1	1 1 1	**Total Tissues/ Tumors**
Endocrine System (continued)																										
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
C-cell, adenoma							X																			2
C-cell, carcinoma																X										2
Follicular cell, adenoma																								X		2
Follicular cell, carcinoma					X																					2
General Body System																										
None																										
Genital System																										
Clitoral gland	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	45
Adenoma		X				X			X											X			X			7
Adenoma, multiple																										1
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Granulosa cell tumor benign																									X	1
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Polyp stromal			X	X								X													X	8
Vagina			+																							2
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	47
Integumentary System																										
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenocarcinoma																										1
Adenoma																	X									1
Fibroadenoma	X					X			X		X				X	X	X	X	X	X			X			22
Fibroadenoma, multiple			X																							3
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Epidermis, basal cell adenoma											X															1
Epidermis, papilloma squamous																										1
Subcutaneous tissue, fibroma																										1
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	5	5	5	5	5	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7		
	0	2	4	6	7	2	2	3	5	6	8	9	9	1	1	2	2	2	2	2	2	2	2		
	9	1	5	1	9	3	9	0	3	2	8	3	3	5	7	9	9	9	9	9	9	9	9		
Carcass ID Number	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	
	9	3	1	5	4	2	1	0	7	9	8	3	0	2	4	1	1	1	3	4	4	6	8	8	0
	3	2	1	5	4	1	3	2	5	5	3	5	5	3	1	2	2	4	1	3	5	4	4	5	4
Nervous System																									
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Respiratory System																									
Larynx																+									
Carcinoma, metastatic, thyroid gland																X									
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Osteosarcoma, metastatic, uncertain primary site																									
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma							X																		
Nose, rectum																									
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Carcinoma, metastatic, thyroid gland																X									
Special Senses System																									
Eye																									
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Leukemia mononuclear	X						X	X		X				X			X						X		

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	
Carcass ID Number	1 1 5	1 2 1	1 2 4	0 2 2	0 2 4	0 2 5	0 3 4	0 4 2	0 6 1	0 6 2	0 6 3	0 8 1	1 1 4	1 2 2	0 1 3	0 5 1	0 5 2	0 5 4	0 6 5	0 7 1	0 7 2	0 8 2	0 9 4	1 0 1	1 1 1	**Total Tissues/ Tumors**
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Respiratory System																										
Larynx																										1
Carcinoma, metastatic, thyroid gland																										1
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Osteosarcoma, metastatic, uncertain primary site					X																					1
Nose	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Adenoma																										1
Nose, rectum		+																								1
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Carcinoma, metastatic, thyroid gland																										1
Special Senses System																										
Eye				+			+																			2
Urinary System																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Systemic Lesions																										
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Leukemia mononuclear						X		X		X				X			X		X				X			14

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 50 mg/kg

Number of Days on Study	1 0 1	4 7 2	5 2 4	6 2 9	6 4 6	6 5 6	6 6 3	6 6 8	6 7 3	6 7 4	6 7 4	6 7 8	6 8 0	6 8 1	6 9 3	6 9 9	7 1 6	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9
Carcass ID Number	1 9 1	1 8 3	1 8 5	2 1 2	2 0 3	2 3 1	1 5 5	2 2 3	1 4 1	1 4 2	1 7 3	1 9 5	2 4 4	2 4 5	2 2 1	2 4 3	1 9 4	1 4 4	1 4 5	1 5 3	1 6 4	1 7 2	1 8 4	2 0 2	2 0 5
Alimentary System																									
Esophagus	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenocarcinoma																									
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tongue																									
Tooth				+																					
Cardiovascular System																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma																									
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Bilateral, pheochromocytoma benign					X																				
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+
Adenoma																						X			
Parathyroid gland	+	+	M	+	M	M	+	M	+	M	M	+	+	+	+	+	M	+	M	+	+	+	+	+	+
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars distalis, adenoma						X	X	X	X			X	X	X	X	X			X	X	X	X			X
Thyroid gland	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, adenoma										X								X							
C-cell, carcinoma																									
General Body System																									
None																									

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 50 mg/kg
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	
Carcass ID Number	2 1 3	2 1 5	2 3 5	1 6 5	1 8 1	1 9 3	2 0 1	2 0 4	2 2 2	2 2 4	2 2 5	2 3 3	2 4 1	2 4 2	1 3 1	1 3 2	1 3 3	1 3 4	1 4 3	1 5 4	1 6 1	1 6 2	1 7 4	1 8 2	1 9 2	**Total Tissues/ Tumors**
Alimentary System																										
Esophagus	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenocarcinoma				X																						1
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Tongue					+																					1
Tooth					+												+									3
Cardiovascular System																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Endocrine System																										
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenoma																		X								1
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Bilateral, pheochromocytoma benign																										1
Islets, pancreatic	+	+	+	+	+	+	M	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Adenoma																										1
Parathyroid gland	+	M	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	39
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pars distalis, adenoma			X	X		X	X					X	X			X	X			X		X	X	X		26
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
C-cell, adenoma											X															3
C-cell, carcinoma			X																							1
General Body System																										
None																										

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 50 mg/kg
(continued)

Number of Days on Study	1	4	5	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7
	0	7	2	2	4	5	6	6	7	7	7	7	8	8	9	9	1	2	2	2	2	2	2	2	2
	1	2	4	9	6	6	3	8	3	4	4	8	0	1	3	9	6	9	9	9	9	9	9	9	9
Carcass ID Number	1	1	1	2	2	2	1	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	2	2	
	9	8	8	1	0	3	5	2	4	4	7	9	4	4	2	4	9	4	4	5	6	7	8	0	
	1	3	5	2	3	1	5	3	1	2	3	5	4	5	1	3	4	4	5	3	4	2	4	2	
Genital System																									
Clitoral gland	+	M	+	M	+	M	+	M	+	+	+	+	M	M	+	M	M	+	+	+	+	+	+	+	+
Adenoma							X													X		X	X		
Adenoma, multiple																									
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Polyp stromal			X															X							
Hematopoietic System																									
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thymus	+	+	+	+	+	M	+	+	+	+	M	M	+	+	M	+	+	+	+	+	+	+	+	+	+
Integumentary System																									
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenocarcinoma																	X								
Fibroadenoma									X									X	X	X			X		X
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Epidermis, basal cell adenoma							X																		
Subcutaneous tissue, fibrosarcoma										X															
Subcutaneous tissue, liposarcoma															X										
Musculoskeletal System																									
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nervous System																									
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Respiratory System																									
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Special Senses System																									
Eye								+															+		+
Harderian gland																									

Table B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 50 mg/kg
(continued)

	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
Number of Days on Study	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	9	9	9	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	
	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	**Total**
Carcass ID Number	1	1	3	6	8	9	0	0	2	2	2	3	4	4	3	3	3	3	4	5	6	6	7	8	9	**Tissues/**
	3	5	5	5	1	3	1	4	2	4	5	3	1	2	1	2	3	4	3	4	1	2	4	2	2	**Tumors**
Genital System																										
Clitoral gland	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	41
Adenoma	X		X														X									7
Adenoma, multiple																X										1
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Polyp stromal			X			X		X	X	X				X		X										9
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Thymus	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	45
Integumentary System																										
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenocarcinoma													X													2
Fibroadenoma		X		X				X				X			X	X	X								X	14
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Epidermis, basal cell adenoma																										1
Subcutaneous tissue, fibrosarcoma																										1
Subcutaneous tissue, liposarcoma																										1
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Respiratory System																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Special Senses System																										
Eye				+							+			+		+										7
Harderian gland											+															1

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 50 mg/kg
(continued)

Number of Days on Study	1	4	5	6	6	6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	
	0	7	2	2	4	5	6	6	7	7	7	7	8	8	9	9	1	2	2	2	2	2	2	2	
	1	2	4	9	6	6	3	8	3	4	4	8	0	1	3	9	6	9	9	9	9	9	9	9	
Carcass ID Number	1	1	1	2	2	2	1	2	1	1	1	1	2	2	2	2	1	1	1	1	1	1	2	2	
	9	8	8	1	0	3	5	2	4	4	7	9	4	4	2	4	9	4	4	5	6	7	8	0	
	1	3	5	2	3	1	5	3	1	2	3	5	4	5	1	3	4	4	5	3	4	2	4	2	
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Leukemia mononuclear		X		X		X			X		X		X	X									X		

Table B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 50 mg/kg
(continued)

	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
Number of Days on Study	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	9	9	9	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	
	2	2	2	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	**Total**
Carcass ID Number	1	1	3	6	8	9	0	0	2	2	2	3	4	4	3	3	3	3	4	5	6	6	7	8	9	**Tissues/**
	3	5	5	5	1	3	1	4	2	4	5	3	1	2	1	2	3	4	3	4	1	2	4	2	2	**Tumors**
Urinary System																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Urinary bladder	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Systemic Lesions																										
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Leukemia mononuclear	X					X		X		X	X		X					X						X		16

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 100 mg/kg

Number of Days on Study	4 3 0	4 5 5	4 6 3	5 2 4	5 7 9	6 0 8	6 2 3	6 2 7	6 2 7	6 3 7	6 4 6	6 6 2	6 6 6	6 7 3	6 7 4	6 7 8	6 8 8	6 8 9	7 0 2	7 1 2	7 1 6	7 1 6	7 2 9	7 2 9	7 2 9
Carcass ID Number	3 3 1	3 0 4	2 9 2	3 2 5	2 5 2	2 9 3	3 2 4	2 8 3	2 9 5	3 1 5	2 7 3	3 1 4	3 4 1	3 1 3	3 5 4	3 0 3	3 3 3	3 2 1	3 0 2	3 6 5	2 5 3	3 2 2	2 6 1	2 7 4	2 8 1
Alimentary System																									
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+
Leiomyosarcoma																	X								
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Histiocytic sarcoma																									
Mesentery																									
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cardiovascular System																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma malignant			X																						
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, medulla	M	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+
Pheochromocytoma benign								X	X			X		X											
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+
Carcinoma						X																			
Parathyroid gland	+	+	M	+	+	+	+	+	+	+	+	+	M	M	+	+	M	+	M	M	+	+	+	+	+
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars distalis, adenoma	X			X				X			X	X							X		X		X		X
Pars distalis, carcinoma														X											
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, adenoma																									
Follicular cell, adenoma																									
Follicular cell, carcinoma																									

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 100 mg/kg
(continued)

Number of Days on Study	729	729	729	729	729	729	729	729	730	730	730	730	730	730	730	730	731	731	731	731	731	731	731	731	
Carcass ID Number	29101	31202	34402	34505	35202	35503	36202	36603	25101	25603	26604	27202	28202	28404	28505	35101	35505	36502	36905	41101	41303	41203	41403	41604	**Total Tissues/ Tumors**
Alimentary System																									
Esophagus	+	+	+	M	+	+	M	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	46
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Leiomyosarcoma																									1
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Histiocytic sarcoma																			X						1
Mesentery																					+			+	2
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Salivary glands	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	I	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Cardiovascular System																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma malignant																									1
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+		+	+	+	+	+	+	+	45
Pheochromocytoma benign		X												X											6
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Carcinoma																									1
Parathyroid gland	I	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	42
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pars distalis, adenoma		X		X	X		X	X	X		X			X	X				X						19
Pars distalis, carcinoma																									1
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
C-cell, adenoma													X					X		X	X				4
Follicular cell, adenoma							X																		1
Follicular cell, carcinoma					X																				1

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 100 mg/kg
(continued)

Number of Days on Study	4 3 0	4 5 5	4 6 3	5 2 4	5 7 9	6 0 8	6 2 3	6 2 7	6 2 7	6 3 7	6 4 6	6 6 2	6 6 6	6 7 3	6 7 4	6 7 8	6 8 8	6 8 9	7 0 2	7 1 2	7 1 6	7 1 6	7 2 9	7 2 9	7 2 9
Carcass ID Number	3 3 1	3 0 4	2 9 2	3 2 5	2 5 2	2 9 3	3 2 4	2 8 3	2 9 5	3 1 5	2 7 3	3 1 4	3 4 1	3 1 3	3 5 4	3 0 3	3 3 3	3 2 1	3 0 2	3 6 5	3 5 3	3 2 2	3 6 1	2 7 4	2 8 1
General Body System																									
None																									
Genital System																									
Clitoral gland	+	+	+	+	+	+	+	+	+	M	+	+	+	M	M	+	M	+	M	+	M	+	+	+	+
Adenoma												X				X									
Carcinoma							X				X														
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Polyp stromal	X									X										X					
Vagina			+																						
Hematopoietic System																									
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pancreatic, histiocytic sarcoma																									
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+
Integumentary System																									
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenocarcinoma																									
Fibroadenoma																			X		X				
Fibroadenoma, multiple												X													
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Epidermis, papilloma squamous																									X
Subcutaneous tissue, fibroma																X									
Subcutaneous tissue, sarcoma																							X		
Musculoskeletal System																									
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nervous System																									
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Carcinoma, metastatic, pituitary gland														X											

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 100 mg/kg
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	
Carcass ID Number	2 9 1	3 1 2	3 4 2	3 4 5	3 5 2	3 5 3	3 6 2	3 6 3	2 5 1	2 6 3	2 6 4	2 7 2	2 8 2	2 8 4	2 8 5	3 5 1	2 5 5	2 6 2	2 6 5	2 9 4	3 1 1	3 2 3	3 4 3	3 6 1	3 6 4	**Total Tissues/ Tumors**
General Body System																										
None																										
Genital System																										
Clitoral gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	M	+	+	+	+	+	+	42
Adenoma					X		X						X												X	6
Carcinoma			X																							3
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Polyp stromal			X	X										X				X				X	X	X		10
Vagina																										1
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pancreatic, histiocytic sarcoma																				X						1
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	48
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	48
Integumentary System																										
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenocarcinoma																				X						1
Fibroadenoma	X	X			X		X	X		X															X	9
Fibroadenoma, multiple									X								X									3
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Epidermis, papilloma squamous																										1
Subcutaneous tissue, fibroma																										1
Subcutaneous tissue, sarcoma																										1
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Carcinoma, metastatic, pituitary gland																										1

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 100 mg/kg
(continued)

Number of Days on Study	4 3 0	4 5 5	4 6 3	5 2 4	5 7 9	6 0 8	6 2 3	6 2 7	6 2 7	6 3 7	6 4 6	6 6 2	6 6 6	6 7 3	6 7 4	6 7 8	6 8 8	6 8 9	7 0 2	7 1 2	7 1 6	7 1 6	7 2 9	7 2 9	7 2 9
Carcass ID Number	3 3 1	3 0 4	2 9 2	3 2 5	2 5 2	2 9 3	3 2 4	2 8 3	2 9 5	3 1 5	2 7 3	3 1 4	3 4 1	3 1 3	3 5 4	3 0 3	3 3 3	3 2 1	3 0 2	3 6 5	2 5 3	3 2 2	2 6 1	2 7 4	2 8 1
Respiratory System																									
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Histiocytic sarcoma																									
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Special Senses System																									
Eye																									
Zymbal's gland										+						+									
Carcinoma										X						X									
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Urinary bladder	+	+	+	+	+	+	+	+	+	M	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Histiocytic sarcoma																									
Leukemia mononuclear					X				X		X				X		X	X		X		X			

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 100 mg/kg
(continued)

Number of Days on Study	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	
Carcass ID Number	2 9 1	3 1 2	3 4 2	3 4 5	3 5 2	3 5 3	3 6 2	3 6 3	2 5 1	2 6 3	2 6 4	2 7 2	2 8 2	2 8 4	2 8 5	3 5 1	2 5 5	2 6 2	2 6 5	2 9 4	3 1 1	3 2 3	3 4 3	3 6 1	3 6 4	**Total Tissues/ Tumors**
Respiratory System																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Histiocytic sarcoma																				X						1
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Special Senses System																										
Eye								+																		1
Zymbal's gland																										2
Carcinoma																										2
Urinary System																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Systemic Lesions																										
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Histiocytic sarcoma																				X						1
Leukemia mononuclear														X				X			X					11

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 150 mg/kg

Number of Days on Study	2 1 3	2 1 8	2 9 0	3 0 3	3 1 0	3 2 3	3 8 5	3 8 6	4 3 4	4 4 4	4 4 7	5 7 3	6 0 1	6 1 8	6 2 1	6 2 4	6 3 1	6 5 8	6 7 8	6 8 9	6 9 0	6 9 4	6 9 5	7 0 2	7 0 2
Carcass ID Number	3 8 1	4 4 1	4 4 5	3 8 4	4 5 5	3 9 3	4 2 1	4 0 2	4 1 3	4 3 2	3 7 4	3 8 2	4 0 4	3 7 2	4 3 3	4 7 3	4 5 2	4 5 3	3 9 4	4 5 4	4 2 2	4 6 3	4 2 4	4 4 2	4 7 5
Alimentary System																									
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+
Schwannoma malignant, metastatic, salivary glands																									
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	A	+	+		+	+	A	+
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+		+	+	+	+
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	M	+	+		+	+	+	+
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	A	+	+	+	+	+	+	+
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	A	+	+	+	+	+	A	+
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	A	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Mesentery																					+	+	+		
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Schwannoma malignant																									
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tooth																									
Cardiovascular System																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pheochromocytoma benign																									
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+
Parathyroid gland	M	+	M	M	+	+	+	+	+	+	+	+	M	+	+	+	M	+	+	+	M	+	+	+	+
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars distalis, adenoma						X				X	X			X						X	X		X	X	
Pars distalis, adenoma, multiple																									
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+
Schwannoma malignant, metastatic, salivary glands																									
C-cell, adenoma																									X
C-cell, carcinoma																									
Follicular cell, adenoma																					X				

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 150 mg/kg
(continued)

Number of Days on Study	7 1 6	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	
Carcass ID Number	4 7 4	3 9 1	3 9 5	4 0 1	4 3 4	4 6 1	4 6 4	4 8 2	4 8 3	4 7 5	3 9 2	3 1 4	4 2 3	4 5 1	4 6 5	4 8 4	4 8 5	4 7 1	3 7 3	3 7 3	3 8 3	4 0 3	4 1 1	4 3 1	4 4 3	4 6 2	**Total Tissues/ Tumors**
Alimentary System																										
Esophagus	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Schwannoma malignant, metastatic, salivary glands																			X							1
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Mesentery																										3
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Schwannoma malignant																			X							1
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Tooth																						+				1
Cardiovascular System																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Endocrine System																										
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	48
Pheochromocytoma benign		X																								1
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Parathyroid gland	+	M	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	M	+	+	+	+	+	+	41
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pars distalis, adenoma		X			X	X	X				X	X		X	X		X	X		X		X		X	X	22
Pars distalis, adenoma, multiple									X																	1
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Schwannoma malignant, metastatic, salivary glands																			X							1
C-cell, adenoma		X				X																				3
C-cell, carcinoma		X																								1
Follicular cell, adenoma																										1

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 150 mg/kg
(continued)

Number of Days on Study	2 1 3	2 1 8	2 9 0	3 0 3	3 1 0	3 2 3	3 8 5	3 8 6	4 3 4	4 4 4	4 4 7	5 7 3	6 0 1	6 1 8	6 2 1	6 2 4	6 3 1	6 5 8	6 7 8	6 8 9	6 9 0	6 9 4	7 0 5	7 0 2
Carcass ID Number	3 8 1	4 4 1	4 4 5	3 8 4	4 5 5	3 9 3	4 2 1	4 0 2	4 1 3	4 3 2	3 7 4	3 8 2	3 0 4	4 7 2	3 3 3	4 7 3	4 5 2	4 5 3	3 9 4	4 5 4	4 2 2	4 6 3	4 2 4	4 4 5
General Body System																								
None																								
Genital System																								
Clitoral gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	M	+	+
Adenoma																				X				
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Polyp stromal													X									X		
Hematopoietic System																								
Bone marrow	+	+	+	+	+	M	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Integumentary System																								
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenocarcinoma													X						X					
Adenoma, multiple																			X					
Fibroadenoma																						X		X
Fibroadenoma, multiple																								
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Musculoskeletal System																								
Bone	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nervous System																								
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+
Spinal cord				+																				
Respiratory System																								
Larynx																								
Schwannoma malignant, metastatic, salivary glands																								
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 150 mg/kg
(continued)

Number of Days on Study	7 1 6	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	
Carcass ID Number	4 7 4	3 9 1	3 9 5	4 0 1	4 3 4	4 6 1	4 6 4	4 8 2	4 8 3	4 7 5	3 9 2	3 1 4	4 2 3	4 5 1	4 6 5	4 8 4	4 8 5	4 7 1	3 7 3	3 8 3	4 0 3	4 1 1	4 1 1	4 3 1	4 4 3	4 6 2	**Total Tissues/ Tumors**
General Body System																										
None																										
Genital System																										
Clitoral gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Adenoma			X					X				X														4
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Polyp stromal									X	X			X			X	X						X			8
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Thymus	+	+	+	+	+	+	M	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	48
Integumentary System																										
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adenocarcinoma																		X								3
Adenoma, multiple																										1
Fibroadenoma	X					X					X	X						X							X	8
Fibroadenoma, multiple															X											1
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Spinal cord																										1
Respiratory System																										
Larynx																			+							1
Schwannoma malignant, metastatic, salivary glands																			X							1
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 150 mg/kg
(continued)

Number of Days on Study	2	2	2	3	3	3	3	3	4	4	4	5	6	6	6	6	6	6	6	6	6	6	7	7
	1	1	9	0	1	2	8	8	3	4	4	7	0	1	2	2	3	5	7	8	9	9	9	0	0
	3	8	0	3	0	3	5	6	4	4	7	3	1	8	1	4	1	8	8	9	0	4	5	2	2
Carcass ID Number	3	4	4	3	4	3	4	4	4	4	3	3	4	3	4	4	4	4	3	4	4	4	4	4	4
	8	4	4	8	5	9	2	0	1	3	7	8	0	7	3	7	5	5	9	5	2	6	2	4	7
	1	1	5	4	5	3	1	2	3	2	4	2	4	2	3	3	2	3	4	4	2	3	4	2	5
Special Senses System																									
Eye																						+			
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+
Leiomyosarcoma												X													
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Leukemia mononuclear				X				X							X	X	X	X	X				X	X	X
Lymphoma malignant mixed																						X			

TABLE B2
Individual Animal Tumor Pathology of Female Rats in the 2-Year Gavage Study of Resorcinol: 150 mg/kg
(continued)

Number of Days on Study	7 1 6	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 2 9	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	7 3 1	
Carcass ID Number	4 7 4	3 9 1	3 9 5	4 0 1	4 3 4	4 6 1	4 6 4	4 8 2	4 8 3	3 7 5	3 9 2	4 1 4	4 2 3	4 5 1	4 6 5	4 8 4	4 8 5	3 7 1	3 7 3	3 8 3	4 0 3	4 1 1	4 3 1	4 4 3	4 6 2	**Total Tissues/ Tumors**
Special Senses System																									
Eye					+							+													3
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Leiomyosarcoma																									1
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Leukemia mononuclear							X				X							X	X			X			15
Lymphoma malignant mixed																									1

TABLE B3
Statistical Analysis of Primary Neoplasms in Female Rats in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Adrenal Medulla: Benign Pheochromocytoma				
Overall rates[a]	1/48 (2%)	1/49 (2%)	6/45 (13%)	1/48 (2%)
Adjusted rates[b]	3.0%	2.2%	16.6%	4.3%
Terminal rates[c]	1/33 (3%)	0/33 (0%)	2/26 (8%)	1/23 (4%)
First incidence (days)	729 (T)	646	627	729 (T)
Life table tests[d]	P=0.166	P=0.750N	P=0.045	P=0.679
Logistic regression tests[d]	P=0.240	P=0.757N	P=0.051	P=0.679
Cochran-Armitage test[d]	P=0.262			
Fisher exact test[d]		P=0.747N	P=0.046	P=0.753N
Adrenal Medulla: Pheochromocytoma (Benign or Complex)				
Overall rates	2/48 (4%)	1/49 (2%)	6/45 (13%)	1/48 (2%)
Adjusted rates	6.1%	2.2%	16.6%	4.3%
Terminal rates	2/33 (6%)	0/33 (0%)	2/26 (8%)	1/23 (4%)
First incidence (days)	729 (T)	646	627	729 (T)
Life table tests	P=0.298	P=0.489N	P=0.100	P=0.626N
Logistic regression tests	P=0.395	P=0.494N	P=0.117	P=0.626N
Cochran-Armitage test	P=0.430			
Fisher exact test		P=0.492N	P=0.114	P=0.500N
Clitoral Gland: Adenoma				
Overall rates	8/45 (18%)	8/41 (20%)	6/42 (14%)	4/48 (8%)
Adjusted rates	22.7%	23.7%	19.9%	15.3%
Terminal rates	6/33 (18%)	7/32 (22%)	4/26 (15%)	3/24 (13%)
First incidence (days)	695	663	662	689
Life table tests	P=0.287N	P=0.585	P=0.552N	P=0.362N
Logistic regression tests	P=0.215N	P=0.561	P=0.520N	P=0.303N
Cochran-Armitage test	P=0.089N			
Fisher exact test		P=0.527	P=0.441N	P=0.147N
Clitoral Gland: Carcinoma				
Overall rates	0/45 (0%)	0/41 (0%)	3/42 (7%)	0/48 (0%)
Adjusted rates	0.0%	0.0%	8.4%	0.0%
Terminal rates	0/33 (0%)	0/32 (0%)	1/26 (4%)	0/24 (0%)
First incidence (days)	–[e]	–	623	–
Life table tests	P=0.240	–	P=0.107	–
Logistic regression tests	P=0.327	–	P=0.123	–
Cochran-Armitage test	P=0.321			
Fisher exact test		–	P=0.108	–
Clitoral Gland: Adenoma or Carcinoma				
Overall rates	8/45 (18%)	8/41 (20%)	9/42 (21%)	4/48 (8%)
Adjusted rates	22.7%	23.7%	27.2%	15.3%
Terminal rates	6/33 (18%)	7/32 (22%)	5/26 (19%)	3/24 (13%)
First incidence (days)	695	663	623	689
Life table tests	P=0.420N	P=0.585	P=0.339	P=0.362N
Logistic regression tests	P=0.308N	P=0.561	P=0.380	P=0.303N
Cochran-Armitage test	P=0.150N			
Fisher exact test		P=0.527	P=0.436	P=0.147N

TABLE B3
Statistical Analysis of Primary Neoplasms in Female Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Mammary Gland: Fibroadenoma				
Overall rates	25/50 (50%)	14/50 (28%)	12/50 (24%)	9/50 (18%)
Adjusted rates	59.1%	40.8%	38.1%	33.1%
Terminal rates	17/34 (50%)	13/33 (39%)	9/28 (32%)	6/24 (25%)
First incidence (days)	561	673	662	694
Life table tests	P=0.013N	P=0.031N	P=0.043N	P=0.028N
Logistic regression tests	P=0.003N	P=0.018N	P=0.010N	P=0.006N
Cochran-Armitage test	P<0.001N			
Fisher exact test		P=0.020N	P=0.006N	P<0.001N
Mammary Gland: Adenocarcinoma				
Overall rates	1/50 (2%)	2/50 (4%)	1/50 (2%)	3/50 (6%)
Adjusted rates	2.9%	5.9%	3.6%	9.7%
Terminal rates	1/34 (3%)	1/33 (3%)	1/28 (4%)	1/24 (4%)
First incidence (days)	729 (T)	716	729 (T)	601
Life table tests	P=0.158	P=0.486	P=0.718	P=0.217
Logistic regression tests	P=0.190	P=0.494	P=0.718	P=0.257
Cochran-Armitage test	P=0.246			
Fisher exact test		P=0.500	P=0.753N	P=0.309
Mammary Gland: Adenoma or Fibroadenoma				
Overall rates	25/50 (50%)	14/50 (28%)	12/50 (24%)	10/50 (20%)
Adjusted rates	59.1%	40.8%	38.1%	35.2%
Terminal rates	17/34 (50%)	13/33 (39%)	9/28 (32%)	6/24 (25%)
First incidence (days)	561	673	662	689
Life table tests	P=0.023N	P=0.031N	P=0.043N	P=0.049N
Logistic regression tests	P=0.006N	P=0.018N	P=0.010N	P=0.012N
Cochran-Armitage test	P<0.001N			
Fisher exact test		P=0.020N	P=0.006N	P=0.002N
Mammary Gland: Adenoma, Fibroadenoma, or Adenocarcinoma				
Overall rates	26/50 (52%)	16/50 (32%)	13/50 (26%)	11/50 (22%)
Adjusted rates	61.5%	45.4%	41.3%	36.9%
Terminal rates	18/34 (53%)	14/33 (42%)	10/28 (36%)	6/24 (25%)
First incidence (days)	561	673	662	601
Life table tests	P=0.028N	P=0.052N	P=0.047N	P=0.059N
Logistic regression tests	P=0.007N	P=0.030N	P=0.011N	P=0.013N
Cochran-Armitage test	P<0.001N			
Fisher exact test		P=0.034N	P=0.007N	P=0.002N
Pituitary Gland (Pars Distalis): Adenoma				
Overall rates	25/49 (51%)	26/50 (52%)	19/50 (38%)	23/50 (46%)
Adjusted rates	65.2%	61.5%	52.4%	70.5%
Terminal rates	20/33 (61%)	17/33 (52%)	12/28 (43%)	15/24 (63%)
First incidence (days)	521	656	430	323
Life table tests	P=0.293	P=0.496	P=0.362N	P=0.212
Logistic regression tests	P=0.436N	P=0.554	P=0.165N	P=0.463
Cochran-Armitage test	P=0.197N			
Fisher exact test		P=0.541	P=0.135N	P=0.383N

TABLE B3
Statistical Analysis of Primary Neoplasms in Female Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Pituitary Gland (Pars Distalis): Adenoma or Carcinoma				
Overall rates	26/49 (53%)	26/50 (52%)	20/50 (40%)	23/50 (46%)
Adjusted rates	66.0%	61.5%	53.7%	70.5%
Terminal rates	20/33 (61%)	17/33 (52%)	12/28 (43%)	15/24 (63%)
First incidence (days)	521	656	430	323
Life table tests	P=0.330	P=0.566	P=0.371N	P=0.270
Logistic regression tests	P=0.368N	P=0.540N	P=0.156N	P=0.568
Cochran-Armitage test	P=0.163N			
Fisher exact test		P=0.538N	P=0.135N	P=0.308N
Thyroid Gland (C-cell): Adenoma				
Overall rates	2/50 (4%)	3/49 (6%)	4/50 (8%)	3/49 (6%)
Adjusted rates	5.6%	8.4%	14.3%	11.7%
Terminal rates	1/34 (3%)	2/33 (6%)	4/28 (14%)	2/24 (8%)
First incidence (days)	717	674	729 (T)	702
Life table tests	P=0.194	P=0.486	P=0.249	P=0.347
Logistic regression tests	P=0.218	P=0.494	P=0.263	P=0.375
Cochran-Armitage test	P=0.339			
Fisher exact test		P=0.490	P=0.339	P=0.490
Thyroid Gland (C-cell): Adenoma or Carcinoma				
Overall rates	3/50 (6%)	4/49 (8%)	4/50 (8%)	3/49 (6%)
Adjusted rates	8.5%	11.3%	14.3%	11.7%
Terminal rates	2/34 (6%)	3/33 (9%)	4/28 (14%)	2/24 (8%)
First incidence (days)	717	674	729 (T)	702
Life table tests	P=0.353	P=0.484	P=0.390	P=0.495
Logistic regression tests	P=0.389	P=0.494	P=0.409	P=0.528
Cochran-Armitage test	P=0.542			
Fisher exact test		P=0.489	P=0.500	P=0.651
Thyroid Gland (Follicular Cell): Adenoma or Carcinoma				
Overall rates	4/50 (8%)	0/49 (0%)	2/50 (4%)	1/49 (2%)
Adjusted rates	10.6%	0.0%	7.1%	3.3%
Terminal rates	2/34 (6%)	0/33 (0%)	2/28 (7%)	0/24 (0%)
First incidence (days)	629	-	729 (T)	690
Life table tests	P=0.242N	P=0.069N	P=0.425N	P=0.293N
Logistic regression tests	P=0.197N	P=0.066N	P=0.364N	P=0.238N
Cochran-Armitage test	P=0.154N			
Fisher exact test		P=0.061N	P=0.339N	P=0.187N
Uterus: Stromal Polyp				
Overall rates	8/50 (16%)	9/50 (18%)	10/50 (20%)	8/50 (16%)
Adjusted rates	21.2%	25.8%	30.6%	29.5%
Terminal rates	6/34 (18%)	8/33 (24%)	7/28 (25%)	6/24 (25%)
First incidence (days)	579	524	430	601
Life table tests	P=0.214	P=0.481	P=0.274	P=0.341
Logistic regression tests	P=0.355	P=0.496	P=0.394	P=0.441
Cochran-Armitage test	P=0.500			
Fisher exact test		P=0.500	P=0.398	P=0.607N

TABLE B3
Statistical Analysis of Primary Neoplasms in Female Rats in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
All Organs: Mononuclear Cell Leukemia				
Overall rates	14/50 (28%)	16/50 (32%)	11/50 (22%)	15/50 (30%)
Adjusted rates	34.9%	38.5%	28.8%	41.8%
Terminal rates	9/34 (26%)	9/33 (27%)	3/28 (11%)	5/24 (21%)
First incidence (days)	509	472	579	303
Life table tests	P=0.247	P=0.400	P=0.490N	P=0.203
Logistic regression tests	P=0.499N	P=0.416	P=0.321N	P=0.446
Cochran-Armitage test	P=0.472N			
Fisher exact test		P=0.414	P=0.322N	P=0.500
All Organs: Benign Tumors				
Overall rates	43/50 (86%)	41/50 (82%)	36/50 (72%)	33/50 (66%)
Adjusted rates	93.4%	91.0%	89.6%	91.5%
Terminal rates	31/34 (91%)	29/33 (88%)	24/28 (86%)	21/24 (88%)
First incidence (days)	521	524	430	323
Life table tests	P=0.391	P=0.492N	P=0.529N	P=0.425
Logistic regression tests	P=0.125N	P=0.414N	P=0.107N	P=0.250N
Cochran-Armitage test	P=0.006N			
Fisher exact test		P=0.393N	P=0.070N	P=0.017N
All Organs: Malignant Tumors				
Overall rates	20/50 (40%)	21/50 (42%)	21/50 (42%)	20/50 (40%)
Adjusted rates	46.7%	48.1%	48.4%	51.1%
Terminal rates	12/34 (35%)	11/33 (33%)	7/28 (25%)	6/24 (25%)
First incidence (days)	509	472	463	303
Life table tests	P=0.155	P=0.470	P=0.313	P=0.209
Logistic regression tests	P=0.505	P=0.503	P=0.546	P=0.514
Cochran-Armitage test	P=0.526			
Fisher exact test		P=0.500	P=0.500	P=0.581N
All Organs: Benign and Malignant Tumors				
Overall rates	49/50 (98%)	46/50 (92%)	44/50 (88%)	42/50 (84%)
Adjusted rates	98.0%	93.9%	91.6%	95.4%
Terminal rates	33/34 (97%)	30/33 (91%)	24/28 (86%)	22/24 (92%)
First incidence (days)	509	472	430	303
Life table tests	P=0.129	P=0.432N	P=0.431	P=0.176
Logistic regression tests	P=0.116N	P=0.230N	P=0.062N	P=0.280N
Cochran-Armitage test	P=0.009N			
Fisher exact test		P=0.181N	P=0.056N	P=0.015N

(T)Terminal sacrifice
[a] Number of tumor-bearing animals/number of animals examined. Denominator is number of animals examined microscopically for adrenal gland, bone marrow, brain, clitoral gland, epididymis, gallbladder (mouse), heart, kidney, larynx, liver, lung, nose, ovary, pancreas, parathyroid gland, pituitary gland, preputial gland, prostate gland, salivary gland, spleen, testes, thyroid gland, and urinary bladder; for other tissues, denominator is number of animals necropsied.
[b] Kaplan-Meier estimated lifetime tumor incidence after adjustment for intercurrent mortality
[c] Observed incidence at terminal kill
[d] Beneath the control incidence are the P values associated with the trend test. Beneath the dosed group incidence are the P values corresponding to pairwise comparisons between the controls and that dosed group. The life table analysis regards tumors in animals dying prior to terminal kill as being (directly or indirectly) the cause of death. The logistic regression tests regard these lesions as non-fatal. The Cochran-Armitage and Fisher exact tests compare directly the overall incidence rates. For all tests, a negative trend or a lower incidence in a dose group is indicated by N.
[e] Not applicable; no tumors in animal group

TABLE B4
Summary of the Incidence of Nonneoplastic Lesions in Female Rats in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Disposition Summary				
Animals initially in study	60	60	60	60
15-Month interim evaluation	10	10	10	10
Early deaths				
Natural deaths	1	5	6	13
Moribund kills	15	11	16	12
Accidental deaths		1		1
Survivors				
Terminal sacrifice	34	33	27	24
Died last week of study			1	
Animals examined microscopically	50	50	50	50
Alimentary System				
Esophagus	(48)	(47)	(46)	(48)
Abscess		1 (2%)		
Intestine large, cecum	(50)	(50)	(49)	(46)
Parasite metazoan		1 (2%)		1 (2%)
Intestine large, colon	(50)	(50)	(50)	(48)
Parasite metazoan	6 (12%)	4 (8%)	4 (8%)	6 (13%)
Intestine large, rectum	(50)	(50)	(50)	(47)
Parasite metazoan	5 (10%)	4 (8%)		4 (9%)
Intestine small, duodenum	(50)	(50)	(49)	(48)
Inflammation, chronic		1 (2%)		
Intestine small, ileum	(50)	(50)	(49)	(47)
Parasite metazoan	1 (2%)			
Liver	(50)	(50)	(50)	(50)
Angiectasis, focal	3 (6%)	3 (6%)	5 (10%)	1 (2%)
Basophilic focus	9 (18%)	14 (28%)	11 (22%)	7 (14%)
Basophilic focus, multiple	32 (64%)	27 (54%)	19 (38%)	27 (54%)
Clear cell focus	10 (20%)	5 (10%)	1 (2%)	7 (14%)
Clear cell focus, multiple	2 (4%)	4 (8%)	3 (6%)	1 (2%)
Congestion, focal	1 (2%)	3 (6%)		
Cytoplasmic alteration, focal		3 (6%)	1 (2%)	1 (2%)
Fibrosis, focal			1 (2%)	
Granuloma, focal		1 (2%)		1 (2%)
Hematocyst	1 (2%)			
Hematopoietic cell proliferation				2 (4%)
Hepatodiaphragmatic nodule	4 (8%)	9 (18%)	7 (14%)	7 (14%)
Hepatodiaphragmatic nodule, multiple	4 (8%)	2 (4%)	1 (2%)	
Inflammation, chronic, focal	32 (64%)	25 (50%)	29 (58%)	24 (48%)
Necrosis, focal	1 (2%)	2 (4%)	1 (2%)	2 (4%)
Pigmentation			1 (2%)	
Bile duct, cyst		1 (2%)		1 (2%)
Bile duct, hyperplasia	32 (64%)	23 (46%)	26 (52%)	35 (70%)
Centrilobular, atrophy, diffuse		1 (2%)		
Centrilobular, fatty change	7 (14%)	8 (16%)	5 (10%)	1 (2%)
Periportal, fatty change			1 (2%)	
Serosa, fibrosis, focal	2 (4%)	1 (2%)		
Serosa, inflammation, chronic, focal			1 (2%)	

TABLE B4
Summary of the Incidence of Nonneoplastic Lesions in Female Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Alimentary System (continued)				
Mesentery	(2)		(2)	(3)
Fat, necrosis	2 (100%)		2 (100%)	2 (67%)
Pancreas	(50)	(49)	(50)	(49)
Atrophy, focal	17 (34%)	15 (31%)	19 (38%)	13 (27%)
Focal cellular change	1 (2%)	1 (2%)		
Hyperplasia, focal	2 (4%)	1 (2%)		1 (2%)
Inflammation, chronic, focal			1 (2%)	
Metaplasia, focal		1 (2%)		
Artery, inflammation, chronic, focal			1 (2%)	
Salivary glands	(50)	(50)	(48)	(50)
Atrophy		3 (6%)	2 (4%)	
Cyst				1 (2%)
Inflammation, chronic	1 (2%)	1 (2%)		
Duct, ectasia, focal	1 (2%)			
Stomach, forestomach	(50)	(50)	(48)	(50)
Hyperplasia, squamous, diffuse	1 (2%)		2 (4%)	
Hyperplasia, squamous, focal		1 (2%)	1 (2%)	
Inflammation, acute, diffuse				1 (2%)
Inflammation, chronic, diffuse	1 (2%)		2 (4%)	
Inflammation, chronic, focal		3 (6%)	1 (2%)	
Mineralization			1 (2%)	2 (4%)
Ulcer	1 (2%)	1 (2%)	2 (4%)	
Stomach, glandular	(50)	(50)	(50)	(50)
Erosion	1 (2%)	1 (2%)	2 (4%)	1 (2%)
Inflammation, acute, focal				1 (2%)
Mineralization			1 (2%)	2 (4%)
Ulcer		2 (4%)	1 (2%)	
Tongue		(1)		
Epithelium, hyperplasia, focal		1 (100%)		
Tooth	(1)	(3)		(1)
Inflammation, chronic		2 (67%)		1 (100%)
Gingiva, foreign body	1 (100%)			
Gingiva, hyperplasia, squamous, focal	1 (100%)			
Gingiva, inflammation, chronic, focal	1 (100%)			
Cardiovascular System				
Heart	(50)	(50)	(50)	(50)
Inflammation, chronic, focal	28 (56%)	28 (56%)	29 (58%)	22 (44%)
Mineralization, multifocal			1 (2%)	1 (2%)
Thrombus		1 (2%)		
Artery, hyperplasia, focal				1 (2%)
Artery, mineralization				1 (2%)
Atrium, thrombus			1 (2%)	
Endocardium, hemorrhage, focal	1 (2%)			

TABLE B4
Summary of the Incidence of Nonneoplastic Lesions in Female Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Endocrine System				
Adrenal gland	(50)	(50)	(50)	(50)
Degeneration, fatty, focal	1 (2%)			1 (2%)
Hematocyst	1 (2%)			
Adrenal gland, cortex	(50)	(50)	(50)	(50)
Angiectasis	4 (8%)	3 (6%)	2 (4%)	
Atrophy, diffuse			1 (2%)	
Congestion			1 (2%)	
Cyst	1 (2%)			
Cytoplasmic alteration, focal	2 (4%)	1 (2%)	1 (2%)	
Degeneration, ballooning, focal	1 (2%)			
Degeneration, fatty, diffuse				1 (2%)
Degeneration, fatty, focal	16 (32%)	15 (30%)	22 (44%)	9 (18%)
Hematocyst	1 (2%)			
Hemorrhage, focal		1 (2%)		
Hyperplasia, focal	14 (28%)	13 (26%)	7 (14%)	7 (14%)
Hypertrophy, focal	2 (4%)		3 (6%)	2 (4%)
Mineralization, focal		1 (2%)		
Pigmentation			1 (2%)	
Adrenal gland, medulla	(48)	(49)	(45)	(48)
Angiectasis				1 (2%)
Hematocyst			1 (2%)	
Hyperplasia	14 (29%)	15 (31%)	14 (31%)	8 (17%)
Islets, pancreatic	(50)	(47)	(49)	(49)
Hyperplasia, focal		2 (4%)		2 (4%)
Parathyroid gland	(46)	(39)	(42)	(41)
Hyperplasia, diffuse			1 (2%)	
Hyperplasia, focal		1 (3%)		
Hypoplasia, diffuse		1 (3%)		
Pituitary gland	(49)	(50)	(50)	(50)
Amyloid deposition	1 (2%)			
Angiectasis	10 (20%)	6 (12%)	7 (14%)	7 (14%)
Cyst	17 (35%)	23 (46%)	21 (42%)	19 (38%)
Cyst, multiple	4 (8%)	3 (6%)	9 (18%)	2 (4%)
Ectasia	1 (2%)			
Pigmentation, focal		1 (2%)		
Pars distalis, angiectasis, focal		3 (6%)	1 (2%)	
Pars distalis, hyperplasia, focal	8 (16%)	8 (16%)	11 (22%)	5 (10%)
Pars distalis, hyperplasia, multifocal	1 (2%)			
Pars distalis, hypoplasia			1 (2%)	
Pars distalis, metaplasia, osseous, focal		1 (2%)		
Pars nervosa, metaplasia, osseous, focal			1 (2%)	
Thyroid gland	(50)	(49)	(50)	(49)
Hemorrhage, multifocal		1 (2%)		
C-cell, hyperplasia, focal	9 (18%)	12 (24%)	10 (20%)	1 (2%)
Follicular cell, metaplasia, squamous, focal	1 (2%)			
General Body System				
None				

TABLE B4
Summary of the Incidence of Nonneoplastic Lesions in Female Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Genital System				
Clitoral gland	(45)	(41)	(42)	(48)
Atrophy		1 (2%)		1 (2%)
Concretion			1 (2%)	
Dilatation	2 (4%)		1 (2%)	3 (6%)
Hyperplasia, focal	3 (7%)	3 (7%)	1 (2%)	2 (4%)
Inflammation, chronic, focal	5 (11%)	4 (10%)	1 (2%)	2 (4%)
Inflammation, suppurative	1 (2%)			
Ovary	(50)	(50)	(49)	(50)
Congestion		2 (4%)		
Cyst	6 (12%)	5 (10%)	4 (8%)	2 (4%)
Granuloma, focal		1 (2%)		
Corpus luteum, necrosis	1 (2%)			
Parovarian tissue, necrosis, focal	1 (2%)			
Uterus	(50)	(50)	(50)	(50)
Dilatation		2 (4%)		1 (2%)
Fibrosis		2 (4%)		
Hydrometra		1 (2%)		1 (2%)
Hyperplasia, cystic, chronic	4 (8%)		1 (2%)	2 (4%)
Inflammation, suppurative				1 (2%)
Artery, mineralization, focal				1 (2%)
Cervix, fibrosis	1 (2%)	1 (2%)		1 (2%)
Lumen, hemorrhage		1 (2%)	1 (2%)	
Serosa, necrosis	1 (2%)			
Vagina	(2)		(1)	
Inflammation, subacute			1 (100%)	
Necrosis, acute, diffuse			1 (100%)	
Prolapse			1 (100%)	
Hematopoietic System				
Bone marrow	(50)	(50)	(50)	(48)
Myelofibrosis, focal	1 (2%)	1 (2%)	3 (6%)	
Erythroid cell, proliferation	1 (2%)		3 (6%)	1 (2%)
Myeloid cell, proliferation	1 (2%)		1 (2%)	2 (4%)
Lymph node	(50)	(50)	(50)	(50)
Congestion				1 (2%)
Axillary, hyperplasia, plasma cell				1 (2%)
Axillary, infiltration cellular, histiocyte	1 (2%)		1 (2%)	
Iliac, ectasia		1 (2%)		
Iliac, hyperplasia, plasma cell	1 (2%)			
Iliac, infiltration cellular, histiocyte		1 (2%)		
Inguinal, ectasia			2 (4%)	
Inguinal, hyperplasia, lymphoid			1 (2%)	
Inguinal, hyperplasia, plasma cell			1 (2%)	
Mandibular, congestion	1 (2%)	1 (2%)		1 (2%)
Mandibular, hyperplasia, plasma cell	2 (4%)	1 (2%)	2 (4%)	2 (4%)
Mediastinal, congestion		2 (4%)		1 (2%)
Mediastinal, hemorrhage	1 (2%)			2 (4%)
Mediastinal, hyperplasia, lymphoid		1 (2%)		
Mediastinal, hyperplasia, plasma cell		1 (2%)		1 (2%)
Mediastinal, inflammation, suppurative	1 (2%)			
Mediastinal, pigmentation			1 (2%)	

TABLE B4
Summary of the Incidence of Nonneoplastic Lesions in Female Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Hematopoietic System (continued)				
Lymph node, mesenteric	(50)	(50)	(48)	(50)
Congestion	1 (2%)	1 (2%)		
Fibrosis, focal		1 (2%)		
Granuloma, focal				1 (2%)
Hemorrhage	1 (2%)		1 (2%)	
Spleen	(50)	(50)	(50)	(50)
Angiectasis	1 (2%)			
Congestion, focal			1 (2%)	2 (4%)
Fibrosis, focal			1 (2%)	
Hematocyst				1 (2%)
Hematopoietic cell proliferation	4 (8%)	2 (4%)	3 (6%)	5 (10%)
Hematopoietic cell proliferation granulocytic				1 (2%)
Hyperplasia, lymphoid	1 (2%)			
Necrosis, acute, focal				1 (2%)
Thrombus			1 (2%)	
Capsule, fibrosis	1 (2%)			1 (2%)
Thymus	(47)	(45)	(48)	(48)
Cyst	1 (2%)	1 (2%)	3 (6%)	2 (4%)
Cyst, multiple		2 (4%)		
Hemorrhage	1 (2%)	1 (2%)		5 (10%)
Epithelial cell, hyperplasia				1 (2%)
Mediastinum, inflammation, acute		1 (2%)		
Integumentary System				
Mammary gland	(50)	(50)	(50)	(50)
Galactocele	1 (2%)	1 (2%)		
Galactocele, multiple		1 (2%)		
Hyperplasia, cystic, glandular			2 (4%)	
Mineralization			1 (2%)	
Skin	(50)	(50)	(50)	(50)
Developmental malformation			1 (2%)	
Musculoskeletal System				
Bone	(50)	(50)	(50)	(49)
Cranium, hyperostosis		1 (2%)		
Femur, fibrous osteodystrophy			1 (2%)	1 (2%)
Femur, hyperostosis		3 (6%)	1 (2%)	
Femur, osteopetrosis	1 (2%)	2 (4%)		2 (4%)
Maxilla, hyperostosis			1 (2%)	
Turbinate, hyperostosis		2 (4%)	1 (2%)	
Nervous System				
Brain	(50)	(50)	(50)	(49)
Hemorrhage, focal	2 (4%)	3 (6%)		1 (2%)
Spinal cord				(1)
Hemorrhage, focal				1 (100%)

TABLE B4
Summary of the Incidence of Nonneoplastic Lesions in Female Rats in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Respiratory System				
Lung	(50)	(50)	(50)	(50)
Congestion	7 (14%)	12 (24%)	11 (22%)	8 (16%)
Emphysema, focal		1 (2%)		1 (2%)
Foreign body	3 (6%)		1 (2%)	
Granuloma, focal			3 (6%)	
Hemorrhage, focal	1 (2%)	1 (2%)	2 (4%)	2 (4%)
Hyperplasia, focal	2 (4%)	4 (8%)	5 (10%)	2 (4%)
Inflammation, acute, focal	1 (2%)			1 (2%)
Inflammation, chronic, diffuse			1 (2%)	
Inflammation, chronic, focal	6 (12%)	3 (6%)	1 (2%)	5 (10%)
Metaplasia, osseous, focal			1 (2%)	
Interstitium, mineralization, diffuse			1 (2%)	
Interstitium, mineralization, focal				1 (2%)
Nose	(49)	(50)	(50)	(50)
Foreign body	1 (2%)	1 (2%)	2 (4%)	4 (8%)
Fungus	1 (2%)	2 (4%)	1 (2%)	3 (6%)
Inflammation, acute			1 (2%)	
Inflammation, acute, focal			2 (4%)	
Inflammation, chronic, focal	2 (4%)	1 (2%)	1 (2%)	1 (2%)
Inflammation, suppurative, focal	1 (2%)	2 (4%)		6 (12%)
Metaplasia, squamous			1 (2%)	
Nasolacrimal duct, inflammation, chronic	1 (2%)		1 (2%)	
Nasolacrimal duct, inflammation, suppurative	1 (2%)			
Trachea	(50)	(50)	(50)	(50)
Mineralization, focal				1 (2%)
Special Senses System				
Eye	(2)	(7)	(1)	(3)
Atrophy		2 (29%)		
Synechia		2 (29%)		
Lens, cataract	1 (50%)	5 (71%)	1 (100%)	2 (67%)
Retina, degeneration		5 (71%)		1 (33%)
Urinary System				
Kidney	(50)	(50)	(50)	(50)
Congestion		2 (4%)	2 (4%)	3 (6%)
Cyst	2 (4%)	1 (2%)	2 (4%)	1 (2%)
Degeneration, hyaline, diffuse			1 (2%)	
Glomerulosclerosis	1 (2%)			
Hemorrhage, focal		1 (2%)		
Hydronephrosis				1 (2%)
Hyperplasia	1 (2%)			
Mineralization			1 (2%)	2 (4%)
Nephropathy, chronic	47 (94%)	47 (94%)	48 (96%)	43 (86%)
Pigmentation	4 (8%)	2 (4%)	4 (8%)	3 (6%)
Pelvis, hemorrhage	1 (2%)			
Pelvis, hyperplasia	1 (2%)			
Pelvis, inflammation, chronic	2 (4%)			
Pelvis, mineralization			1 (2%)	
Urinary bladder	(50)	(49)	(48)	(49)
Inflammation, chronic, focal			1 (2%)	

APPENDIX C
SUMMARY OF LESIONS IN MALE MICE IN THE 2-YEAR GAVAGE STUDY OF RESORCINOL

TABLE C1
Summary of the Incidence of Neoplasms in Male Mice in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Disposition Summary			
Animals initially in study	60	60	60
15-Month interim evaluation	10	10	10
Early deaths			
Natural deaths	6	3	11
Moribund kills	6	4	3
Accidental deaths	1		2
Survivors			
Terminal sacrifice	36	43	34
Moribund	1		
Animals examined microscopically	50	50	50
Alimentary System			
Esophagus	(50)		(49)
Gallbladder	(41)		(39)
Sarcoma, metastatic, epididymis			1 (3%)
Intestine small	(50)	(5)	(50)
Intestine small, duodenum	(47)	(2)	(43)
Intestine small, ileum	(48)	(2)	(43)
Intestine small, jejunum	(46)	(4)	(43)
Adenocarcinoma			1 (2%)
Liver	(50)	(16)	(50)
Alveolar/bronchiolar carcinoma, metastatic, lung		1 (6%)	
Carcinoma, metastatic, islets, pancreatic		1 (6%)	
Carcinoma, metastatic, pancreas	1 (2%)		
Hemangioma	1 (2%)		1 (2%)
Hepatocellular carcinoma	6 (12%)	4 (25%)	3 (6%)
Hepatocellular adenoma	6 (12%)	6 (38%)	4 (8%)
Hepatocellular adenoma, multiple		1 (6%)	
Pancreas	(50)		(48)
Sarcoma, metastatic, epididymis			1 (2%)
Stomach, forestomach	(49)		(46)
Papilloma squamous	3 (6%)		1 (2%)
Tooth	(6)		(1)
Odontoma	1 (17%)		
Cardiovascular System			
Heart	(50)	(1)	(50)
Alveolar/bronchiolar carcinoma, metastatic, lung		1 (100%)	
Sarcoma, metastatic, skin	1 (2%)		

TABLE C1
Summary of the Incidence of Neoplasms in Male Mice in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Endocrine System			
Adrenal gland	(50)	(1)	(50)
Pheochromocytoma benign		1 (100%)	
Adrenal gland, cortex	(49)		(49)
Adenoma			1 (2%)
Sarcoma, metastatic, epididymis			1 (2%)
Adrenal gland, medulla	(47)		(49)
Pheochromocytoma benign			2 (4%)
Islets, pancreatic	(50)	(1)	(47)
Carcinoma	1 (2%)	1 (100%)	
Pituitary gland	(45)		(50)
Pars distalis, adenoma	1 (2%)		
Thyroid gland	(49)		(50)
Follicular cell, adenoma	1 (2%)		
General Body System			
None			
Genital System			
Epididymis	(50)		(50)
Sarcoma			1 (2%)
Prostate	(49)		(48)
Sarcoma, metastatic, epididymis			1 (2%)
Testes	(50)	(1)	(50)
Sarcoma, metastatic, epididymis			1 (2%)
Hematopoietic System			
Bone marrow	(50)		(50)
Hemangiosarcoma, metastatic, spleen			1 (2%)
Lymph node	(49)	(8)	(50)
Sarcoma, metastatic, skin	1 (2%)		
Axillary, sarcoma, metastatic, skin		1 (13%)	
Mediastinal, alveolar/bronchiolar carcinoma, metastatic, lung	1 (2%)		
Pancreatic, carcinoma, metastatic, pancreas	1 (2%)		
Lymph node, mesenteric	(48)	(5)	(50)
Sarcoma, metastatic, epididymis			1 (2%)
Spleen	(49)	(4)	(50)
Hemangioma			1 (2%)
Hemangiosarcoma			1 (2%)
Thymus	(24)		(35)

TABLE C1
Summary of the Incidence of Neoplasms in Male Mice in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Integumentary System			
Skin	(49)	(9)	(49)
Subcutaneous tissue, fibroma	2 (4%)	1 (11%)	
Subcutaneous tissue, lipoma	1 (2%)		
Subcutaneous tissue, neurofibrosarcoma			1 (2%)
Subcutaneous tissue, sarcoma	5 (10%)	5 (56%)	1 (2%)
Subcutaneous tissue, sarcoma, multiple	1 (2%)		
Subcutaneous tissue, sarcoma, metastatic, epididymis			1 (2%)
Musculoskeletal System			
Skeletal muscle	(1)	(3)	
Sarcoma		1 (33%)	
Sarcoma, metastatic, skin		2 (67%)	
Nervous System			
Brain	(50)		(50)
Respiratory System			
Lung	(50)	(7)	(50)
Alveolar/bronchiolar adenoma	5 (10%)	3 (43%)	5 (10%)
Alveolar/bronchiolar adenoma, multiple		1 (14%)	1 (2%)
Alveolar/bronchiolar carcinoma	1 (2%)	2 (29%)	
Hepatocellular carcinoma, metastatic		1 (14%)	
Hepatocellular carcinoma, metastatic, liver	3 (6%)		
Sarcoma, metastatic, skin	1 (2%)	1 (14%)	
Trachea	(46)	(1)	(50)
Alveolar/bronchiolar carcinoma, metastatic, lung		1 (100%)	
Special Senses System			
Harderian gland	(1)	(2)	
Adenoma	1 (100%)	2 (100%)	
Urinary System			
Kidney	(50)	(3)	(50)
Alveolar/bronchiolar carcinoma, metastatic, lung	1 (2%)	1 (33%)	
Sarcoma, metastatic, epididymis			1 (2%)
Renal tubule, adenoma			1 (2%)
Urinary bladder	(49)		(48)
Hemangioma			1 (2%)

TABLE C1
Summary of the Incidence of Neoplasms in Male Mice in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Systemic Lesions			
Multiple organs[a]	(50)	(50)	(50)
Lymphoma malignant lymphocytic		1 (2%)	
Lymphoma malignant mixed	2 (4%)	4 (8%)	2 (4%)
Lymphoma malignant undifferentiated cell	2 (4%)	3 (6%)	
Tumor Summary			
Total animals with primary neoplasms[b]	33	29	22
Total primary neoplasms	40	36	28
Total animals with benign neoplasms	21	15	15
Total benign neoplasms	22	15	18
Total animals with malignant neoplasms	18	19	9
Total malignant neoplasms	18	21	10
Total animals with metastatic neoplasms	7	5	2
Total metastatic neoplasms	10	10	9

[a] Number of animals with any tissue examined microscopically
[b] Primary tumors: all tumors except metastatic tumors

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control

Number of Days on Study	3 3 1	5 1 7	5 6 7	6 1 2	6 2 8	6 3 5	6 9 2	6 9 5	7 0 0	7 1 1	7 1 7	7 2 1	7 2 4	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 2	7 3 3
Carcass ID Number	0 6 1	0 6 2	0 4 1	1 2 3	0 3 1	0 4 4	0 2 2	1 0 4	1 0 3	0 4 2	0 7 4	0 9 2	1 5 5	0 5 4	0 6 3	0 6 5	0 7 5	0 8 2	0 8 5	0 9 3	1 0 2	1 1 1	1 1 3	0 7 2	0 1 1
Alimentary System																									
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gallbladder	A	A	I	A	+	A	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, colon	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, rectum	+	M	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	A	+	+	A	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, ileum	+	+	+	A	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, jejunum	A	M	+	A	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Carcinoma, metastatic, pancreas																		X							
Hemangioma																X									
Hepatocellular carcinoma						X					X	X					X			X					
Hepatocellular adenoma									X	X								X			X				
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Papilloma squamous													X												
Stomach, glandular	+	+	+	+	+	+	+	+	M		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tooth														+				+							
Odontoma																									
Cardiovascular System																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sarcoma, metastatic, skin													X												
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Carcinoma																		X							
Parathyroid gland	M	M	I	M	M	M	+	I	M	+	+	+	+	M	M	M	+	+	M	M	M	M	+	M	+
Pituitary gland	+	+	M	+	+	M	+	I	+	+	+	I	+	+	+	+	+	+	+	+	+	+	M	+	+
Pars distalis, adenoma																									
Thyroid gland	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Follicular cell, adenoma																									

+: Tissue examined microscopically
A: Autolysis precludes examination
M: Missing tissue
I: Insufficient tissue
X: Lesion present
Blank: Not examined

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	0 1 2	0 2 3	0 2 5	0 3 5	0 4 5	0 5 3	1 1 4	1 2 5	0 1 4	0 3 2	0 3 3	0 4 3	0 5 5	0 7 3	0 8 3	1 2 2	1 2 4	0 1 5	0 2 4	0 3 4	0 5 2	0 6 4	0 8 4	0 9 4	1 0 5	**Total Tissues/ Tumors**
Alimentary System																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Gallbladder	+	+	+	+	M	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	41
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	48
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	47
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Carcinoma, metastatic, pancreas																										1
Hemangioma																										1
Hepatocellular carcinoma										X																6
Hepatocellular adenoma			X													X										6
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	49
Papilloma squamous	X								X																	3
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	47
Tooth		+		+								+									+					6
Odontoma		X																								1
Cardiovascular System																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Sarcoma, metastatic, skin																										1
Endocrine System																										
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Adrenal gland, medulla	+	+	+	M	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	47
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Carcinoma																										1
Parathyroid gland	+	M	+	+	M	I	M	+	+	M	I	M	I	+	+	+	M	I	M	+	+	+	M	M	M	20
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	45
Pars distalis, adenoma																	X									1
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Follicular cell, adenoma																							X			1

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	3	5	5	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
	3	1	6	1	2	3	9	9	0	1	1	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	1	7	7	2	8	5	2	5	0	1	7	1	4	0	0	0	0	0	0	0	0	0	0	0	2	3	
Carcass ID Number	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	1	1	1	0	0		
	6	6	4	2	3	4	2	0	0	4	7	9	1	5	6	6	7	8	8	9	0	1	1	7	1		
	1	2	1	3	1	4	2	4	3	2	4	2	5	4	3	5	5	2	5	3	2	1	3	2	1		
General Body System																											
None																											
Genital System																											
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Penis																											
Preputial gland						+																					
Prostate	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Hematopoietic System																											
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Lymph node	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Sarcoma, metastatic, skin																											
Mediastinal, alveolar/bronchiolar carcinoma, metastatic, lung		X																									
Pancreatic, carcinoma, metastatic, pancreas																		X									
Lymph node, mesenteric	+	+		+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Thymus	+	+	+	M	M	I	M	+	M	M	M	M	M	+	+	M	+	+	M	M	+	+	+	M	+		
Integumentary System																											
Mammary gland	+	M	M	I	I	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M		
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Subcutaneous tissue, fibroma								X																			
Subcutaneous tissue, lipoma																											
Subcutaneous tissue, sarcoma							X						X												X		
Subcutaneous tissue, sarcoma, multiple						X																					
Musculoskeletal System																											
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Skeletal muscle																									+		
Nervous System																											
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	0 1 2	0 2 3	0 2 5	0 3 5	0 4 5	0 5 3	1 1 4	1 2 5	0 1 4	0 3 2	0 3 3	0 4 3	0 5 5	0 7 3	0 8 3	1 2 2	1 2 4	0 1 5	0 2 4	0 3 4	0 5 2	0 6 4	0 8 4	0 9 4	1 0 5	**Total Tissues/ Tumors**
General Body System																										
None																										
Genital System																										
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Penis																			+							1
Preputial gland			+																							2
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Sarcoma, metastatic, skin													X													1
Mediastinal, alveolar/bronchiolar carcinoma, metastatic, lung																										1
Pancreatic, carcinoma, metastatic, pancreas																										1
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Spleen	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Thymus	M	I	I	I	+	+	M	M	I	M	M	+	+	+	+	+	M	M	M	M	+	+	+	+	+	24
Integumentary System																										
Mammary gland	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	1
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Subcutaneous tissue, fibroma														X												2
Subcutaneous tissue, lipoma																				X						1
Subcutaneous tissue, sarcoma								X				X														5
Subcutaneous tissue, sarcoma, multiple																										1
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Skeletal muscle																										1
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	3 3 1	5 1 7	5 6 7	6 1 2	6 2 8	6 3 5	6 9 2	6 9 5	7 0 0	7 1 1	7 1 7	7 2 1	7 2 4	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 2	7 3 3
Carcass ID Number	0 6 1	0 6 2	0 4 1	1 2 3	0 3 1	0 4 4	0 2 2	1 0 4	1 0 3	0 4 2	0 7 4	0 9 2	1 5 5	0 4 4	0 6 3	0 6 5	0 7 5	0 8 2	0 8 5	0 9 3	1 0 2	1 1 1	1 1 3	0 7 2	0 1 1
Respiratory System																									
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Alveolar/bronchiolar adenoma																X								X	
Alveolar/bronchiolar carcinoma		X																							
Hepatocellular carcinoma, metastatic, liver											X	X								X					
Sarcoma, metastatic, skin													X												
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+
Special Senses System																									
Harderian gland															+										
Adenoma															X										
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Alveolar/bronchiolar carcinoma, metastatic, lung		X																							
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymphoma malignant mixed										X															
Lymphoma malignant undifferentiated cell type																									

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	0 1 2	0 2 3	0 2 5	0 3 5	0 4 5	0 5 3	1 1 4	1 2 5	0 1 4	0 3 2	0 3 3	0 4 3	0 5 5	0 7 3	0 8 3	1 2 2	1 2 4	0 1 5	0 2 4	0 3 4	0 5 2	0 6 4	0 8 4	0 9 4	1 0 5	**Total Tissues/ Tumors**
Respiratory System																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Alveolar/bronchiolar adenoma															X							X		X		5
Alveolar/bronchiolar carcinoma																										1
Hepatocellular carcinoma, metastatic, liver																										3
Sarcoma, metastatic, skin																										1
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Trachea	+	+	+	+	+	+	+	M	+	+	+	+	+	M	+	M	+	+	+	+	+	+	+	+	+	46
Special Senses System																										
Harderian gland																										1
Adenoma																										1
Urinary System																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Alveolar/bronchiolar carcinoma, metastatic, lung																										1
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Systemic Lesions																										
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymphoma malignant mixed		X																								2
Lymphoma malignant undifferentiated cell type				X																			X			2

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 112 mg/kg

Number of Days on Study	6 2 6	6 5 1	6 6 4	6 8 6	6 9 8	7 1 5	7 1 6	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3
Carcass ID Number	2 9 5	3 3 1	2 6 5	3 2 4	3 3 4	3 3 5	2 8 1	2 6 1	2 6 2	2 6 3	2 7 2	2 8 4	3 1 4	3 2 2	3 2 5	3 3 2	3 4 4	3 4 5	2 5 4	2 5 5	2 7 3	2 7 5	2 8 3	2 8 5	2 9 3
Alimentary System																									
Intestine small									+					+						+					
Intestine small, duodenum																				+					
Intestine small, ileum																				+					
Intestine small, jejunum									+					+						+					
Liver				+	+			+	+			+	+	+		+			+				+		
Alveolar/bronchiolar carcinoma, metastatic, lung					X																				
Carcinoma, metastatic, islets, pancreatic																									
Hepatocellular carcinoma				X																					
Hepatocellular adenoma													X			X			X				X		
Hepatocellular adenoma, multiple														X											
Cardiovascular System																									
Heart					+																				
Alveolar/bronchiolar carcinoma, metastatic, lung					X																				
Endocrine System																									
Adrenal gland												+													
Pheochromocytoma benign												X													
Islets, pancreatic																									
Carcinoma																									
General Body System																									
None																									
Genital System																									
Preputial gland																									
Testes																									
Hematopoietic System																									
Lymph node						+	+							+						+					
Axillary, sarcoma, metastatic, skin							X																		
Lymph node, mesenteric														+						+					
Spleen		+				+					+	+													

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	2 9 4	3 0 4	3 5 1	3 5 5	2 5 2	2 5 3	2 7 4	3 0 3	3 0 5	3 1 3	3 2 1	3 3 3	3 4 3	3 5 2	3 5 4	2 6 4	2 8 2	3 0 1	3 0 2	3 1 2	3 1 5	3 2 3	3 5 3	3 6 4	3 6 5	**Total Tissues/ Tumors**
Alimentary System																										
Intestine small	+																				+				5
Intestine small, duodenum	+																								2
Intestine small, ileum	+																								2
Intestine small, jejunum	+																								4
Liver										+		+	+	+	+			+							16
Alveolar/bronchiolar carcinoma, metastatic, lung																									1
Carcinoma, metastatic, islets, pancreatic																		X							1
Hepatocellular carcinoma										X		X			X										4
Hepatocellular adenoma													X	X											6
Hepatocellular adenoma, multiple																									1
Cardiovascular System																										
Heart																									1
Alveolar/bronchiolar carcinoma, metastatic, lung																									1
Endocrine System																										
Adrenal gland																									1
Pheochromocytoma benign																									1
Islets, pancreatic																		+							1
Carcinoma																		X							1
General Body System																										
None																										
Genital System																										
Preputial gland										+				+	+										3
Testes															+										1
Hematopoietic System																										
Lymph node	+				+																+		+		8
Axillary, sarcoma, metastatic, skin																									1
Lymph node, mesenteric	+				+																+				5
Spleen																									4

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	6 2 6	6 5 1	6 6 4	6 8 6	6 9 8	7 1 5	7 1 6	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3
Carcass ID Number	2 9 5	3 3 1	2 6 5	3 2 4	3 3 4	3 3 5	2 8 1	2 6 1	2 6 2	2 6 3	2 7 2	2 8 4	3 1 4	3 2 2	3 2 5	3 3 2	3 4 4	3 4 5	2 5 4	2 5 5	2 7 3	2 7 5	2 8 3	2 8 5	2 9 3
Integumentary System																									
Skin	+					+	+															+			
Subcutaneous tissue, fibroma																									
Subcutaneous tissue, sarcoma	X					X	X																		
Musculoskeletal System																									
Skeletal muscle	+				+		+																		
Sarcoma					X																				
Sarcoma, metastatic, skin	X						X																		
Nervous System																									
None																									
Respiratory System																									
Lung			+	+		+					+														
Alveolar/bronchiolar adenoma			X																						
Alveolar/bronchiolar adenoma, multiple											X														
Alveolar/bronchiolar carcinoma				X																					
Hepatocellular carcinoma, metastatic			X																						
Sarcoma, metastatic, skin							X																		
Trachea					+																				
Alveolar/bronchiolar carcinoma, metastatic, lung					X																				
Special Senses System																									
Harderian gland																									
Adenoma																									
Urinary System																									
Kidney					+	+																			
Alveolar/bronchiolar carcinoma, metastatic, lung					X																				
Systemic Lesions																									
Multiple organs	+		+	+	+	+	+	+	+		+	+	+	+		+			+	+		+	+		
Lymphoma malignant lymphocytic									X																
Lymphoma malignant mixed											X			X											
Lymphoma malignant undifferentiated cell type												X								X					

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	2 9 4	3 0 4	3 5 1	3 5 5	2 5 2	2 5 3	2 7 4	3 0 3	3 0 5	3 1 3	3 2 1	3 3 3	3 4 3	3 5 2	3 5 4	2 6 4	2 8 2	3 0 1	3 0 2	3 1 2	3 1 2	3 2 5	3 5 3	3 6 4	3 6 5	**Total Tissues/ Tumors**
Integumentary System																									
Skin					+							+		+			+							+	9
Subcutaneous tissue, fibroma																	X								1
Subcutaneous tissue, sarcoma					X																			X	5
Musculoskeletal System																									
Skeletal muscle																									3
Sarcoma																									1
Sarcoma, metastatic, skin																									2
Nervous System																									
None																									
Respiratory System																									
Lung			+							+									+						7
Alveolar/bronchiolar adenoma			X							X															3
Alveolar/bronchiolar adenoma, multiple																									1
Alveolar/bronchiolar carcinoma																			X						2
Hepatocellular carcinoma, metastatic																									1
Sarcoma, metastatic, skin																									1
Trachea																									1
Alveolar/bronchiolar carcinoma, metastatic, lung																									1
Special Senses System																									
Harderian gland				+				+																	2
Adenoma				X				X																	2
Urinary System																									
Kidney	+																								3
Alveolar/bronchiolar carcinoma, metastatic, lung																									1
Systemic Lesions																									
Multiple organs	+		+	+	+			+		+		+	+	+	+		+	+	+			+		+	31
Lymphoma malignant lymphocytic																									1
Lymphoma malignant mixed					X																	X			4
Lymphoma malignant undifferentiated cell type	X																								3

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg

Number of Days on Study	0 0 1 1 1 2 2 3 4 5 5 6 6 6 6 7 7 7 7 7 7 7 7 7 7
	0 1 3 4 4 0 4 1 2 7 9 2 4 5 7 0 3 3 3 3 3 3 3 3 3
	6 5 3 0 1 9 1 0 9 4 0 8 1 3 9 8 0 0 0 0 0 0 0 0 0
Carcass ID Number	5 6 5 5 5 5 5 5 4 5 5 5 4 5 5 5 4 5 5 5 5 5 5 5 6
	8 0 1 2 5 1 8 7 9 0 7 2 9 4 5 5 9 0 0 6 7 7 9 9 0
	1 1 1 1 1 2 2 1 1 4 2 4 3 2 2 3 4 3 5 5 4 5 2 4 3
Alimentary System	
Esophagus	+ +
Gallbladder	+ A + A A A A + + + A A + + A + + + + + + + + + +
Sarcoma, metastatic, epididymis	X
Intestine large	+ +
Intestine large, cecum	+ A + A A + + + + + + + + + M A + + + + + + + + +
Intestine large, colon	+ + + A A + + + + + + + + + M + + + + + + + + + +
Intestine large, rectum	+ + + + + + + + + + + I + + + + + + + + + + + + +
Intestine small	+ +
Intestine small, duodenum	+ A + A A A A + + A + + + + + + + + + + + + + + +
Intestine small, ileum	+ A + A A A M + + A + + + + + + + + + + + + + + +
Intestine small, jejunum	+ A + A A A A + + A + + + + + + + + + + + + + + +
Adenocarcinoma	
Liver	+ +
Hemangioma	
Hepatocellular carcinoma	
Hepatocellular adenoma	X X
Pancreas	+ + + + + + + + + + M + + + + + + + + M + + + + +
Sarcoma, metastatic, epididymis	X
Salivary glands	+ +
Stomach	+ + + + + + + + + + + + + + + + + + + M + + + + +
Stomach, forestomach	+ + + M + + + + + + + + + + + + + + + M + + + + +
Papilloma squamous	
Stomach, glandular	+ + + M + + + + + + + + + + + + + + + M + + + + +
Tooth	
Cardiovascular System	
Heart	+ +
Endocrine System	
Adrenal gland	+ +
Adrenal gland, cortex	+ +
Adenoma	X
Sarcoma, metastatic, epididymis	X
Adrenal gland, medulla	+ +
Pheochromocytoma benign	
Islets, pancreatic	+ + + + + + + + + + M I + + + + + + + M + + + + +
Parathyroid gland	M + M M + + M M + M M + M + + + + + + + M + + + +
Pituitary gland	+ +
Thyroid gland	+ +

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	5 3 2	5 3 3	5 3 4	5 4 3	5 4 4	5 4 5	5 5 4	5 5 5	6 0 2	4 9 5	5 0 2	5 1 5	5 2 3	5 3 5	5 5 5	5 6 4	5 9 3	5 1 4	5 2 5	5 6 3	5 8 4	5 9 1	5 9 5	6 0 4	6 0 5	**Total Tissues/ Tumors**
Alimentary System																										
Esophagus	+	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Gallbladder	+	I	I	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	39
Sarcoma, metastatic, epididymis																										1
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	45
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	43
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	43
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	43
Adenocarcinoma																				X						1
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hemangioma														X												1
Hepatocellular carcinoma							X			X										X						3
Hepatocellular adenoma		X											X													4
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Sarcoma, metastatic, epididymis																										1
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Papilloma squamous														X												1
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Tooth										+																1
Cardiovascular System																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Endocrine System																										
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Adenoma																										1
Sarcoma, metastatic, epididymis																										1
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Pheochromocytoma benign												X						X								2
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Parathyroid gland	+	M	M	+	+	+	M	M	+	M	M	M	+	+	+	+	M	+	+	+	M	+	M	+	+	31
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	0	0	1	1	1	2	2	3	4	5	5	6	6	6	6	7	7	7	7	7	7	7	7	7
	0	1	3	4	4	0	4	1	2	7	9	2	4	5	7	0	3	3	3	3	3	3	3	3
	6	5	3	0	1	9	1	0	9	4	0	8	1	3	9	8	0	0	0	0	0	0	0	0
Carcass ID Number	5	6	5	5	5	5	5	5	4	5	5	5	4	5	5	5	4	5	5	5	5	5	5	6
	8	0	1	2	5	1	8	7	9	0	7	2	9	4	5	5	9	0	0	6	7	7	9	9	0
	1	1	1	1	1	2	2	1	1	4	2	4	3	2	2	3	4	3	5	5	4	5	2	4	3
General Body System																								
None																								
Genital System																								
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sarcoma													X											
Penis																								
Preputial gland								+																
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+
Sarcoma, metastatic, epididymis													X											
Seminal vesicle											+											+		
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sarcoma, metastatic, epididymis													X											
Hematopoietic System																								
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hemangiosarcoma, metastatic, spleen																								
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sarcoma, metastatic, epididymis													X											
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hemangioma																				X				
Hemangiosarcoma																								
Thymus	+	+	+	M	I	+	+	+	+	+	+	M	+	M	M	I	M	+	+	+	M	+	+	+	+
Integumentary System																								
Mammary gland	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Skin	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Subcutaneous tissue, neurofibrosarcoma																	X							
Subcutaneous tissue, sarcoma												X												
Subcutaneous tissue, sarcoma, metastatic, epididymis													X											
Musculoskeletal System																								
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	5 3 2	5 3 3	5 3 4	5 4 3	5 4 4	5 4 5	5 5 4	5 8 5	6 0 2	4 9 5	5 0 2	5 1 5	5 2 3	5 3 5	5 5 5	5 6 4	5 9 3	5 1 4	5 2 5	5 6 3	5 8 4	5 9 1	5 9 5	6 0 4	6 0 5	**Total Tissues/ Tumors**
General Body System																										
None																										
Genital System																										
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Sarcoma																										1
Penis				+																						1
Preputial gland																						+				2
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	48
Sarcoma, metastatic, epididymis																										1
Seminal vesicle																										2
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Sarcoma, metastatic, epididymis																										1
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hemangiosarcoma, metastatic, spleen																			X							1
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Sarcoma, metastatic, epididymis																										1
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hemangioma																										1
Hemangiosarcoma																			X							1
Thymus	+	+	M	+	+	M	M	+	+	+	+	+	M	+	+	+	M	M	+	+	+	+	+	I	+	35
Integumentary System																										
Mammary gland	M	M	M	M	M	M	M	M	M	M	+	M	M	M	M	M	M	M	M	M	M	M	M	M	M	1
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Subcutaneous tissue, neurofibrosarcoma																										1
Subcutaneous tissue, sarcoma																										1
Subcutaneous tissue, sarcoma, metastatic, epididymis																										1
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	0	0	1	1	1	2	2	3	4	5	5	6	6	6	6	7	7	7	7	7	7	7	7	7
	0	1	3	4	4	0	4	1	2	7	9	2	4	5	7	0	3	3	3	3	3	3	3	3
	6	5	3	0	1	9	1	0	9	4	0	8	1	3	9	8	0	0	0	0	0	0	0	0
Carcass ID Number	5	6	5	5	5	5	5	5	4	5	5	5	4	5	5	5	4	5	5	5	5	5	5	6
	8	0	1	2	5	1	8	7	9	0	7	2	9	4	5	5	9	0	0	6	7	7	9	9	0
	1	1	1	1	1	2	2	1	1	4	2	4	3	2	2	3	4	3	5	5	4	5	2	4	3
Nervous System																								
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Respiratory System																								
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Alveolar/bronchiolar adenoma						X										X						X	X	
Alveolar/bronchiolar adenoma, multiple																								
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Special Senses System																								
None																								
Urinary System																								
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sarcoma, metastatic, epididymis													X											
Renal tubule, adenoma																								
Urinary bladder	+	+	+	A	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hemangioma																				X				
Systemic Lesions																								
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymphoma malignant mixed																								

TABLE C2
Individual Animal Tumor Pathology of Male Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	5 3 2	5 3 3	5 3 4	5 4 3	5 4 4	5 4 5	5 5 4	5 8 5	6 0 2	4 9 5	5 0 2	5 1 5	5 2 3	5 3 5	5 5 5	5 6 4	5 9 3	5 1 4	5 2 5	5 6 3	5 8 4	5 9 1	5 9 5	6 0 4	6 0 5	**Total Tissues/ Tumors**
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Respiratory System																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Alveolar/bronchiolar adenoma													X													5
Alveolar/bronchiolar adenoma, multiple					X																				1	
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Special Senses System																										
None																										
Urinary System																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Sarcoma, metastatic, epididymis																										1
Renal tubule, adenoma														X												1
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Hemangioma																										1
Systemic Lesions																										
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymphoma malignant mixed	X												X													2

TABLE C3
Statistical Analysis of Primary Neoplasms in Male Mice in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Liver: Hepatocellular Adenoma			
Overall rates[a]	6/50 (12%)	7/16 (44%)[e]	4/50 (8%)
Adjusted rates[b]	15.1%		11.3%
Terminal rates[c]	4/37 (11%)		3/34 (9%)
First incidence (days)	700		653
Life table tests[d]			P=0.444N
Logistic regression tests[d]			P=0.475N
Fisher exact test[d]			P=0.370N
Liver: Hepatocellular Carcinoma			
Overall rates	6/50 (12%)	4/16 (25%)[e]	3/50 (6%)
Adjusted rates	14.6%		8.8%
Terminal rates	3/37 (8%)		3/34 (9%)
First incidence (days)	635		730 (T)
Life table tests			P=0.302N
Logistic regression tests			P=0.326N
Fisher exact test			P=0.243N
Liver: Hepatocellular Adenoma or Carcinoma			
Overall rates	12/50 (24%)	11/16 (69%)[e]	7/50 (14%)
Adjusted rates	28.3%		19.9%
Terminal rates	7/37 (19%)		6/34 (18%)
First incidence (days)	635		653
Life table tests			P=0.236N
Logistic regression tests			P=0.261N
Fisher exact test			P=0.154N
Lung: Alveolar/bronchiolar Adenoma			
Overall rates	5/50 (10%)	4/7 (57%)[e]	6/50 (12%)
Adjusted rates	13.5%		16.2%
Terminal rates	5/37 (14%)		4/34 (12%)
First incidence (days)	730 (T)		209
Life table tests			P=0.436
Logistic regression tests			P=0.458
Fisher exact test			P=0.500
Lung: Alveolar/bronchiolar Adenoma or Carcinoma			
Overall rates	6/50 (12%)	6/7 (86%)[e]	6/50 (12%)
Adjusted rates	15.3%		16.2%
Terminal rates	5/37 (14%)		4/34 (12%)
First incidence (days)	517		209
Life table tests			P=0.548
Logistic regression tests			P=0.613
Fisher exact test			P=0.620N

TABLE C3
Statistical Analysis of Primary Neoplasms in Male Mice in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Skin (Subcutaneous Tissue): Sarcoma			
Overall rates	6/50 (12%)	5/50 (10%)	1/50 (2%)
Adjusted rates	14.5%	10.7%	2.6%
Terminal rates	3/37 (8%)	2/43 (5%)	0/34 (0%)
First incidence (days)	628	651	628
Life table tests	P=0.070N	P=0.421N	P=0.088N
Logistic regression tests	P=0.057N	P=0.533N	P=0.073N
Cochran-Armitage test[d]	P=0.049N		
Fisher exact test		P=0.500N	P=0.056N
Skin (Subcutaneous Tissue): Fibroma or Sarcoma			
Overall rates	8/50 (16%)	6/50 (12%)	1/50 (2%)
Adjusted rates	18.9%	12.9%	2.6%
Terminal rates	4/37 (11%)	3/43 (7%)	0/34 (0%)
First incidence (days)	628	651	628
Life table tests	P=0.026N	P=0.308N	P=0.034N
Logistic regression tests	P=0.020N	P=0.409N	P=0.026N
Cochran-Armitage test	P=0.015N		
Fisher exact test		P=0.387N	P=0.015N
Stomach (Forestomach): Squamous Papilloma			
Overall rates	3/50 (6%)	0/50 (0%)	1/50 (2%)
Adjusted rates	7.9%	0.0%	2.9%
Terminal rates	2/37 (5%)	0/43 (0%)	1/34 (3%)
First incidence (days)	724	-[f]	730 (T)
Life table tests	P=0.190N	P=0.099N	P=0.340N
Logistic regression tests	P=0.203N	P=0.104N	P=0.362N
Cochran-Armitage test	P=0.177N		
Fisher exact test		P=0.121N	P=0.309N
All Organs: Hemangioma			
Overall rates	1/50 (2%)	0/50 (0%)	3/50 (6%)
Adjusted rates	2.7%	0.0%	8.8%
Terminal rates	1/37 (3%)	0/43 (0%)	3/34 (9%)
First incidence (days)	730 (T)	-	730 (T)
Life table tests	P=0.150	P=0.470N	P=0.275
Logistic regression tests	P=0.150	P=0.470N	P=0.275
Cochran-Armitage test	P=0.175		
Fisher exact test		P=0.500N	P=0.309
All Organs: Hemangioma or Hemangiosarcoma			
Overall rates	1/50 (2%)	0/50 (0%)	4/50 (8%)
Adjusted rates	2.7%	0.0%	11.8%
Terminal rates	1/37 (3%)	0/43 (0%)	4/34 (12%)
First incidence (days)	730 (T)	-	730 (T)
Life table tests	P=0.064	P=0.470N	P=0.154
Logistic regression tests	P=0.064	P=0.470N	P=0.154
Cochran-Armitage test	P=0.081		
Fisher exact test		P=0.500N	P=0.181

TABLE C3
Statistical Analysis of Primary Neoplasms in Male Mice in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
All Organs: Malignant Lymphoma (Lymphocytic, Mixed, or Undifferentiated Cell Type)			
Overall rates	4/50 (8%)	8/50 (16%)	2/50 (4%)
Adjusted rates	10.3%	18.6%	5.9%
Terminal rates	3/37 (8%)	8/43 (19%)	2/34 (6%)
First incidence (days)	711	730 (T)	730 (T)
Life table tests	P=0.346N	P=0.256	P=0.385N
Logistic regression tests	P=0.385N	P=0.226	P=0.417N
Cochran-Armitage test	P=0.302N		
Fisher exact test		P=0.178	P=0.339N
All Organs: Benign Tumors			
Overall rates	21/50 (42%)	15/50 (30%)	15/50 (30%)
Adjusted rates	51.0%	34.0%	40.2%
Terminal rates	17/37 (46%)	14/43 (33%)	12/34 (35%)
First incidence (days)	695	686	209
Life table tests	P=0.201N	P=0.062N	P=0.257N
Logistic regression tests	P=0.250N	P=0.084N	P=0.306N
Cochran-Armitage test	P=0.123N		
Fisher exact test		P=0.149N	P=0.149N
All Organs: Malignant Tumors			
Overall rates	18/50 (36%)	19/50 (38%)	9/50 (18%)
Adjusted rates	39.7%	39.6%	24.0%
Terminal rates	10/37 (27%)	14/43 (33%)	6/34 (18%)
First incidence (days)	517	651	628
Life table tests	P=0.080N	P=0.475N	P=0.093N
Logistic regression tests	P=0.067N	P=0.475	P=0.072N
Cochran-Armitage test	P=0.032N		
Fisher exact test		P=0.500	P=0.035N
All Organs: Benign and Malignant Tumors			
Overall rates	33/50 (66%)	29/50 (58%)	22/50 (44%)
Adjusted rates	70.2%	60.4%	56.2%
Terminal rates	23/37 (62%)	24/43 (56%)	17/34 (50%)
First incidence (days)	517	651	209
Life table tests	P=0.079N	P=0.112N	P=0.107N
Logistic regression tests	P=0.072N	P=0.212N	P=0.090N
Cochran-Armitage test	P=0.017N		
Fisher exact test		P=0.268N	P=0.022N

(T)Terminal sacrifice
[a] Number of tumor-bearing animals/number of animals examined. Denominator is number of animals examined microscopically for adrenal gland, bone marrow, brain, clitoral gland, epididymis, gallbladder (mouse), heart, kidney, larynx, liver, lung, nose, ovary, pancreas, parathyroid gland, pituitary gland, preputial gland, prostate gland, salivary gland, spleen, testes, thyroid gland, and urinary bladder; for other tissues, denominator is number of animals necropsied.
[b] Kaplan-Meier estimated tumor incidence at the end of the study after adjustment for intercurrent mortality
[c] Observed incidence at terminal kill
[d] Beneath the control incidence are the P values associated with the trend test. Beneath the dosed group incidence are the P values corresponding to pairwise comparisons between the controls and that dosed group. The life table analysis regards tumors in animals dying prior to terminal kill as being (directly or indirectly) the cause of death. The logistic regression tests regard these lesions as nonfatal. The Cochran-Armitage and Fisher exact tests compare directly the overall incidence rates. For all tests, a negative trend or a lower incidence in a dose group is indicated by N.
[e] Tissue was examined microscopically only when it was observed to be abnormal at necropsy; thus, statistical comparisons with the controls are not appropriate.
[f] Not applicable; no tumors in animal group

TABLE C4
Summary of the Incidence of Nonneoplastic Lesions in Male Mice in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Disposition Summary			
Animals initially in study	60	60	60
15-Month interim evaluation	10	10	10
Early deaths			
Natural deaths	6	3	11
Moribund kills	6	4	3
Accidental deaths	1		2
Survivors			
Terminal sacrifice	36	43	34
Moribund	1		
Animals examined microscopically	50	50	50
Alimentary System			
Esophagus	(50)		(49)
Serosa, inflammation, subacute			1 (2%)
Gallbladder	(41)		(39)
Cyst			1 (3%)
Intestine large, cecum	(49)		(45)
Parasite metazoan			1 (2%)
Intestine large, colon	(48)		(47)
Parasite metazoan	2 (4%)		
Intestine large, rectum	(47)		(49)
Inflammation, acute, focal			1 (2%)
Intestine small	(50)	(5)	(50)
Diverticulum		1 (20%)	
Intestine small, duodenum	(47)	(2)	(43)
Amyloid deposition, chronic, diffuse			1 (2%)
Intestine small, jejunum	(46)	(4)	(43)
Diverticulum	1 (2%)	3 (75%)	
Hyperplasia, lymphoid, focal	1 (2%)		
Liver	(50)	(16)	(50)
Basophilic focus	3 (6%)		1 (2%)
Hematopoietic cell proliferation, multifocal	1 (2%)		
Inclusion body intranuclear, diffuse	1 (2%)		
Infarct	1 (2%)	1 (6%)	
Infiltration cellular, mononuclear cell, focal			1 (2%)
Infiltration cellular, mononuclear cell, multifocal			1 (2%)
Karyomegaly, diffuse	1 (2%)		
Mixed cell focus		1 (6%)	2 (4%)
Necrosis, acute, focal	2 (4%)		
Necrosis, acute, multifocal			1 (2%)
Centrilobular, fatty change	2 (4%)		2 (4%)
Centrilobular, necrosis, acute, diffuse			1 (2%)
Pancreas	(50)		(48)
Atrophy, focal	1 (2%)		
Edema, acute, diffuse			1 (2%)
Hyperplasia, glandular, focal			1 (2%)
Inflammation, chronic, multifocal			1 (2%)

TABLE C4
Summary of the Incidence of Nonneoplastic Lesions in Male Mice in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Alimentary System (continued)			
Salivary glands	(50)		(50)
Infiltration cellular, mononuclear cell, focal	2 (4%)		1 (2%)
Infiltration cellular, mononuclear cell, multifocal	17 (34%)		16 (32%)
Stomach, forestomach	(49)		(46)
Cyst	1 (2%)		
Cyst epithelial inclusion			2 (4%)
Diverticulum, focal	1 (2%)		
Hyperplasia, squamous, focal	2 (4%)		2 (4%)
Inflammation, chronic, focal	1 (2%)		2 (4%)
Stomach, glandular	(47)		(47)
Cyst, focal	1 (2%)		
Cyst epithelial inclusion, focal	1 (2%)		
Degeneration, cystic, focal	1 (2%)		
Edema, diffuse			1 (2%)
Erosion, focal	1 (2%)		
Hyperplasia, focal			1 (2%)
Hyperplasia, adenomatous			1 (2%)
Tooth	(6)		(1)
Inflammation, chronic	6 (100%)		1 (100%)
Cardiovascular System			
Heart	(50)	(1)	(50)
Infiltration cellular, mononuclear cell, focal			1 (2%)
Inflammation, chronic, focal			1 (2%)
Atrium, thrombus	1 (2%)		
Endocrine System			
Adrenal gland, cortex	(49)		(49)
Cytoplasmic alteration, focal			1 (2%)
Hyperplasia, focal	3 (6%)		1 (2%)
Hypertrophy, focal	5 (10%)		8 (16%)
Hypertrophy, multifocal	1 (2%)		
Spindle cell, hyperplasia, focal	1 (2%)		
Adrenal gland, medulla	(47)		(49)
Hyperplasia, multifocal	1 (2%)		
Islets, pancreatic	(50)	(1)	(47)
Hyperplasia, focal	3 (6%)		
Parathyroid gland	(20)		(31)
Cyst			1 (3%)
Pituitary gland	(45)		(50)
Pars distalis, cyst	2 (4%)		3 (6%)
Thyroid gland	(49)		(50)
Cyst	1 (2%)		
Depletion secretory			1 (2%)
Hemorrhage, acute, focal			1 (2%)
Inflammation, subacute			1 (2%)
C-cell, hyperplasia, chronic, focal			1 (2%)
Follicular cell, hyperplasia	1 (2%)		1 (2%)

TABLE C4
Summary of the Incidence of Nonneoplastic Lesions in Male Mice in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
General Body System			
None			
Genital System			
Epididymis	(50)		(50)
Infiltration cellular, mononuclear cell, focal	1 (2%)		
Penis	(1)		(1)
Congestion	1 (100%)		1 (100%)
Inflammation, chronic	1 (100%)		
Preputial gland	(2)	(3)	(2)
Abscess	1 (50%)	3 (100%)	1 (50%)
Inflammation, chronic	1 (50%)		1 (50%)
Prostate	(49)		(48)
Dilatation			1 (2%)
Seminal vesicle			(2)
Dilatation			2 (100%)
Inflammation, chronic, diffuse			1 (50%)
Testes	(50)	(1)	(50)
Atrophy, diffuse	1 (2%)	1 (100%)	1 (2%)
Degeneration, diffuse			1 (2%)
Granuloma sperm, focal	1 (2%)		
Mineralization, focal	2 (4%)		
Hematopoietic System			
Lymph node	(49)	(8)	(50)
Congestion		1 (13%)	
Hematopoietic cell proliferation, diffuse			1 (2%)
Hyperplasia, lymphoid	1 (2%)		
Infiltration cellular, histiocytic	1 (2%)		
Pigmentation		1 (13%)	
Thrombus			1 (2%)
Thoracic, angiectasis		1 (13%)	
Lymph node, mesenteric	(48)	(5)	(50)
Congestion, diffuse	5 (10%)		
Ectasia, diffuse			3 (6%)
Giant cell, diffuse	6 (13%)		2 (4%)
Hematopoietic cell proliferation, diffuse	2 (4%)		
Hemorrhage, diffuse	2 (4%)		
Hyperplasia, lymphoid	2 (4%)		
Hyperplasia, re cell, diffuse			1 (2%)
Spleen	(49)	(4)	(50)
Hematopoietic cell proliferation, diffuse	10 (20%)	3 (75%)	4 (8%)
Hyperplasia, lymphoid			4 (8%)
Thymus	(24)		(35)
Atrophy, diffuse			2 (6%)
Cyst	2 (8%)		1 (3%)
Mediastinum, inflammation, acute			1 (3%)
Medulla, hyperplasia, lymphoid, focal			1 (3%)

TABLE C4
Summary of the Incidence of Nonneoplastic Lesions in Male Mice in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Integumentary System			
Skin	(49)	(9)	(49)
Abscess	1 (2%)		
Cyst	1 (2%)		
Edema, acute, diffuse			1 (2%)
Inflammation, chronic	6 (12%)	3 (33%)	4 (8%)
Inflammation, subacute			1 (2%)
Hair follicle, atrophy, focal	1 (2%)		
Musculoskeletal System			
Bone	(50)		(50)
Cartilage, proliferation, chronic, focal			1 (2%)
Coccygeal, hyperostosis	1 (2%)		
Cranium, inflammation, chronic	1 (2%)		
Nervous System			
Brain	(50)		(50)
Demyelination, multifocal	1 (2%)		
Hemorrhage, focal	1 (2%)		
Hydrocephalus			1 (2%)
Infiltration cellular, mononuclear cell, multifocal			1 (2%)
Mineralization, multifocal	24 (48%)		24 (48%)
Respiratory System			
Lung	(50)	(7)	(50)
Congestion, diffuse	2 (4%)		5 (10%)
Hemorrhage, focal			1 (2%)
Hemorrhage, multifocal			1 (2%)
Hyperplasia, adenomatous, focal	4 (8%)	1 (14%)	1 (2%)
Infiltration cellular, mononuclear cell, focal	1 (2%)		
Infiltration cellular, mononuclear cell, multifocal	25 (50%)		26 (52%)
Infiltration cellular, histiocytic, diffuse	1 (2%)		1 (2%)
Infiltration cellular, histiocytic, multifocal			1 (2%)
Inflammation, chronic			1 (2%)
Pleura, inflammation, subacute			1 (2%)
Nose	(50)		(50)
Foreign body	8 (16%)		1 (2%)
Hyperplasia, glandular, focal			1 (2%)
Inflammation, acute	6 (12%)		3 (6%)
Inflammation, chronic	2 (4%)		
Special Senses System			
None			

TABLE C4
Summary of the Incidence of Nonneoplastic Lesions in Male Mice in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Urinary System			
Kidney	(50)	(3)	(50)
Cyst	2 (4%)		5 (10%)
Ectopic tissue			1 (2%)
Hyperplasia, tubular, focal	1 (2%)		1 (2%)
Hyperplasia, tubular, multifocal			1 (2%)
Infiltration cellular, mononuclear cell, focal	1 (2%)		
Infiltration cellular, mononuclear cell, multifocal	39 (78%)		36 (72%)
Inflammation, chronic			1 (2%)
Nephropathy, diffuse	1 (2%)		3 (6%)
Vacuolization cytoplasmic, multifocal			1 (2%)
Cortex, degeneration, hyaline, diffuse	1 (2%)		1 (2%)
Cortex, vacuolization cytoplasmic, multifocal			1 (2%)
Glomerulus, amyloid deposition, diffuse			1 (2%)
Glomerulus, inflammation, suppurative, subacute, diffuse	1 (2%)		
Proximal convoluted renal tubule, degeneration, focal			1 (2%)
Proximal convoluted renal tubule, dilatation, diffuse		1 (33%)	
Urinary bladder	(49)		(48)
Concretion	6 (12%)		2 (4%)
Edema, acute, diffuse			1 (2%)
Infiltration cellular, mononuclear cell, multifocal			1 (2%)
Inflammation, acute, diffuse	1 (2%)		
Inflammation, chronic, diffuse	1 (2%)		

APPENDIX D
SUMMARY OF LESIONS IN FEMALE MICE IN THE 2-YEAR GAVAGE STUDY OF RESORCINOL

TABLE D1
Summary of the Incidence of Neoplasms in Female Mice in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Disposition Summary			
Animals initially in study	60	60	60
15-Month interim evaluation	10	10	10
Early deaths			
Natural deaths	9	8	11
Moribund kills	2	7	5
Accidental deaths	1	2	
Survivors			
Terminal sacrifice	37	33	34
Moribund	1		
Animals examined microscopically	50	50	50
Alimentary System			
Esophagus	(50)		(49)
Gallbladder	(43)		(39)
Intestine large, cecum	(48)	(1)	(44)
Intestine large, colon	(50)	(1)	(48)
Intestine large, rectum	(49)	(1)	(50)
Intestine small, duodenum	(47)	(2)	(42)
Intestine small, ileum	(44)	(1)	(41)
Intestine small, jejunum	(47)	(2)	(42)
Liver	(50)	(5)	(50)
Fibrosarcoma, metastatic, skin	1 (2%)		
Hemangiosarcoma, metastatic, spleen	1 (2%)		
Hepatocellular carcinoma	1 (2%)	1 (20%)	3 (6%)
Hepatocellular adenoma	1 (2%)		2 (4%)
Mesentery	(1)	(1)	(2)
Pancreas	(48)		(48)
Salivary glands	(48)		(47)
Stomach, forestomach	(49)	(3)	(46)
Papilloma squamous		1 (33%)	1 (2%)
Papilloma squamous, multiple			1 (2%)
Stomach, glandular	(50)		(46)
Tooth	(1)		(1)
Cardiovascular System			
Heart	(50)	(1)	(49)
Endocrine System			
Adrenal gland, cortex	(48)		(49)
Adenoma			1 (2%)
Adrenal gland, medulla	(47)		(48)
Islets, pancreatic	(48)		(46)
Adenoma	1 (2%)		
Pituitary gland	(48)	(7)	(50)
Pars distalis, adenoma	8 (17%)	5 (71%)	10 (20%)
Pars intermedia, adenoma	1 (2%)	1 (14%)	
Thyroid gland	(49)		(49)
Follicular cell, adenocarcinoma			1 (2%)
Follicular cell, adenoma	1 (2%)		1 (2%)

TABLE D1
Summary of the Incidence of Neoplasms in Female Mice in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
General Body System			
None			
Genital System			
Ovary	(49)	(11)	(49)
Cystadenoma			2 (4%)
Luteoma	2 (4%)		
Teratoma		1 (9%)	
Uterus	(50)	(36)	(50)
Leiomyoma	1 (2%)		
Polyp stromal	2 (4%)		1 (2%)
Squamous cell carcinoma			1 (2%)
Hematopoietic System			
Bone marrow	(50)		(50)
Hemangiosarcoma, metastatic, spleen	1 (2%)		
Lymph node	(50)	(7)	(50)
Hemangiosarcoma, metastatic, spleen	1 (2%)		
Lymph node, mesenteric	(47)	(6)	(48)
Spleen	(50)	(12)	(49)
Hemangiosarcoma	1 (2%)		
Thymus	(43)	(1)	(39)
Integumentary System			
Mammary gland	(50)	(1)	(48)
Adenocarcinoma		1 (100%)	2 (4%)
Skin	(49)	(6)	(50)
Subcutaneous tissue, fibrosarcoma	1 (2%)		
Subcutaneous tissue, mast cell tumor benign	1 (2%)		
Musculoskeletal System			
Bone	(50)		(50)
Osteosarcoma	1 (2%)		
Nervous System			
Brain	(49)		(50)
Respiratory System			
Lung	(50)	(7)	(49)
Alveolar/bronchiolar adenoma			1 (2%)
Alveolar/bronchiolar carcinoma		3 (43%)	
Fibrosarcoma, metastatic, skin	1 (2%)		
Hepatocellular carcinoma, metastatic, liver	1 (2%)		
Osteosarcoma, metastatic, bone	1 (2%)		
Nose	(50)		(50)
Papilloma			1 (2%)

TABLE D1
Summary of the Incidence of Neoplasms in Female Mice in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Special Senses System			
Harderian gland			(3)
Adenocarcinoma			1 (33%)
Adenoma			1 (33%)
Urinary System			
Kidney	(50)	(3)	(50)
Cortex, adenoma, tubular	1 (2%)		
Urinary bladder	(48)		(45)
Systemic Lesions			
Multiple organs[a]	(50)	(50)	(50)
Lymphoma malignant histiocytic		1 (2%)	
Lymphoma malignant lymphocytic	4 (8%)	2 (4%)	2 (4%)
Lymphoma malignant mixed	10 (20%)	5 (10%)	8 (16%)
Lymphoma malignant undifferentiated cell	11 (22%)	4 (8%)	12 (24%)
Tumor Summary			
Total animals with primary neoplasms[b]	35	21	33
Total primary neoplasms	48	25	52
Total animals with benign neoplasms	16	8	16
Total benign neoplasms	19	8	22
Total animals with malignant neoplasms	29	17	27
Total malignant neoplasms	29	17	30
Total animals with metastatic neoplasms	4		
Total metastatic neoplasms	7		

[a] Number of animals with any tissue examined microscopically
[b] Primary tumors: all tumors except metastatic tumors

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control

Number of Days on Study	1 2 7	3 9 3	5 0 0	6 1 7	6 2 0	6 2 2	6 2 5	6 3 9	6 7 2	6 9 7	7 1 5	7 2 7	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 3	7 3 3	7 3 3
Carcass ID Number	2 1 1	1 8 1	1 6 2	1 5 5	1 4 2	2 4 2	2 3 4	2 0 2	2 2 3	2 4 5	2 2 5	1 5 4	1 4 4	1 6 4	1 7 2	1 8 5	1 9 3	1 9 5	2 1 4	2 3 3	2 4 3	1 5 2	1 3 4	1 5 1	1 6 3
Alimentary System																									
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gallbladder	A	A	+	+	A	A	A	+	+	A	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	+	+	+	+	+	M	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, rectum	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	+	A	+	+	+	+	A	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, ileum	+	A	+	A	A	+	+	+	+	A	+	A	+	+	+	+	+	+	+	+	+	A	+	+	+
Intestine small, jejunum	+	A	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	A	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Fibrosarcoma, metastatic, skin										X															
Hemangiosarcoma, metastatic, spleen				X																					
Hepatocellular carcinoma														X											
Hepatocellular adenoma																									
Mesentery																									
Pancreas	+	A	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+
Salivary glands	+	+	+	+	+	M	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tooth																						+			
Cardiovascular System																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Endocrine System																									
Adrenal gland	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, medulla	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Islets, pancreatic	+	A	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma																									
Parathyroid gland	+	M	M	+	+	M	+	M	+	M	+	M	M	M	M	+	+	+	M	M	+	+	+	+	M
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars distalis, adenoma																		X	X	X					
Pars intermedia, adenoma																									
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Follicular cell, adenoma																									

+: Tissue examined microscopically
A: Autolysis precludes examination
M: Missing tissue
I: Insufficient tissue
X: Lesion present
Blank: Not examined

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 5	7 5 5	7 5 5	7 5 5	7 5 5	7 5 5	7 5 5	7 5 5	7 5 5	
Carcass ID Number	1 7 4	1 8 3	1 8 4	2 0 3	2 1 2	2 1 5	1 3 2	1 3 3	1 3 5	1 7 5	1 9 4	2 0 4	2 1 3	2 2 2	2 2 4	2 4 4	1 4 3	1 4 5	1 5 3	1 6 5	1 7 3	1 9 2	2 0 5	2 3 2	2 3 5	**Total Tissues/ Tumors**
Alimentary System																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Gallbladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	43
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	44
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Fibrosarcoma, metastatic, skin																										1
Hemangiosarcoma, metastatic, spleen																										1
Hepatocellular carcinoma																										1
Hepatocellular adenoma																					X					1
Mesentery				+																						1
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Tooth																										1
Cardiovascular System																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Endocrine System																										
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	48
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+	48
Adrenal gland, medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+		+	+	+	+	+	+	+	+	47
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Adenoma																X										1
Parathyroid gland	+	M	M	+	M	+	M	M	M	M	+	M	+	+	M	+	+	M	+	I	+	M	+	I	M	24
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	48
Pars distalis, adenoma						X	X							X							X	X				8
Pars intermedia, adenoma												X														1
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Follicular cell, adenoma										X																1

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	1 2 7	3 9 3	5 0 0	6 1 7	6 2 0	6 2 2	6 2 5	6 3 9	6 7 2	6 9 7	7 1 5	7 2 7	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 3	7 3 3	7 3 3
Carcass ID Number	2 1 1	1 8 1	1 6 2	1 5 5	1 4 2	2 4 2	2 3 4	2 0 2	2 2 3	2 4 5	2 2 5	1 5 4	1 4 4	1 6 4	1 7 2	1 8 5	1 9 3	1 9 5	2 1 4	2 3 3	2 4 3	1 5 2	1 3 4	1 5 1	1 6 3
General Body System																								
None																								
Genital System																								
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+
Luteoma																								
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Leiomyoma																								
Polyp stromal																			X					
Hematopoietic System																								
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hemangiosarcoma, metastatic, spleen				X																				
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hemangiosarcoma, metastatic, spleen				X																				
Lymph node, mesenteric	+	+	+	+	+	+		+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hemangiosarcoma				X																				
Thymus	+	M	M	+	M	+	+	+	+	+	+	+	+	M	I	+	+	+	M	+	+	+	+	+
Integumentary System																								
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Subcutaneous tissue, fibrosarcoma										X														
Subcutaneous tissue, mast cell tumor benign																								
Musculoskeletal System																								
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Osteosarcoma							X																	
Nervous System																								
Brain	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	1 7 4	1 8 3	1 8 4	2 0 3	2 1 2	2 1 5	1 3 2	1 3 3	1 3 5	1 7 5	1 9 4	2 0 4	2 1 3	2 2 2	2 2 4	2 4 4	1 4 3	1 4 5	1 5 3	1 6 5	1 7 3	1 9 2	2 0 5	2 3 2	2 3 5	**Total Tissues/ Tumors**
General Body System																									
None																									
Genital System																									
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Luteoma	X																							X	2
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Leiomyoma													X												1
Polyp stromal	X																								2
Hematopoietic System																									
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hemangiosarcoma, metastatic, spleen																									1
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hemangiosarcoma, metastatic, spleen																									1
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	47
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hemangiosarcoma																									1
Thymus	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	43
Integumentary System																									
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	49
Subcutaneous tissue, fibrosarcoma																									1
Subcutaneous tissue, mast cell tumor benign								X																	1
Musculoskeletal System																									
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Osteosarcoma																									1
Nervous System																									
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	1 2 7	3 9 3	5 0 0	6 1 7	6 2 0	6 2 2	6 2 5	6 3 9	6 7 2	6 9 7	7 1 5	7 2 7	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 1	7 3 3	7 3 3	7 3 3
Carcass ID Number	2 1 1	1 8 1	1 6 2	1 5 5	1 4 2	2 4 2	2 3 4	2 0 2	2 2 3	2 4 5	2 2 5	1 5 4	1 4 4	1 6 4	1 7 2	1 8 5	1 9 3	1 9 5	2 1 4	2 3 3	2 4 3	1 5 2	1 3 4	1 5 1	1 6 3
Respiratory System																								
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Fibrosarcoma, metastatic, skin										X														
Hepatocellular carcinoma, metastatic, liver														X										
Osteosarcoma, metastatic, bone							X																	
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Special Senses System																								
Eye			+																					
Urinary System																								
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cortex, adenoma, tubular																							X	
Urinary bladder	+	A	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Systemic Lesions																								
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymphoma malignant lymphocytic								X	X													X		
Lymphoma malignant mixed						X					X	X					X		X				X	
Lymphoma malignant undifferentiated cell type																X								

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: Vehicle Control
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 4 4	7 5 5	7 5 5	7 5 5	7 5 5	7 5 5	7 5 5	7 5 5	7 5 5	
Carcass ID Number	1 7 4	1 8 3	1 8 4	2 0 3	2 1 2	2 1 5	1 3 2	1 3 3	1 3 5	1 7 5	1 9 4	2 0 4	2 1 3	2 2 2	2 2 4	2 4 4	1 4 3	1 4 5	1 5 3	1 5 5	1 6 5	1 7 3	1 9 2	2 0 5	2 3 2	2 3 5	**Total Tissues/ Tumors**
Respiratory System																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Fibrosarcoma, metastatic, skin																										1
Hepatocellular carcinoma, metastatic, liver																										1
Osteosarcoma, metastatic, bone																										1
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Special Senses System																										
Eye																					M	+				2
Urinary System																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Cortex, adenoma, tubular																										1
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Systemic Lesions																										
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymphoma malignant lymphocytic					X																					4
Lymphoma malignant mixed							X			X							X						X			10
Lymphoma malignant undifferentiated cell type	X								X			X			X	X			X	X		X			X	11

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 112 mg/kg

Number of Days on Study	0 0 1 2 4 5 6 6 6 6 6 6 6 6 6 7 7 7 7 7 7 7 7 7 0 0 2 6 8 8 0 0 0 0 2 3 6 8 9 9 1 3 3 3 3 3 3 3 3 5 7 4 0 4 2 0 1 4 4 6 9 6 2 9 9 5 0 0 0 0 0 0 0 0
Carcass ID Number	4 4 3 4 4 4 4 4 3 4 4 4 3 3 4 4 4 3 3 3 4 4 4 4 4 1 5 9 3 5 4 2 7 7 4 0 8 7 7 0 7 4 7 8 9 2 4 6 6 8 1 1 1 1 4 3 1 5 3 5 3 4 5 2 4 2 1 4 5 3 2 4 4 5 3
Alimentary System	
Intestine large	
Intestine large, cecum	
Intestine large, colon	
Intestine large, rectum	
Intestine small	+
Intestine small, duodenum	+
Intestine small, ileum	
Intestine small, jejunum	
Liver	+
Hepatocellular carcinoma	
Mesentery	+
Stomach	+
Stomach, forestomach	+
Papilloma squamous	
Cardiovascular System	
Heart	+
Endocrine System	
Adrenal gland	
Pituitary gland	+ + + +
Pars distalis, adenoma	X X
Pars intermedia, adenoma	X
General Body System	
None	
Genital System	
Ovary	+ + +
Teratoma	
Uterus	+ + + + + + + + + + + + +
Hematopoietic System	
Lymph node	+ + + + + + + +
Lymph node, mesenteric	+ + + + + + +
Spleen	+ + + + + + + + + + +
Thymus	+

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	7 3 0	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	4 8 5	3 9 4	4 1 2	4 2 4	4 2 5	4 4 2	4 5 5	4 7 1	4 7 4	3 8 4	3 9 2	3 9 5	4 1 3	4 1 4	4 3 4	4 3 5	4 8 2	3 8 3	4 0 2	4 0 5	4 1 5	4 2 3	4 6 2	4 6 3	4 7 3	**Total Tissues/ Tumors**
Alimentary System																										
Intestine large								+																		1
Intestine large, cecum								+																		1
Intestine large, colon								+																		1
Intestine large, rectum								+																		1
Intestine small								+		+																3
Intestine small, duodenum								+																		2
Intestine small, ileum								+																		1
Intestine small, jejunum								+		+																2
Liver								+	+	+												+				5
Hepatocellular carcinoma									X																	1
Mesentery																										1
Stomach												+		+												3
Stomach, forestomach												+		+												3
Papilloma squamous												X														1
Cardiovascular System																										
Heart																										1
Endocrine System																										
Adrenal gland																										
Pituitary gland		+										+									+					7
Pars distalis, adenoma		X										X									X					5
Pars intermedia, adenoma																										1
General Body System																										
None																										
Genital System																										
Ovary	+			+		+				+	+	+			+			+								11
Teratoma										X																1
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	36
Hematopoietic System																										
Lymph node																										7
Lymph node, mesenteric																										6
Spleen									+															+		12
Thymus																										1

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	0 0 1 2 4 5 6 6 6 6 6 6 6 6 6 7 7 7 7 7 7 7 7 7 0 0 2 6 8 8 0 0 0 0 2 3 6 8 9 9 1 3 3 3 3 3 3 3 3 5 7 4 0 4 2 0 1 4 4 6 9 6 2 9 9 5 0 0 0 0 0 0 0 0
Carcass ID Number	4 4 3 4 4 4 4 4 3 4 4 4 3 3 4 4 4 3 3 3 4 4 4 4 4 1 5 9 3 5 4 2 7 7 4 0 8 7 7 0 7 4 7 8 9 2 4 6 6 8 1 1 1 1 4 3 1 5 3 5 3 4 5 2 4 2 1 4 5 3 2 4 4 5 3
Integumentary System	
Mammary gland	
Adenocarcinoma	
Skin	+ + + + +																								
Musculoskeletal System	
Skeletal muscle	+																								
Nervous System	
None																									
Respiratory System	
Lung	+ +												+		+						+				
Alveolar/bronchiolar carcinoma																					X				
Special Senses System	
None																									
Urinary System	
Kidney				+						+	+														
Systemic Lesions	
Multiple organs	+ +			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymphoma malignant histiocytic															X										
Lymphoma malignant lymphocytic										X	X														
Lymphoma malignant mixed					X	X							X					X				X			
Lymphoma malignant undifferentiated cell type							X									X									

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 112 mg/kg
(continued)

Number of Days on Study	7 3 0	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	4 8 5	3 9 4	4 1 2	4 2 4	4 2 5	4 4 2	4 5 5	4 7 1	4 7 4	3 8 4	3 9 2	3 9 5	4 1 3	4 1 4	4 3 4	4 3 4	4 8 4	3 8 5	4 0 2	4 0 3	4 1 5	4 2 5	4 6 3	4 6 2	4 6 3	4 7 3	**Total Tissues/ Tumors**
Integumentary System																											
Mammary gland		+																									1
Adenocarcinoma		X																									1
Skin																	+										6
Musculoskeletal System																											
Skeletal muscle																											1
Nervous System																											
None																											
Respiratory System																											
Lung							+					+															7
Alveolar/bronchiolar carcinoma							X					X															3
Special Senses System																											
None																											
Urinary System																											
Kidney																											3
Systemic Lesions																											
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Lymphoma malignant histiocytic																											1
Lymphoma malignant lymphocytic																											2
Lymphoma malignant mixed																											5
Lymphoma malignant undifferentiated cell type										X															X		4

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg

Number of Days on Study	0 4 3	1 4 0	1 5 5	3 1 3	4 0 0	4 9 7	6 2 1	6 3 2	6 3 6	6 7 6	6 8 0	6 8 1	6 8 2	6 8 5	6 8 8	7 0 8	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0
Carcass ID Number	6 1 1	6 2 1	6 6 1	6 2 2	6 3 1	6 8 2	7 0 4	6 1 3	6 2 5	6 6 4	6 5 5	6 6 5	6 6 3	7 1 5	7 1 3	6 8 5	6 1 4	6 5 2	6 7 3	6 8 3	7 0 2	7 0 3	7 0 5	7 2 2	7 2 3
Alimentary System																								
Esophagus	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Gallbladder	A	A	A	+	A	+	A	+	+	A	M	+	+	A	A	A	+	+	+	+	+	+	+	+
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, cecum	A	A	A	+	A	A	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+
Intestine large, colon	+	A	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine small, duodenum	A	A	A	+	A	A	A	+	+	+	A	+	+	A	+	+	+	+	+	+	+	+	+	+
Intestine small, ileum	A	A	A	+	A	A	+	+	+	+	A	+	+	A	A	A	+	+	+	+	+	+	+	+
Intestine small, jejunum	A	A	A	+	+	A	+	+	+	+	A	+	+	A	A	A	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hepatocellular carcinoma						X																X		
Hepatocellular adenoma									X								X							
Mesentery																		+						
Pancreas	+	+	+	+	M	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Salivary glands	+	+	+	+	+	M	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, forestomach	+	+	A	+	+	I	+	+	+	+	M	+	+	+	+	+	+	+		+	+	+	+	+
Papilloma squamous																								
Papilloma squamous, multiple																								
Stomach, glandular	+	+	A	+	+	I	+	+	+	+	M	+	+	+	+	+	+	+		+	+	+	+	+
Tooth							+																	
Cardiovascular System																								
Heart	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Endocrine System																								
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adrenal gland, cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Adenoma																								
Adrenal gland, medulla	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Islets, pancreatic	+	+	A	+	M	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Parathyroid gland	M	M	M	+	+	+	M	+	M	M	M	+	M	M	M	M	M	+	M	+	M	M	+	+	M
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars distalis, adenoma																X							X	
Thyroid gland	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Follicular cell, adenocarcinoma																								
Follicular cell, adenoma																								X

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 4 4	7 3 4	7 3 4	7 4 4	7 4 4	7 3 4	7 4 4	7 3 5	7 5 5	7 3 5	7 5 5	7 3 5	7 5 5	7 3 5	7 5 5	7 3 5	
Carcass ID Number	6 2 4	6 3 4	6 4 2	6 4 3	6 7 4	6 8 4	6 9 1	6 9 5	7 2 4	6 1 2	6 1 5	6 3 3	6 4 5	6 5 3	6 9 2	6 9 3	7 1 2	6 3 5	6 4 4	6 5 1	6 5 4	6 7 5	6 9 4	7 1 4	7 2 5	**Total Tissues/ Tumors**
Alimentary System																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Gallbladder	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	39
Intestine large	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine large, cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	44
Intestine large, colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Intestine large, rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Intestine small, duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	42
Intestine small, ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	41
Intestine small, jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	42
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Hepatocellular carcinoma																	X									3
Hepatocellular adenoma																										2
Mesentery																+										2
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Salivary glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	47
Stomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Stomach, forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Papilloma squamous																			X							1
Papilloma squamous, multiple																X										1
Stomach, glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	46
Tooth																										1
Cardiovascular System																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Endocrine System																										
Adrenal gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Adrenal gland, cortex	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Adenoma														X												1
Adrenal gland, medulla	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Islets, pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	46
Parathyroid gland	M	M	M	+	M	M	+	M	M	+	M	M	M	+	M	+	+	+	M	M	M	+	+	+	+	20
Pituitary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Pars distalis, adenoma								X	X	X				X		X			X			X		X		10
Thyroid gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Follicular cell, adenocarcinoma																						X				1
Follicular cell, adenoma																										1

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	0 4 3	1 4 0	1 5 5	3 1 3	4 0 0	4 9 7	6 2 1	6 3 2	6 3 6	6 7 6	6 8 0	6 8 1	6 8 2	6 8 5	6 8 8	7 0 8	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0
Carcass ID Number	6 1 1	6 2 1	6 6 1	6 2 2	6 3 1	6 8 2	7 0 4	6 1 3	6 2 5	6 6 4	6 5 5	6 6 5	6 6 3	7 1 5	7 1 3	6 8 5	6 1 4	6 5 2	6 7 3	6 8 3	7 0 2	7 0 3	7 0 5	7 2 2	7 2 3
General Body System																									
None																									
Genital System																									
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+
Cystadenoma																									X
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Polyp stromal																									
Squamous cell carcinoma																									
Hematopoietic System																									
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymph node, mesenteric	+	M	+	+	+	+	+	+	+	+	+	I	+	+	+	+	+	+	+	+	+	+	+	+	+
Spleen	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thymus	+	+	+	+	M	+	+	+	M	+	M	M	I	+	+	M	+	+	+	+	+	+	+	+	+
Integumentary System																									
Mammary gland	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+
Adenocarcinoma																							X		
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Musculoskeletal System																									
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nervous System																									
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Respiratory System																									
Lung	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Alveolar/bronchiolar adenoma																				X					
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Papilloma																				X					
Trachea	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	6 2 4	6 3 4	6 4 2	6 4 3	6 4 4	6 4 4	6 4 1	6 4 5	7 2 4	6 1 2	6 1 5	6 3 3	6 4 5	6 5 3	6 5 3	6 9 2	6 9 3	7 1 2	6 3 5	6 4 4	6 5 1	6 5 4	6 7 5	6 9 4	7 1 4	7 2 5	**Total Tissues/ Tumors**
General Body System																										
None																										
Genital System																										
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Cystadenoma								X																		2
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Polyp stromal																			X							1
Squamous cell carcinoma																X										1
Hematopoietic System																										
Bone marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymph node, mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Thymus	+	+	M	+	+	+	+	+	+	M	+	M	M	+	+	+	+	M	+	+	+	+	+	+	+	39
Integumentary System																										
Mammary gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	48
Adenocarcinoma																									X	2
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Musculoskeletal System																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Nervous System																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Respiratory System																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49
Alveolar/bronchiolar adenoma																										1
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Papilloma																										1
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	49

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	0 4 3	1 4 0	1 5 5	3 1 3	4 0 0	4 9 7	6 2 1	6 3 2	6 3 6	6 7 6	6 8 0	6 8 1	6 8 2	6 8 5	6 8 8	7 0 8	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0	7 3 0
Carcass ID Number	6 1 1	6 2 1	6 6 1	6 2 2	6 3 1	6 8 2	7 0 4	6 1 3	6 2 5	6 6 4	6 5 5	6 6 5	6 6 3	7 1 5	7 1 3	6 8 5	6 1 4	6 5 2	6 7 3	6 8 3	7 0 2	7 0 3	7 0 5	7 2 2	7 2 3
Special Senses System																									
Ear																									
Eye										+															
Harderian gland										+									+				+		
Adenocarcinoma										X															
Adenoma																			X						
Urinary System																									
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ureter										+															
Urinary bladder	A	A	A	+	+	I	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Systemic Lesions																									
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lymphoma malignant lymphocytic																								X	
Lymphoma malignant mixed							X										X					X			
Lymphoma malignant undifferentiated cell type																		X	X		X				

TABLE D2
Individual Animal Tumor Pathology of Female Mice in the 2-Year Gavage Study of Resorcinol: 225 mg/kg
(continued)

Number of Days on Study	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 3	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 4	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	7 3 5	
Carcass ID Number	6 2 4	6 3 4	6 4 2	6 4 3	6 7 4	6 8 4	6 9 1	6 9 5	7 2 4	6 1 2	6 1 5	6 3 3	6 4 5	6 5 3	6 9 2	6 9 3	7 1 2	6 3 5	6 4 4	6 5 1	6 5 4	6 7 5	6 9 4	7 1 4	7 2 5	**Total Tissues/ Tumors**
Special Senses System																										
Ear																			+							1
Eye																										1
Harderian gland																										3
Adenocarcinoma																										1
Adenoma																										1
Urinary System																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Ureter																										1
Urinary bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	45
Systemic Lesions																										
Multiple organs	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	50
Lymphoma malignant lymphocytic												X														2
Lymphoma malignant mixed					X				X					X						X				X		8
Lymphoma malignant undifferentiated cell type	X			X		X					X					X	X			X				X		12

TABLE D3
Statistical Analysis of Primary Neoplasms in Female Mice in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Liver: Hepatocellular Carcinoma			
Overall rates[a]	1/50 (2%)	1/5 (20%)[e]	3/50 (6%)
Adjusted rates[b]	2.6%		8.0%
Terminal rates[c]	1/38 (3%)		2/34 (6%)
First incidence (days)	730 (T)		497
Life table tests[d]			P=0.272
Logistic regression tests[d]			P=0.307
Fisher exact test[d]			P=0.309
Liver: Hepatocellular Adenoma or Carcinoma			
Overall rates	2/50 (4%)	1/5 (20%)[e]	5/50 (10%)
Adjusted rates	5.3%		13.0%
Terminal rates	2/38 (5%)		3/34 (9%)
First incidence (days)	730 (T)		497
Life table tests			P=0.185
Logistic regression tests			P=0.211
Fisher exact test			P=0.218
Lung: Alveolar/bronchiolar Carcinoma			
Overall rates	0/50 (0%)	3/7 (43%)[e]	0/49 (0%)
Adjusted rates	0.0%		0.0%
Terminal rates	0/38 (0%)		0/34 (0%)
First incidence (days)	–[f]		–
Life table tests			–
Logistic regression tests			–
Fisher exact test			–
Lung: Alveolar/bronchiolar Adenoma or Carcinoma			
Overall rates	0/50 (0%)	3/7 (43%)[e]	1/49 (2%)
Adjusted rates	0.0%		2.9%
Terminal rates	0/38 (0%)		1/34 (3%)
First incidence (days)	–		730 (T)
Life table tests			P=0.478
Logistic regression tests			P=0.478
Fisher exact test			P=0.495
Pituitary Gland (Pars Distalis): Adenoma			
Overall rates	8/48 (17%)	5/7 (71%)[e]	10/50 (20%)
Adjusted rates	21.6%		28.6%
Terminal rates	8/37 (22%)		9/34 (26%)
First incidence (days)	730 (T)		708
Life table tests			P=0.317
Logistic regression tests			P=0.328
Fisher exact test			P=0.435

TABLE D3
Statistical Analysis of Primary Neoplasms in Female Mice in the 2-Year Gavage Study of Resorcinol
(continued)

	Vehicle Control	112 mg/kg	225 mg/kg
All Organs: Malignant Lymphoma (Histiocytic, Lymphocytic, Mixed, or Undifferentiated Cell Type)			
Overall rates	25/50 (50%)	12/50 (24%)	22/50 (44%)
Adjusted rates	58.0%	28.5%	62.6%
Terminal rates	20/38 (53%)	4/33 (12%)	21/34 (62%)
First incidence (days)	622	582	621
Life table tests	P=0.470N	P=0.037N	P=0.541N
Logistic regression tests	P=0.396N	P=0.011N	P=0.472N
Cochran-Armitage test[d]	P=0.307N		
Fisher exact test		P=0.006N	P=0.344N
All Organs: Benign Tumors			
Overall rates	16/50 (32%)	8/50 (16%)	16/50 (32%)
Adjusted rates	42.1%	23.4%	44.2%
Terminal rates	16/38 (42%)	7/33 (21%)	14/34 (41%)
First incidence (days)	730 (T)	699	636
Life table tests	P=0.406	P=0.096N	P=0.433
Logistic regression tests	P=0.425	P=0.096N	P=0.457
Cochran-Armitage test	P=0.543		
Fisher exact test		P=0.050N	P=0.585N
All Organs: Malignant Tumors			
Overall rates	29/50 (58%)	17/50 (34%)	27/50 (54%)
Adjusted rates	63.0%	40.8%	72.6%
Terminal rates	21/38 (55%)	9/33 (27%)	24/34 (71%)
First incidence (days)	617	582	497
Life table tests	P=0.497	P=0.083N	P=0.509
Logistic regression tests	P=0.491N	P=0.023N	P=0.559N
Cochran-Armitage test	P=0.385N		
Fisher exact test		P=0.013N	P=0.420N
All Organs: Benign and Malignant Tumors			
Overall rates	35/50 (70%)	21/50 (42%)	33/50 (66%)
Adjusted rates	76.1%	49.7%	84.4%
Terminal rates	27/38 (71%)	12/33 (36%)	28/34 (82%)
First incidence (days)	617	582	497
Life table tests	P=0.454	P=0.057N	P=0.460
Logistic regression tests	P=0.525N	P=0.009N	P=0.584
Cochran-Armitage test	P=0.383N		
Fisher exact test		P=0.004N	P=0.415N

(T)Terminal sacrifice
[a] Number of tumor-bearing animals/number of animals examined. Denominator is number of animals examined microscopically for adrenal gland, bone marrow, brain, clitoral gland, epididymis, gallbladder (mouse), heart, kidney, larynx, liver, lung, nose, ovary, pancreas, parathyroid gland, pituitary gland, preputial gland, prostate gland, salivary gland, spleen, testes, thyroid gland, and urinary bladder; for other tissues, denominator is number of animals necropsied.
[b] Kaplan-Meier estimated tumor incidence at the end of the study after adjustment for intercurrent mortality
[c] Observed incidence at terminal kill
[d] Beneath the control incidence are the P values associated with the trend test. Beneath the dosed group incidence are the P values corresponding to pairwise comparisons between the controls and that dosed group. The life table analysis regards tumors in animals dying prior to terminal kill as being (directly or indirectly) the cause of death. The logistic regression tests regard these lesions as nonfatal. The Cochran-Armitage and Fisher exact tests compare directly the overall incidence rates. For all tests, a negative trend or a lower incidence in a dose group is indicated by N.
[e] Tissue was examined microscopically only when it was observed to be abnormal at necropsy; thus, statistical comparisons with the controls are not appropriate.
[f] Not applicable; no tumors in animal group

TABLE D4
Summary of the Incidence of Nonneoplastic Lesions in Female Mice in the 2-Year Gavage Study of Resorcinol

	Vehicle Control	112 mg/kg	225 mg/kg
Disposition Summary			
Animals initially in study	60	60	60
15-Month interim evaluation	10	10	10
Early deaths			
Natural deaths	9	8	11
Moribund kills	2	7	5
Accidental deaths	1	2	
Survivors			
Terminal sacrifice	37	33	34
Moribund	1		
Animals examined microscopically	50	50	50
Alimentary System			
Esophagus	(50)		(49)
Infiltration cellular, mononuclear cell, focal			1 (2%)
Inflammation, subacute	1 (2%)		
Perforation	1 (2%)		
Gallbladder	(43)		(39)
Serosa, inflammation, acute	1 (2%)		
Intestine large	(50)	(1)	(50)
Anorectal junction, inflammation, chronic, focal			2 (4%)
Intestine large, cecum	(48)	(1)	(44)
Parasite metazoan	1 (2%)		
Serosa, inflammation, chronic, diffuse		1 (100%)	
Intestine large, colon	(50)	(1)	(48)
Infiltration cellular, mononuclear cell, multifocal	1 (2%)		
Parasite metazoan	1 (2%)		
Serosa, inflammation, acute	1 (2%)		
Serosa, inflammation, chronic, diffuse		1 (100%)	
Intestine small, duodenum	(47)	(2)	(42)
Hyperplasia, atypical, focal		1 (50%)	
Serosa, inflammation, acute	1 (2%)		
Serosa, inflammation, chronic, diffuse		1 (50%)	
Intestine small, ileum	(44)	(1)	(41)
Hyperplasia, lymphoid, focal	1 (2%)		
Serosa, inflammation, acute	1 (2%)		
Intestine small, jejunum	(47)	(2)	(42)
Diverticulum		1 (50%)	1 (2%)
Hyperplasia, lymphoid, focal	1 (2%)		
Serosa, inflammation, acute	1 (2%)		
Serosa, inflammation, chronic, diffuse		1 (50%)	
Liver	(50)	(5)	(50)
Erythrophagocytosis, diffuse			3 (6%)
Fatty change, diffuse			2 (4%)
Hematopoietic cell proliferation, diffuse		1 (20%)	
Hematopoietic cell proliferation, multifocal	2 (4%)		
Infiltration cellular, mononuclear cell, multifocal	13 (26%)		9 (18%)
Inflammation, subacute, focal			1 (2%)

TABLE D4
Summary of the Incidence of Nonneoplastic Lesions in Female Mice in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Alimentary System (continued)			
Liver (continued)	(50)	(5)	(50)
Necrosis, acute, focal	1 (2%)		1 (2%)
Necrosis, subacute, focal	1 (2%)		
Pigmentation, hemosiderin, diffuse			2 (4%)
Vacuolization cytoplasmic, focal	1 (2%)		
Centrilobular, fatty change	2 (4%)		1 (2%)
Periportal, fatty change	1 (2%)		
Serosa, inflammation, chronic, focal		1 (20%)	
Serosa, inflammation, subacute	1 (2%)		
Mesentery	(1)	(1)	(2)
Cyst		1 (100%)	
Fat, necrosis	1 (100%)	1 (100%)	
Pancreas	(48)		(48)
Atrophy, diffuse	1 (2%)		
Cyst	2 (4%)		
Hyperplasia, glandular, focal	2 (4%)		
Hyperplasia, glandular, multifocal			1 (2%)
Infiltration cellular, mononuclear cell, multifocal	1 (2%)		
Inflammation, acute	2 (4%)		
Salivary glands	(48)		(47)
Infiltration cellular, mononuclear cell, focal	4 (8%)		1 (2%)
Infiltration cellular, mononuclear cell, multifocal	13 (27%)		22 (47%)
Infiltration cellular, plasma cell, multifocal	1 (2%)		
Stomach, forestomach	(49)	(3)	(46)
Hyperplasia, multifocal	1 (2%)		
Hyperplasia, squamous, focal	1 (2%)	1 (33%)	5 (11%)
Hyperplasia, squamous, multifocal	2 (4%)	1 (33%)	1 (2%)
Inflammation, chronic	1 (2%)		
Inflammation, subacute			1 (2%)
Ulcer, acute, multifocal			2 (4%)
Stomach, glandular	(50)		(46)
Cyst	1 (2%)		
Erosion, focal			2 (4%)
Erosion, multifocal	1 (2%)		
Ulcer, acute, focal			1 (2%)
Serosa, inflammation, chronic	1 (2%)		
Tooth	(1)		(1)
Inflammation, chronic	1 (100%)		
Cardiovascular System			
Heart	(50)	(1)	(49)
Coronary artery, hyperplasia, chronic, multifocal	1 (2%)		
Epicardium, inflammation, subacute, diffuse		1 (100%)	

TABLE D4
Summary of the Incidence of Nonneoplastic Lesions in Female Mice in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Endocrine System			
Adrenal gland, cortex	(48)		(49)
Congestion, focal	1 (2%)		
Hypertrophy, focal			1 (2%)
Inflammation, subacute	1 (2%)		
Vacuolization cytoplasmic, focal	1 (2%)		
Vacuolization cytoplasmic, multifocal	2 (4%)		
Spindle cell, hyperplasia	1 (2%)		
Parathyroid gland	(24)		(20)
Cyst			1 (5%)
Infiltration cellular, plasma cell, focal	1 (4%)		
Pituitary gland	(48)	(7)	(50)
Pars distalis, congestion, diffuse		1 (14%)	
Pars distalis, ectasia, focal	1 (2%)		
Pars distalis, hyperplasia, focal	9 (19%)	1 (14%)	10 (20%)
Pars distalis, hyperplasia, multifocal	1 (2%)		2 (4%)
Thyroid gland	(49)		(49)
Depletion secretory	1 (2%)		1 (2%)
Follicular cell, hyperplasia	5 (10%)		1 (2%)
General Body System			
None			
Genital System			
Ovary	(49)	(11)	(49)
Abscess	2 (4%)		
Angiectasis, focal			1 (2%)
Cyst	3 (6%)	8 (73%)	7 (14%)
Cyst multilocular	6 (12%)	4 (36%)	4 (8%)
Hemorrhage	3 (6%)		
Infiltration cellular, mononuclear cell, focal	1 (2%)		
Infiltration cellular, mononuclear cell, multifocal	2 (4%)		3 (6%)
Uterus	(50)	(36)	(50)
Abscess	1 (2%)		
Amyloid deposition, diffuse			1 (2%)
Dilatation	2 (4%)		1 (2%)
Hemorrhage, chronic		1 (3%)	1 (2%)
Hyperplasia, cystic, chronic, diffuse	41 (82%)	35 (97%)	41 (82%)
Hyperplasia, lymphoid, diffuse	1 (2%)		
Serosa, inflammation, acute	1 (2%)		
Serosa, inflammation, chronic, diffuse		1 (3%)	

TABLE D4
Summary of the Incidence of Nonneoplastic Lesions in Female Mice in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Hematopoietic System			
Bone marrow	(50)		(50)
Myelofibrosis	2 (4%)		
Pigmentation, hemosiderin, diffuse			2 (4%)
Lymph node	(50)	(7)	(50)
Axillary, infiltration cellular, plasma cell, diffuse	1 (2%)		
Iliac, hematopoietic cell proliferation, diffuse	1 (2%)		
Iliac, hyperplasia, lymphoid, diffuse	2 (4%)		
Mediastinal, infiltration cellular, plasma cell, diffuse	1 (2%)		
Renal, hyperplasia, lymphoid, diffuse	1 (2%)		
Lymph node, mesenteric	(47)	(6)	(48)
Giant cell, diffuse	1 (2%)		
Hematopoietic cell proliferation, diffuse			1 (2%)
Hyperplasia, lymphoid	1 (2%)		2 (4%)
Infiltration cellular, histiocytic, diffuse	1 (2%)		
Spleen	(50)	(12)	(49)
Congestion, diffuse			2 (4%)
Erythrophagocytosis, diffuse			3 (6%)
Hematopoietic cell proliferation, diffuse	5 (10%)	2 (17%)	7 (14%)
Hyperplasia, lymphoid	1 (2%)		3 (6%)
Hyperplasia, lymphoid, diffuse	1 (2%)		
Capsule, inflammation, acute	1 (2%)		
Thymus	(43)	(1)	(39)
Atrophy, diffuse			3 (8%)
Medulla, hyperplasia, lymphoid, focal	6 (14%)		4 (10%)
Integumentary System			
Mammary gland	(50)	(1)	(48)
Inflammation, chronic			1 (2%)
Skin	(49)	(6)	(50)
Inflammation, chronic	1 (2%)	3 (50%)	7 (14%)
Subcutaneous tissue, necrosis		1 (17%)	
Musculoskeletal System			
Bone	(50)		(50)
Hyperostosis	2 (4%)		
Osteoporosis	1 (2%)		1 (2%)
Skeletal muscle		(1)	
Hemorrhage, acute		1 (100%)	
Nervous System			
Brain	(49)		(50)
Hemorrhage, multifocal	1 (2%)		
Infiltration cellular, mononuclear cell, multifocal	1 (2%)		
Mineralization, multifocal	21 (43%)		19 (38%)

TABLE D4
Summary of the Incidence of Nonneoplastic Lesions in Female Mice in the 2-Year Gavage Study of Resorcinol (continued)

	Vehicle Control	112 mg/kg	225 mg/kg
Respiratory System			
Lung	(50)	(7)	(49)
Abscess		1 (14%)	
Atelectasis, diffuse		1 (14%)	
Congestion, diffuse	1 (2%)	2 (29%)	3 (6%)
Foreign body		1 (14%)	
Hyperplasia, adenomatous, focal	1 (2%)		1 (2%)
Infiltration cellular, mononuclear cell, multifocal	35 (70%)		35 (71%)
Infiltration cellular, histiocytic, diffuse	1 (2%)		
Alveolus, infiltration cellular, histiocytic		1 (14%)	
Bronchiole, inflammation, acute		1 (14%)	
Mediastinum, bacterium	1 (2%)		
Mediastinum, inflammation, chronic, multifocal	1 (2%)		
Nose	(50)		(50)
Foreign body	2 (4%)		1 (2%)
Inflammation, acute	3 (6%)		
Nasolacrimal duct, inflammation, chronic	1 (2%)		
Special Senses System			
Eye	(2)		(1)
Degeneration, chronic, diffuse	1 (50%)		1 (100%)
Urinary System			
Kidney	(50)	(3)	(50)
Casts			3 (6%)
Cyst			2 (4%)
Hydronephrosis			3 (6%)
Infiltration cellular, mononuclear cell, focal	1 (2%)		
Infiltration cellular, mononuclear cell, multifocal	34 (68%)		32 (64%)
Nephropathy, diffuse		1 (33%)	3 (6%)
Glomerulus, amyloid deposition, diffuse	1 (2%)		1 (2%)
Papilla, mineralization, multifocal			1 (2%)
Urinary bladder	(48)		(45)
Infiltration cellular, mononuclear cell			1 (2%)
Infiltration cellular, mononuclear cell, focal	1 (2%)		
Infiltration cellular, mononuclear cell, multifocal	6 (13%)		5 (11%)
Inflammation, subacute, diffuse			1 (2%)
Serosa, inflammation, acute	1 (2%)		

APPENDIX E
GENETIC TOXICOLOGY

GENETIC TOXICOLOGY

SALMONELLA PROTOCOL

Testing was performed as reported by Haworth *et al.* (1983). Resorcinol was sent to the laboratories as a coded aliquot from Radian Corporation (Austin, TX). It was incubated with the *Salmonella typhimurium* tester strain (TA98, TA100, TA1535, TA1537) either in buffer or S9 mix (metabolic activation enzymes and cofactors from Aroclor 1254-induced male Sprague-Dawley rat or Syrian hamster liver) for 20 minutes at 37° C prior to the addition of soft agar supplemented with *l*-histidine and *d*-biotin, and subsequent plating on minimal glucose agar plates. Incubation continued for an additional 48 hours.

Each trial consisted of triplicate plates of concurrent positive and negative controls and of at least five doses of resorcinol. High dose was limited by toxicity or solubility, but did not exceed 10 mg/plate. All assays were repeated; data from a representative trial for each exposure condition is presented in Table E1.

In this assay, a positive response is defined as a reproducible, dose-related increase in histidine-independent (revertant) colonies in any one strain/activation combination. An equivocal response is defined as an increase in revertants which was not dose-related, not reproducible, or of insufficient magnitude to support a determination of mutagenicity. A negative response is obtained when no increase in revertant colonies occurs following chemical treatment.

MOUSE LYMPHOMA PROTOCOL

The experimental protocol is presented in detail by McGregor *et al.* (1988b) and follows the basic format of Clive *et al.* (1979). Resorcinol was supplied as a coded aliquot by Radian Corporation (Austin, TX). The highest dose was determined by toxicity, and did not exceed 5 mg/mL. Mouse lymphoma L5178Y cells were maintained at 37° C as suspension cultures in Fischer's medium supplemented with 2 mM *l*-glutamine, 110 μg/mL sodium pyruvate, 0.05% pluronic F68, antibiotics, and heat-inactivated horse serum; normal cycling time was about 10 hours. To reduce the number of spontaneously occurring trifluorothymidine (TFT) resistant cells, subcultures were exposed once to medium containing THMG (thymidine, hypoxanthine, methotrexate, glycine) for one day, to THG for one day, and to normal medium for 3 to 5 days. For cloning, horse serum content was increased and Noble agar was added.

All treatment levels within an experiment, including concurrent positive and solvent controls, were replicated. Treated cultures contained 6×10^6 cells in a 10 mL volume of medium. Incubation with resorcinol continued for 4 hours, at which time the medium plus resorcinol was removed and the cells were resuspended in 20 mL of fresh medium and incubated for an additional 2 days to express the mutant phenotype. Cell density was monitored so that log phase growth was maintained. After the 48 hour expression period, 3×10^6 cells were plated in medium and soft agar supplemented with TFT for selection of TFT-resistant cells ($TK^{-/-}$), and 600 cells were plated in nonselective medium and soft agar to determine cloning efficiency. Plates were incubated at 37° C in 5% CO_2 for 10 to 12 days. All data were evaluated statistically for both trend and peak response. Both responses had to be significant ($P \leq 0.05$) for a chemical to be considered capable of inducing TFT resistance; a single significant response led to a "questionable" conclusion, and the absence of both a trend and a peak response resulted in a "negative" call. Minimum criteria for accepting an experiment as valid and a detailed description of the statistical analysis and data evaluation are presented in Myhr *et al.* (1985).

CHINESE HAMSTER OVARY CELL CYTOGENETICS ASSAYS

Testing was performed as reported by Galloway *et al.* (1985, 1987) and is presented briefly below. Resorcinol was sent to the laboratory as a coded aliquot from Radian Corporation (Austin, TX). It was tested in cultured Chinese hamster ovary (CHO) cells for induction of sister chromatid exchanges (SCE) and chromosomal aberrations (Abs) both in the presence and in the absence of Aroclor 1254-induced male Sprague-Dawley rat liver S9 and cofactor mix. Cultures were handled under gold lights to prevent photolysis of bromodeoxyuridine-substituted DNA. Each test consisted of concurrent solvent and positive controls and of at least three doses of resorcinol; the high dose was limited by toxicity or solubility, but did not exceed 5 mg/mL.

In the SCE test without S9, CHO cells were incubated for 26 hours with resorcinol in McCoy's 5A medium supplemented with 10% fetal bovine serum, *l*-glutamine (2 mM), and antibiotics. Bromodeoxyuridine (BrdU) was added 2 hours after culture initiation. After 26 hours, the medium containing resorcinol was removed and replaced with fresh medium plus BrdU and Colcemid, and incubation was continued for 2 hours. Cells were then harvested by mitotic shake-off, fixed, and stained with Hoechst 33258 and Giemsa. In the SCE test with S9, cells were incubated with resorcinol, serum-free medium, and S9 for 2 hours. The medium was then removed and replaced with medium containing BrdU and no resorcinol and incubation proceeded for an additional 26 hours, with Colcemid present for the final 2 hours. Harvesting and staining was the same as for cells treated without S9.

In the Abs test without S9, cells were incubated in McCoy's 5A medium with resorcinol for 21 hours; Colcemid was added and incubation continued for 2 to 3 hours. The cells were then harvested by mitotic shake-off, fixed, and stained with Giemsa. For the Abs test with S9, cells were treated with resorcinol and S9 for 2 hours, after which the treatment medium was removed and the cells incubated for 21.8 hours in fresh medium, with Colcemid present for the final 2 hours. Cells were harvested in the same manner as for the treatment without S9.

For the SCE test, if significant chemical-induced cell cycle delay was seen, incubation time was lengthened to ensure a sufficient number of scorable cells. The harvest time for the Abs test was based on the cell cycle information obtained in the SCE test; if cell cycle delay was anticipated, the incubation period was extended.

Cells were selected for scoring on the basis of good morphology and completeness of karyotype (21 ± 2 chromosomes). All slides were scored blind and those from a single test were read by the same person. For the SCE test, 50 second-division metaphase cells were scored for frequency of SCE per cell from each dose level; 100 first-division metaphase cells were scored at each dose level for the Abs test. Classes of aberrations included simple (breaks and terminal deletions), complex (rearrangements and translocations), and other (pulverized cells, despiralized chromosomes, and cells containing 10 or more aberrations).

Statistical analyses were conducted on both the slopes of the dose-response curves and the individual dose points. An SCE frequency 20% above the concurrent solvent control value was chosen as a statistically conservative positive response. The probability of this level of difference occurring by chance at one dose point is less than 0.01; the probability for such a chance occurrence at two dose points is less than 0.001. Chromosomal aberration data is presented as percentage of cells with aberrations. As with SCE, both the dose-response curve and individual dose points were statistically analyzed. A statistically significant ($P \leq 0.05$) difference for one dose point was considered weak evidence for a positive response (+w); significant differences for two or more doses indicated the trial was positive (+) (Galloway *et al.*, 1987).

DROSOPHILA PROTOCOL

The assays for induction of mutations and chromosomal translocations were performed as described in Zimmering *et al.* (1985). Resorcinol was supplied as a coded aliquot from Radian Corporation (Austin, TX). Initially, resorcinol was assayed in the sex-linked recessive lethal (SLRL) test by feeding for 3 days to adult Canton-S wild-type males no more than 24 hours old at the beginning of treatment. Because no response was obtained, resorcinol was retested by injection into adult males.

To administer a chemical by injection, a glass Pasteur pipette was drawn out in a flame to a microfine filament and the tip was broken off to allow delivery of the test solution. Injection was performed either manually, by attaching a rubber bulb to the other end of the pipette and forcing through sufficient solution (0.2 to 0.3 μL) to slightly distend the abdomen of the fly, or by attaching the pipette to a microinjector which automatically delivers a calibrated volume. Flies are anesthetized with ether and immobilized on a strip of double stick tape; the chemical was injected into the thorax under the wing with the aid of a dissecting microscope.

Toxicity tests were performed to set concentrations of resorcinol at a level which would induce 30% mortality after 72 hours of feeding or 24 hours after injection, while keeping induced sterility at an acceptable level. For the SLRL test, exposure by feeding was done by allowing Canton-S males (10 to 20 flies/vial) to feed for 72 hours on a solution of resorcinol in 5% sucrose. In the injection experiments, 24- to 72-hour-old Canton-S males were treated with a solution of resorcinol dissolved in 0.7% saline and were allowed to recover for 24 hours. Exposed males were mated to three *Basc* females for 3 days and given fresh females at 2-day intervals to produce three matings of 3, 2, and 2 days; sample sperm from successive matings were treated at successively earlier post-meiotic stages. F_1 heterozygous females were allowed to mate with their siblings and were then placed in individual vials. F_1 daughters from the same parental male were kept together to identify clusters. (A cluster occurs when a number of mutants from a given male result from a single spontaneous premeiotic mutation event, and is identified when the number of mutants from that male exceeds the number predicted by a Poisson distribution). If a cluster was identified, all data from the male in question were discarded. After 17 days, presumptive lethal mutations were identified as occurring in vials containing no wild-type males; these were retested. A minimum of two experiments were performed, resulting in the testing of approximately 5,000 treated and 5,000 control chromosomes. The only exceptions occurred when the results of the first experiment were clearly positive (induced frequency of recessive lethal mutations equal to or greater than 1%); then, the second trial was not run.

Recessive lethal data were analyzed by the normal approximation to the binomial test (Margolin *et al.*, 1983). A test result was considered to be positive if the P value was less than 0.01 and the mutation frequency in the tested group was greater that 0.10%, or if the P value was less than 0.05 and the frequency in the treatment group was greater than 0.15%. A test was considered to be inconclusive if (a) the P value was between 0.05 and 0.01 but the frequency in the treatment group was between 0.10% and 0.15%, or (b) the P value was between 0.10 and 0.05 but the frequency in the treatment group was greater than 0.10%. A result was considered to be negative if the P value was greater than 0.10 or if the frequency in the treatment group was less than 0.10%.

RESULTS

Resorcinol at doses from 33 to 3,333 μg/plate did not induce gene mutations in any of the four strains of *Salmonella typhimurium* when tested with a preincubation protocol in the presence and the absence of Aroclor 1254-induced male Sprague-Dawley rat or Syrian hamster liver S9 (Table E1) (Haworth *et al.*, 1983). In the mouse lymphoma assay for induction of trifluorothymidine resistance in L5178Y cells, resorcinol gave a positive response in the absence of S9 at concentrations ranging from 156.25 to 2,500 μg/mL; it was not tested with S9 (McGregor *et al.*, 1988b) (Table E2). In cytogenetic tests with CHO cells, resorcinol induced SCE at doses of 167 and 500 μg/mL in the absence of S9 and at 1,670 and 5,000 μg/mL in the presence of Aroclor 1254-induced male Sprague-Dawley rat liver S9

(Table E3). A delayed harvest protocol was used for all but the 1,670 μg/mL with S9 dose to offset the cell cycle delay produced by resorcinol exposure and allow accumulation of sufficient numbers of second metaphase cells for SCE analysis. The response observed at the 500 μg/mL dose in the SCE test without S9 was quite strong, with more than one SCE per chromosome induced by resorcinol compared to the background rate of 0.46 SCE/chromosome. Resorcinol also induced chromosomal aberrations in CHO cells (Table E4). Without S9, the response in this test was equivocal, with a significant increase in Abs observed only at 1,000 μg/mL; with S9, a significant increase in Abs was observed at all three reported doses (4,000, 4,500, and 5,000 μg/mL). As with the SCE test, delayed harvest was employed in the Abs test to provide sufficient metaphases for scoring. Resorcinol (11,000 ppm) was negative for induction of sex-linked recessive lethal mutations in germ cells of male *Drosophila melanogaster* when administered to adult flies by feeding (Table E5); administration of resorcinol (11,940 ppm) by injection yielded an increase in mutations which was equivocal (P=0.06 and mutation frequency of 0.12% in the treated group).

TABLE E1
Mutagenicity of Resorcinol in *Salmonella typhimurium*[a]

Strain	Dose (μg/plate)	Revertants/plate[b] -S9	+10% hamster S9	+10% rat S9
TA100	0	134 ± 20.9	166 ± 16.9	170 ± 24.3
	33	153 ± 21.4	191 ± 24.6	173 ± 11.0
	100	143 ± 23.1	169 ± 19.2	161 ± 21.2
	333	139 ± 26.1	161 ± 29.6	182 ± 18.9
	1,000	127 ± 20.0	150 ± 15.8	174 ± 18.7
	3,333	91 ± 11.7	132 ± 14.4	171 ± 21.5
Trial summary		Negative	Negative	Negative
Positive control[c]		432 ± 9.7	925 ± 179.7	780 ± 219.1
TA1535	0	5 ± 1.9	11 ± 3.8	11 ± 0.7
	33	10 ± 2.8	10 ± 2.4	10 ± 2.0
	100	10 ± 2.9	10 ± 2.9	13 ± 0.9
	333	8 ± 1.2	12 ± 1.3	10 ± 1.9
	1,000	8 ± 2.3	9 ± 1.7	9 ± 2.3
	3,333	9 ± 1.5	9 ± 2.7	12 ± 4.0
Trial summary		Negative	Negative	Negative
Positive control		328 ± 13.8	47 ± 11.8	48 ± 2.3
TA1537	0	5 ± 1.8	6 ± 0.9	6 ± 1.7
	33	5 ± 0.7	7 ± 0.9	7 ± 0.6
	100	5 ± 0.6	7 ± 0.6	7 ± 2.0
	333	7 ± 1.5	6 ± 0.7	12 ± 2.2
	1,000	7 ± 1.2	7 ± 0.7	9 ± 0.9
	3,333	6 ± 0.7	5 ± 0.9	8 ± 1.5
Trial summary		Negative	Negative	Negative
Positive control		44 ± 3.9	51 ± 5.2	30 ± 3.6
TA98	0	15 ± 1.3	23 ± 4.0	28 ± 2.9
	33	9 ± 0.6	25 ± 1.5	24 ± 1.9
	100	9 ± 0.9	17 ± 2.1	18 ± 3.2
	333	11 ± 1.5	24 ± 1.7	25 ± 0.9
	1,000	18 ± 2.6	26 ± 2.9	23 ± 1.5
	3,333	15 ± 2.2	20 ± 0.6	20 ± 2.0
Trial summary		Negative	Negative	Negative
Positive control		204 ± 8.5	478 ± 53.0	183 ± 20.3

[a] Study performed at Case Western Reserve University. The detailed protocol and these data are presented in Haworth *et al.* (1983). Cells and resorcinol or solvent (distilled water) were incubated in the absence of exogenous metabolic activation (-S9) or with Aroclor 1254-induced S9 from male Syrian hamster liver or male Sprague-Dawley rat liver. High dose was limited by toxicity or solubility, but did not exceed 10 mg/plate; 0 μg/plate dose is the solvent control.

[b] Revertants are presented as mean ± the standard error from three plates.

[c] 2-aminoanthracene was used on all strains in the presence of S9. In the absence of metabolic activation, 4-nitro-*o*-phenylenediamine was tested on TA98, sodium azide was tested on TA100 and TA1535, and 9-aminoacridine was tested on TA1537.

TABLE E2
Induction of Trifluorothymidine Resistance in Mouse L5178Y Lymphoma Cells by Resorcinol[a]

Compound	Concentration (μg/mL)	Cloning Efficiency (%)	Relative Total Growth (%)	Mutant Count	Mutant Fraction[b]	Average Mutant Fraction[c]
-S9						
Trial 1						
Distilled water						
		82	68	110	45	
		80	100	259	109	
		79	98	156	66	
		101	134	271	90	77
Ethyl methanesulfonate						
		55	55	372	227	
	250	81	77	427	176	201*
Resorcinol						
	125	61	74	182	100	
		76	70	145	64	82
	250	70	54	299	142	
		71	49	317	148	145*
	500	57	28	218	129	
		55	37	298	181	155*
	1,000	79	36	299	126	
		73	31	312	143	135*
	2,000	60	21	288	159	
Trial 2						
Distilled water						
		52	83	102	66	
		69	117	105	51	58
Ethyl methanesulfonate						
		43	63	526	411	
	250	37	48	533	478	444*
Resorcinol						
	156.25	65	109	147	76	
		57	83	190	112	94
	312.5	55	57	242	148	
		49	52	322	221	184*
	625	45	21	294	219	
		40	25	352	295	257*
	1,250	40	19	211	176	
		29	12	220	249	212*
	2,500	51	11	93	61	
		31	7	107	114	88
	5,000	Lethal				
		Lethal				

TABLE E2
Induction of Trifluorothymidine Resistance in Mouse L5178Y Lymphoma Cells by Resorcinol (continued)

Compound	Concentration (μg/mL)	Cloning Efficiency (%)	Relative Total Growth (%)	Mutant Count	Mutant Fraction	Average Mutant Fraction
-S9						
Trial 3						
Distilled water						
		71	89	119	56	
		58	80	99	57	
		76	114	162	71	
		75	118	169	75	65
Ethyl methanesulfonate						
		51	69	731	483	
	250	60	76	789	436	459*
Resorcinol						
	156.25	65	83	234	121	
		75	106	239	106	113*
	312.5	56	71	312	187	
		60	73	344	192	190*
	625	52	33	454	292	
		57	32	491	288	290*
	1,250	43	24	225	174	
		56	29	206	122	148*
	2,500	36	7	195	179	
		39	8	201	172	175*
	5,000	Lethal				
		Lethal				

* Significant positive response ($P \leq 0.05$)

[a] Study performed at Inveresk Research International. The experimental protocol is presented in detail by McGregor *et al.* (1988b) and follows the basic format of Clive *et al.* (1979). The highest dose of resorcinol is determined by solubility or toxicity and may not exceed 5,000 μg/mL. All doses are tested in triplicate; the average of the three tests is presented in the table. Cells (6 x 10^6/mL) were treated for 4 hours at 37° C in medium, washed, resuspended in medium, and incubated for 48 hours at 37° C. After expression, 3 x 10^6 cells were plated in medium and soft agar supplemented with trifluorothymidine for selection of resistant cells, and 600 cells were plated in nonselective medium and soft agar to determine the cloning efficiency.

[b] Mutant fraction (frequency) is a ratio of the mutant count to the cloning efficiency, divided by 3 (to arrive at MF/1 x 10^6 cells treated).

[c] Mean from three replicate plates of approximately 10^6 cells each.

TABLE E3
Induction of Sister Chromatid Exchanges in Chinese Hamster Ovary Cells by Resorcinol[a]

Compound	Dose (μg/mL)	Total Cells	No. of Chromosomes	No. of SCEs	SCEs/ Chromosomes	SCEs/ Cell	Hrs in BrdU	Relative SCEs/Chromosome (%)[b]
-S9[c]								
Trial 1								
Summary: Positive								
Distilled water		50	1,051	484	0.46	9.7	26.0	
Mitomycin-C	0.001	50	1,048	742	0.70	14.8	26.0	53.74
	0.010	5	104	258	2.48	51.6	26.0	438.70
Resorcinol	50	50	1,045	508	0.48	10.2	26.0	5.56
	167	50	1,030	904	0.87	18.1	32.5[d]	90.58*
	500	50	1,032	1,147	1.11	22.9	32.5	141.35*
	1,670	0						
								P≤0.001[e]
+S9[f]								
Trial 1								
Summary: Positive								
Distilled water		50	1,046	510	0.48	10.2	26.0	
Cyclophosphamide	0.300	50	1,042	725	0.69	14.5	26.0	42.70
	2.000	5	105	201	1.91	40.2	26.0	292.62
Resorcinol	500	50	1,047	501	0.47	10.0	26.0	-1.86
	1,670	50	1,045	623	0.59	12.5	26.0	22.27*
	5,000	50	1,039	631	0.60	12.6	32.5	24.56*
								P≤0.001

* Positive (≥20% increase over solvent control)

[a] Study performed at Litton Bionetics, Inc. SCE = sister chromatid exchange; BrdU = bromodeoxyuridine. A detailed description of the SCE protocol is presented by Galloway *et al.* (1985, 1987). Briefly, Chinese hamster ovary cells were incubated with resorcinol or solvent (distilled water) as described in [c] and [f] below, and cultured for sufficient time to reach second metaphase division. Cells were then collected by mitotic shake-off, fixed, air-dried, and stained.

[b] Percent increase in SCEs/chromosome of culture exposed to study chemical relative to those of culture exposed to solvent. Values at least 20% above control levels are considered positive.

[c] In the absence of S9, cells were incubated with resorcinol or solvent for 2 hours at 37° C. Then BrdU was added and incubation was continued for 24 hours. Cells were washed, fresh medium containing BrdU and Colcemid was added, and incubation was continued for 2 to 3 hours.

[d] Because resorcinol produced cell cycle delay at higher doses, harvest times were extended as necessary to maximize the proportion of second division cells available for analysis.

[e] Significance of relative SCEs/chromosome tested by the linear regression trend test vs. log of the dose

[f] In the presence of S9, cells were incubated with resorcinol or solvent for 2 hours at 37° C. The cells were then washed, and medium containing BrdU was added. Cells were incubated for a further 26 hours, with Colcemid present for the final 2 to 3 hours. S9 was from the livers of Aroclor 1254-induced male Sprague-Dawley rats.

TABLE E4
Induction of Chromosomal Aberrations in Chinese Hamster Ovary Cells by Resorcinol[a]

-S9[b]					+S9[c]				
Dose (μg/mL)	Total Cells	No. of Abs	Abs/ Cell	Percent Cells with Abs	Dose (μg/mL)	Total Cells	No. of Abs	Abs/ Cell	Percent Cells with Abs
Trial 1 – Harvest time: 23.7 hours[d] Summary: Questionable					**Trial 1** – Harvest time: 23.8 hours[d] Summary: Positive				
Distilled water					Distilled water				
	100	2	0.02	2.0		100	4	0.04	3.0
Mitomycin-C					Cyclophosphamide				
0.050	50	53	1.06	52.0	10	50	11	0.22	20.0
Resorcinol					Resorcinol				
750	100	9	0.09	7.0	4,000	100	46	0.46	13.0*
1,000	100	15	0.15	12.0*	4,500	100	41	0.41	12.0*
1,500	100	3	0.03	3.0	5,000	100	59	0.59	21.0*
2,000	0								
				P=0.284[e]					P≤0.001

* Positive (P≤0.05)

[a] Study performed at Litton Bionetics, Inc. Abs = aberrations. A detailed presentation of the technique for detecting chromosomal aberrations is found in Galloway *et al.* (1985, 1987). Briefly, Chinese hamster ovary cells were incubated with resorcinol or solvent (distilled water) as indicated in [b] and [c]. Cells were arrested in first metaphase by addition of Colcemid and harvested by mitotic shake-off, fixed, and stained in 6% Giemsa.

[b] In the absence of S9, cells were incubated with resorcinol or solvent for 21 hours at 37° C. Cells were then washed and fresh medium containing Colcemid was added for an additional 2 to 3 hours followed by harvest.

[c] In the presence of S9, cells were incubated with resorcinol or solvent for 2 hours at 37° C. Cells were then washed, medium was added, and incubation was continued for 21.8 hours. Colcemid was added for the last 2 to 3 hours of incubation before harvest. S9 was from the livers of Aroclor 1254-induced male Sprague-Dawley rats.

[d] Because of significant chemical-induced cell cycle delay, incubation time prior to addition of Colcemid was lengthened to provide sufficient metaphases at harvest.

[e] Significance of percent cells with aberrations tested by the linear regression trend test vs. log of the dose. Significance is achieved when P=0.003.

TABLE E5
Induction of Sex-Linked Recessive Lethal Mutations in *Drosophila melanogaster* by Resorcinol[a]

Route of Exposure	Dose (ppm)	Incidence of Deaths (%)	Incidence of Sterility (%)	No. of Lethals/No. of X Chromosomes Tested			
				Mating 1	Mating 2	Mating 3	Total[b]
Feeding[c]	11,000	51	10	1/1,985	0/2,032	3/1,970	4/5,987 (0.07%)
	0			2/1,928	1/1,951	2/1,966	5/5,845 (0.09%)
Injection	11,940	51	15	3/1,719	3/2,196	1/1,984	7/5,899 (0.12%)
	0			1/1,933	1/1,840	0/1,677	2/5,450 (0.04%)

[a] Study performed at Brown University. A detailed protocol of the sex-linked recessive lethal assay is presented in Zimmering *et al.* (1985). In the feed exposure experiments, 24-hour-old Canton-S males were allowed to feed for 3 days on a solution of the study chemical dissolved in 5% sucrose. In the injection experiments, 24-hour-old Canton-S males were treated with a solution of the chemical dissolved in 0.7% saline and allowed to recover for 24 hours. Exposed males were mated to three *Basc* females for 3 days and given fresh females at 2-day intervals to produce three broods of 3, 2, and 2 days; sample sperm from successive matings were treated as spermatozoa (mating 1), spermatids (mating 2), and spermatocytes (mating 3). F_1 heterozygous females were crossed to their siblings and placed in individual vials. F_1 daughters from the same parental male were kept together to identify clusters; no clusters were found in the injection experiments, but clusters were identified and removed in the feeding experiments. After 17 days, presumptive lethal mutations were identified as vials containing no wild-type males; these were retested.

[b] Combined total number of lethal mutations/number of X chromosomes tested for three mating trials.

[c] Results were considered to be equivocal by normal approximation to the binomial test (Margolin *et al.*, 1983).

APPENDIX F
ORGAN WEIGHTS
AND ORGAN-WEIGHT-TO-BODY-WEIGHT RATIOS

TABLE F1
Organ Weights and Organ-Weight-to-Body-Weight Ratios for Rats in the 17-Day Gavage Studies of Resorcinol[a]

	Vehicle Control	27.5 mg/kg	55 mg/kg	110 mg/kg	225 mg/kg	450 mg/kg
Male						
Number weighed	5	5	5	5	5	5
Necropsy body wt	215 ± 4	226 ± 6	215 ± 6	220 ± 6	214 ± 4	212 ± 7
Brain						
Absolute	1.77 ± 0.04	1.81 ± 0.04	1.74 ± 0.03	1.76 ± 0.03	1.73 ± 0.03	1.72 ± 0.03
Relative	8.25 ± 0.33	8.04 ± 0.36	8.13 ± 0.14	8.04 ± 0.28	8.07 ± 0.08	8.16 ± 0.32
Heart						
Absolute	0.84 ± 0.03	0.88 ± 0.06	0.81 ± 0.05	0.90 ± 0.03	0.82 ± 0.04	0.78 ± 0.02
Relative	3.90 ± 0.14	3.91 ± 0.29	3.79 ± 0.20	4.13 ± 0.21	3.80 ± 0.15	3.69 ± 0.20
R. Kidney						
Absolute	1.05 ± 0.03	1.06 ± 0.04	1.00 ± 0.03	1.02 ± 0.03	0.99 ± 0.02	1.02 ± 0.03
Relative	4.87 ± 0.12	4.74 ± 0.27	4.67 ± 0.02	4.65 ± 0.18	4.64 ± 0.06	4.84 ± 0.23
Liver						
Absolute	12.26 ± 0.27	12.20 ± 0.28	10.41 ± 0.56	11.22 ± 0.44	11.21 ± 0.42	11.70 ± 0.36
Relative	57.1 ± 2.1	54.3 ± 2.6	48.4 ± 1.7*	51.2 ± 1.9	52.3 ± 1.6	55.6 ± 3.0
Lungs						
Absolute	1.25 ± 0.06	1.47 ± 0.13	1.17 ± 0.02	1.36 ± 0.06	1.22 ± 0.04	1.25 ± 0.09
Relative	5.81 ± 0.24	6.56 ± 0.69	5.47 ± 0.11	6.17 ± 0.18	5.73 ± 0.24	5.89 ± 0.41
Thymus[b]						
Absolute	478.0 ± 18.8	526.0 ± 18.6	438.0 ± 19.1	488.0 ± 5.8	478.0 ± 18.3	454.0 ± 4.0
Relative	2.22 ± 0.07	2.34 ± 0.13	2.04 ± 0.07	2.23 ± 0.05	2.23 ± 0.07	2.16 ± 0.08
Female						
Number weighed	5	5	5	5	5	5
Necropsy body wt	152 ± 2	152 ± 3	151 ± 3	151 ± 5	151 ± 3	148 ± 2
Brain						
Absolute	1.63 ± 0.02	1.68 ± 0.01	1.67 ± 0.01	1.65 ± 0.04	1.61 ± 0.01	1.64 ± 0.02
Relative	10.7 ± 0.2	11.0 ± 0.2	11.1 ± 0.2	10.9 ± 0.3	10.7 ± 0.2	11.1 ± 0.2
Heart						
Absolute	0.53 ± 0.01	0.58 ± 0.01	0.57 ± 0.02	0.55 ± 0.01	0.52 ± 0.02	0.53 ± 0.02
Relative	3.49 ± 0.09	3.79 ± 0.10	3.81 ± 0.09	3.68 ± 0.15	3.46 ± 0.09	3.58 ± 0.09
R. Kidney						
Absolute	0.73 ± 0.02	0.69 ± 0.02	0.72 ± 0.01	0.69 ± 0.03	0.73 ± 0.02	0.73 ± 0.03
Relative	4.80 ± 0.07	4.54 ± 0.04	4.78 ± 0.04	4.56 ± 0.11	4.84 ± 0.13	4.97 ± 0.14
Liver						
Absolute	7.26 ± 0.17	6.91 ± 0.21	7.06 ± 0.18	7.23 ± 0.31	7.40 ± 0.24	7.28 ± 0.34
Relative	47.7 ± 0.7	45.3 ± 0.7	46.9 ± 0.7	47.8 ± 1.3	49.1 ± 1.3	49.2 ± 1.8
Lungs						
Absolute	0.91 ± 0.03	1.07 ± 0.08	1.10 ± 0.04	1.12 ± 0.12	0.92 ± 0.04	0.93 ± 0.02
Relative	6.00 ± 0.24	7.06 ± 0.63	7.31 ± 0.25	7.34 ± 0.93	6.12 ± 0.19	6.29 ± 0.12
Thymus[b]						
Absolute	412.0 ± 15.9	402.0 ± 14.6	396.0 ± 7.5	380.0 ± 6.3	384.0 ± 19.4	344.0 ± 16.6**
Relative	2.71 ± 0.10	2.64 ± 0.08	2.63 ± 0.06	2.52 ± 0.08	2.55 ± 0.12	2.33 ± 0.10**

* Significantly different (P≤0.05) from the control group by Williams' or Dunnett's test.
** P≤0.01
[a] Organ weights are given in grams unless otherwise specified; organ-weight-to-body-weight ratios are given as mg organ weight/g body weight (mean ± standard error).
[b] Organ weights are given in milligrams.

TABLE F2
Organ Weights and Organ-Weight-to-Body-Weight Ratios for Rats in the 13-Week Gavage Studies of Resorcinol[a]

	Vehicle Control	32 mg/kg	65 mg/kg	130 mg/kg	260 mg/kg	520 mg/kg
Male						
Number weighed	10	10	10	10	8	0
Necropsy body wt	338 ± 5	338 ± 5	342 ± 4	341 ± 3	337 ± 4	
Adrenal Gland[b]						
Absolute	4.73 ± 0.24	5.42 ± 0.12**	5.48 ± 0.09**	5.21 ± 0.12**	5.74 ± 0.24**	
Relative	0.14 ± 0.01	0.16 ± 0.00**	0.16 ± 0.00**	0.15 ± 0.00**	0.17 ± 0.01**	
Brain						
Absolute	1.83 ± 0.01	1.82 ± 0.02	1.82 ± 0.02	1.83 ± 0.02	1.80 ± 0.03	
Relative	5.41 ± 0.08	5.39 ± 0.09	5.35 ± 0.09	5.36 ± 0.06	5.36 ± 0.09	
Heart						
Absolute	1.12 ± 0.03	1.15 ± 0.02	1.14 ± 0.03	1.16 ± 0.01	1.13 ± 0.03	
Relative	3.32 ± 0.06	3.41 ± 0.07	3.33 ± 0.06	3.40 ± 0.04	3.36 ± 0.10	
R. Kidney						
Absolute	1.17 ± 0.04	1.15 ± 0.03[d]	1.18 ± 0.03	1.21 ± 0.03	1.23 ± 0.03	
Relative	3.45 ± 0.09	3.43 ± 0.06	3.44 ± 0.06	3.55 ± 0.07	3.64 ± 0.07	
Liver						
Absolute	10.84 ± 0.30	11.36 ± 0.36	11.32 ± 0.20	11.75 ± 0.24**	11.74 ± 0.18**	
Relative	32.0 ± 0.7	33.6 ± 0.7	33.1 ± 0.5	34.4 ± 0.5**	34.9 ± 0.5**	
Lungs						
Absolute	1.40 ± 0.02	1.45 ± 0.03	1.51 ± 0.04	1.45 ± 0.03	1.46 ± 0.04	
Relative	4.14 ± 0.08	4.29 ± 0.10	4.42 ± 0.11	4.24 ± 0.07	4.36 ± 0.16	
R. Testis						
Absolute	1.48 ± 0.02	1.49 ± 0.02	1.53 ± 0.02	1.55 ± 0.02*	1.50 ± 0.02	
Relative	4.39 ± 0.07	4.42 ± 0.06	4.49 ± 0.06	4.54 ± 0.05	4.47 ± 0.07	
Thymus[c]						
Absolute	272.1 ± 10.5	276.9 ± 16.3	305.9 ± 10.3	276.9 ± 13.4	286.1 ± 17.1	
Relative	8.06 ± 0.32	8.22 ± 0.51	8.98 ± 0.35	8.10 ± 0.37	8.52 ± 0.56	

TABLE F2
Organ Weights and Organ-Weight-to-Body-Weight Ratios for Rats in the 13-Week Gavage Studies of Resorcinol (continued)

	Vehicle Control	32 mg/kg	65 mg/kg	130 mg/kg	260 mg/kg	520 mg/kg
Female						
Number weighed	10	10	10	10	6	0
Necropsy body wt	183 ± 3	182 ± 3	183 ± 3	187 ± 3	182 ± 3	
Adrenal Gland[b]						
Absolute	5.70 ± 0.21	5.87 ± 0.17	5.88 ± 0.10	5.69 ± 0.17[d]	5.88 ± 0.29	
Relative	0.31 ± 0.01	0.32 ± 0.01	0.32 ± 0.00	0.31 ± 0.01	0.32 ± 0.01	
Brain						
Absolute	1.64 ± 0.03	1.64 ± 0.02	1.64 ± 0.03	1.66 ± 0.01	1.67 ± 0.04	
Relative	8.97 ± 0.17	9.02 ± 0.13	8.99 ± 0.14	8.87 ± 0.15	9.18 ± 0.13	
Heart						
Absolute	0.72 ± 0.02	0.70 ± 0.02	0.69 ± 0.02	0.73 ± 0.02	0.71 ± 0.02	
Relative	3.93 ± 0.09	3.84 ± 0.10	3.79 ± 0.07	3.90 ± 0.08	3.90 ± 0.09	
R. Kidney						
Absolute	0.66 ± 0.02	0.66 ± 0.02	0.68 ± 0.02	0.70 ± 0.02	0.70 ± 0.02	
Relative	3.61 ± 0.10	3.62 ± 0.09	3.69 ± 0.09	3.74 ± 0.05	3.84 ± 0.10	
Liver						
Absolute	4.77 ± 0.16	5.15 ± 0.18	5.43 ± 0.15*	5.41 ± 0.22*	5.49 ± 0.16*	
Relative	26.0 ± 0.9	28.3 ± 0.8*	29.7 ± 0.5**	28.8 ± 0.8**	30.2 ± 0.7**	
Lung						
Absolute	1.03 ± 0.02	1.01 ± 0.02	1.03 ± 0.04	1.04 ± 0.02	1.02 ± 0.04	
Relative	5.60 ± 0.14	5.54 ± 0.09	5.60 ± 0.14	5.57 ± 0.13	5.62 ± 0.18	
Thymus[c]						
Absolute	242.1 ± 10.6	199.8 ± 12.7*[d]	225.8 ± 7.4	243.7 ± 11.4	239.0 ± 13.5	
Relative	13.2 ± 0.5	10.9 ± 0.7*	12.3 ± 0.4	13.0 ± 0.5	13.1 ± 0.7	

* Significantly different ($P \leq 0.05$) from the control group by Williams' or Dunnett's test.
** $P \leq 0.01$
[a] Organ weights are given in grams unless otherwise specified; organ-weight-to-body-weight ratios are given as mg organ weight/g body weight (mean ± standard error). No measurements were taken for males or females receiving 520 mg/kg due to 100% mortality in these groups.
[b] Organ weights are given in milligrams; ratios are given as mg organ weight/g body weight × 10.
[c] n=9

TABLE F3
Organ Weights and Organ-Weight-to-Body-Weight Ratios for Rats at the 15-Month Interim Evaluation in the 2-Year Gavage Studies of Resorcinol[a]

	Vehicle Control	112 mg/kg
Male		
Number weighed	10	10
Necropsy body wt	421 ± 5	393 ± 8**
Brain		
Absolute	2.00 ± 0.02	2.04 ± 0.04
Relative	4.75 ± 0.07	5.19 ± 0.09**
R. Kidney		
Absolute	1.67 ± 0.05	1.61 ± 0.05
Relative	3.96 ± 0.15	4.10 ± 0.15
Liver		
Absolute	12.69 ± 0.26	12.80 ± 0.52
Relative	3.01 ± 0.06	3.26 ± 0.14

	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Female				
Number weighed	10	10	10	10
Necropsy ± 291 ± 11	293 ± 7	304 ± 6	274 ± 7	
Brain				
Absolute	1.90 ± 0.03	1.89 ± 0.02	1.85 ± 0.04	1.90 ± 0.05
Relative	6.60 ± 0.20	6.48 ± 0.14	6.09 ± 0.16	6.95 ± 0.19
R. Kidney				
Absolute	1.05 ± 0.02	1.07 ± 0.03	1.20 ± 0.07*	1.05 ± 0.02
Relative	3.62 ± 0.08	3.65 ± 0.11	3.95 ± 0.25	3.84 ± 0.09
Liver				
Absolute	8.55 ± 0.28	8.55 ± 0.23	9.26 ± 0.17	8.72 ± 0.27
Relative	2.95 ± 0.06	2.92 ± 0.06	3.05 ± 0.07	3.19 ± 0.09*

* Significantly different (P≤0.05) from the control group by Williams' or Dunnett's test.
** P≤0.01
[a] Organ weights are given in grams; organ-weight-to-body-weight ratios are given as mg organ weight/g body weight (mean ± standard error).

TABLE F4
Organ Weights and Organ-Weight-to-Body-Weight Ratios for Mice in the 17-Day Gavage Studies of Resorcinol[a]

	Vehicle Control	37.5 mg/kg	75 mg/kg	150 mg/kg	300 mg/kg	600 mg/kg
Male						
Number weighed	4	5	5	5	4	1
Necropsy body wt	25.8 ± 0.9	24.6 ± 1.1	25.0 ± 0.8	25.6 ± 0.6	24.8 ± 0.8	25.0[b]
Brain						
Absolute	0.45 ± 0.02	0.46 ± 0.02	0.42 ± 0.02	0.45 ± 0.03	0.43 ± 0.02	0.47[b]
Relative	17.3 ± 0.8	18.8 ± 0.6	16.8 ± 1.0	17.6 ± 1.7	17.2 ± 0.5	18.8[b]
Heart						
Absolute	0.10 ± 0.02	0.13 ± 0.02	0.13 ± 0.02	0.13 ± 0.00	0.14 ± 0.02	0.13[b]
Relative	3.94 ± 0.77	5.30 ± 0.48	4.97 ± 0.68	5.09 ± 0.20	5.54 ± 0.75	5.20[b]
R. Kidney						
Absolute	0.25 ± 0.03	0.24 ± 0.01	0.27 ± 0.03	0.25 ± 0.00	0.27 ± 0.03	0.30[b]
Relative	9.54 ± 0.76	9.92 ± 0.23	10.87 ± 0.94	9.70 ± 0.32	10.72 ± 1.03	12.00[b]
Liver						
Absolute	1.51 ± 0.04	1.27 ± 0.06**	1.30 ± 0.05*	1.48 ± 0.02	1.42 ± 0.05	1.63[b]
Relative	58.6 ± 1.1	51.8 ± 1.0**	51.8 ± 1.0**	58.1 ± 1.2	57.5 ± 1.4	65.2[b]
Lungs						
Absolute	0.19 ± 0.01	0.19 ± 0.01	0.20 ± 0.01	0.23 ± 0.02	0.21 ± 0.02	0.22[b]
Relative	7.54 ± 0.74	7.93 ± 0.56	8.20 ± 0.45	8.81 ± 0.54	8.46 ± 0.50	8.80[b]
Thymus[c]						
Absolute	60.00 ± 12.25	58.88 ± 9.70	46.00 ± 12.08	48.00 ± 10.20	47.50 ± 10.31	10.00[b]
Relative	2.35 ± 0.53	2.34 ± 0.37	1.85 ± 0.47	1.88 ± 0.41	1.94 ± 0.45	0.40[b]
Female						
Number weighed	5	5	5	5	5	0
Necropsy body wt	21.0 ± 0.5	21.2 ± 0.8	21.2 ± 0.6	21.4 ± 1.1	20.8 ± 0.4	
Brain						
Absolute	0.46 ± 0.00	0.44 ± 0.01	0.48 ± 0.02	0.47 ± 0.02	0.43 ± 0.00	
Relative	21.9 ± 0.5	21.0 ± 1.1	22.6 ± 1.2	22.0 ± 1.3	20.7 ± 0.7	
Heart						
Absolute	0.11 ± 0.02	0.12 ± 0.01	0.15 ± 0.01	0.13 ± 0.02	0.14 ± 0.02	
Relative	5.08 ± 0.89	5.52 ± 0.55	6.95 ± 0.50	6.15 ± 1.01	6.71 ± 0.83	
R. Kidney						
Absolute	0.22 ± 0.05	0.19 ± 0.01	0.17 ± 0.03	0.16 ± 0.00	0.15 ± 0.03	
Relative	10.6 ± 2.0	8.9 ± 0.4	8.0 ± 1.3	7.5 ± 0.5	7.2 ± 1.3	
Liver						
Absolute	1.27 ± 0.05	1.09 ± 0.03*	1.13 ± 0.03	1.14 ± 0.03	1.18 ± 0.07	
Relative	60.5 ± 1.0	51.4 ± 1.3**	53.3 ± 1.3*	53.5 ± 2.4*	56.8 ± 2.3	
Lungs						
Absolute	0.19 ± 0.02	0.17 ± 0.01	0.15 ± 0.02	0.22 ± 0.02	0.24 ± 0.03	
Relative	8.83 ± 0.81	7.91 ± 0.21	7.16 ± 0.79	10.56 ± 1.20	11.41 ± 1.21	
Thymus[c]						
Absolute	58.00 ± 8.60	54.00 ± 8.12	48.00 ± 6.63	42.00 ± 9.70	58.00 ± 8.60	
Relative	2.74 ± 0.36	2.60 ± 0.44	2.30 ± 0.37	1.97 ± 0.47	2.80 ± 0.42	

* Significantly different (P≤0.05) from the control group by Williams' or Dunnett's test.
** P≤0.01
[a] Organ weights are given in grams; organ-weight-to-body-weight ratios are given as mg organ weight/g body weight (mean ± standard error). No measurements were taken for females receiving 600 mg/kg due to 100% mortality in this group.
[b] No standard error calculated due to high mortality.
[c] Organ weights are given in milligrams.

TABLE F5
Organ Weights and Organ-Weight-to-Body-Weight Ratios for Mice in the 13-Week Gavage Studies of Resorcinol[a]

	Vehicle Control	28 mg/kg	56 mg/kg	112 mg/kg	225 mg/kg	420 mg/kg
Male						
Number weighed	10	10	9	10	10	2
Necropsy body wt	27.6 ± 0.7	25.3 ± 0.6*	26.4 ± 0.8	25.3 ± 0.4*	25.3 ± 0.6*	24.0 ± 1.0*
Adrenal Gland[b]						
Absolute	8.30 ± 0.52	6.40 ± 0.34**	5.90 ± 0.18**	5.89 ± 0.20**	5.70 ± 0.26**	9.00[c]
Relative	0.31 ± 0.02	0.25 ± 0.01**	0.22 ± 0.01**	0.23 ± 0.01**	0.23 ± 0.01**	0.36[c]
Brain						
Absolute	0.42 ± 0.01	0.42 ± 0.01	0.42 ± 0.01	0.43 ± 0.01	0.42 ± 0.01	0.43 ± 0.01
Relative	15.3 ± 0.4	16.7 ± 0.4	16.0 ± 0.4	17.0 ± 0.4*	16.5 ± 0.3*	17.8 ± 0.3**
Heart						
Absolute	0.18 ± 0.01	0.18 ± 0.01	0.17 ± 0.01	0.19 ± 0.01	0.16 ± 0.01	0.16 ± 0.01
Relative	6.39 ± 0.26	7.23 ± 0.35	6.62 ± 0.29	7.41 ± 0.39	6.22 ± 0.26	6.65 ± 0.57
R. Kidney						
Absolute	0.25 ± 0.01	0.26 ± 0.01	0.24 ± 0.01	0.23 ± 0.01	0.24 ± 0.01	0.23 ± 0.01
Relative	9.09 ± 0.22	10.13 ± 0.15**	9.11 ± 0.15	9.17 ± 0.15	9.37 ± 0.25	9.54 ± 0.06
Liver						
Absolute	1.18 ± 0.03	1.19 ± 0.03	1.20 ± 0.04	1.16 ± 0.03	1.12 ± 0.03	1.08 ± 0.03
Relative	42.9 ± 0.8	46.9 ± 0.3**	45.7 ± 0.7*	45.8 ± 0.9*	44.2 ± 0.8	45.1 ± 0.7
Lung						
Absolute	0.21 ± 0.01	0.21 ± 0.01	0.21 ± 0.01	0.21 ± 0.01	0.21 ± 0.01	0.21 ± 0.00
Relative	7.63 ± 0.16	8.24 ± 0.25	7.81 ± 0.23	8.20 ± 0.21	8.18 ± 0.26	8.72 ± 0.24
R. Testis						
Absolute	0.12 ± 0.00	0.12 ± 0.00	0.12 ± 0.00	0.11 ± 0.00	0.11 ± 0.01	0.13[c]
Relative	4.52 ± 0.15	4.72 ± 0.12	4.60 ± 0.10	4.44 ± 0.11	4.48 ± 0.31	5.12[c]
Thymus[b]						
Absolute	33.60 ± 1.54	25.20 ± 2.10	28.80 ± 2.68	24.78 ± 2.62	36.80 ± 3.12	33.50 ± 0.50
Relative	1.21 ± 0.04	0.99 ± 0.08	1.09 ± 0.09	0.97 ± 0.10	1.45 ± 0.11	1.40 ± 0.04

TABLE F5
Organ Weights and Organ-Weight-to-Body-Weight Ratios for Mice in the 13-Week Gavage Studies of Resorcinol (continued)

	Vehicle Control	28 mg/kg	56 mg/kg	112 mg/kg	225 mg/kg	420 mg/kg
Female						
Number weighed	10	10	9	10	10	2
Necropsy body wt	20.5 ± 0.4	19.7 ± 0.5	20.0 ± 0.4	20.3 ± 0.5	20.3 ± 0.5	19.5 ± 0.5
Adrenal Gland[b]						
Absolute	9.10 ± 0.53	8.11 ± 0.20[d]	8.09 ± 0.20	10.20 ± 0.65	10.60 ± 0.50	9.50 ± 0.50
Relative	0.44 ± 0.02	0.41 ± 0.02	0.41 ± 0.02	0.50 ± 0.03	0.52 ± 0.03*	0.49 ± 0.01
Brain						
Absolute	0.44 ± 0.01	0.45 ± 0.01	0.43 ± 0.01	0.44 ± 0.01	0.43 ± 0.00	0.45 ± 0.02
Relative	21.6 ± 0.5	22.7 ± 0.4	21.5 ± 0.3	21.5 ± 0.5	21.2 ± 0.6	23.1 ± 0.4
Heart						
Absolute	0.13 ± 0.00	0.13 ± 0.00	0.12 ± 0.00	0.13 ± 0.01	0.13 ± 0.01	0.12 ± 0.01
Relative	6.50 ± 0.26	6.35 ± 0.18	5.93 ± 0.15	6.36 ± 0.23	6.37 ± 0.21	6.30 ± 0.85
R. Kidney						
Absolute	0.17 ± 0.00	0.16 ± 0.00	0.17 ± 0.01	0.16 ± 0.01	0.16 ± 0.01	0.18 ± 0.00
Relative	8.26 ± 0.18	8.37 ± 0.12	8.39 ± 0.17	8.10 ± 0.15	7.79 ± 0.23	9.36 ± 0.06*
Liver						
Absolute	0.98 ± 0.03	0.92 ± 0.03	0.98 ± 0.03	0.93 ± 0.02	0.94 ± 0.02	1.00 ± 0.01
Relative	48.0 ± 0.9	46.6 ± 0.8	48.8 ± 1.0	45.9 ± 0.8	46.4 ± 0.6	51.2 ± 0.9
Lung						
Absolute	0.19 ± 0.00	0.19 ± 0.01	0.19 ± 0.01	0.19 ± 0.01	0.20 ± 0.00	0.18 ± 0.00
Relative	9.30 ± 0.17	9.46 ± 0.23	9.59 ± 0.27	9.20 ± 0.17	9.93 ± 0.38	9.34 ± 0.39
Thymus[b]						
Absolute	43.10 ± 7.66	31.90 ± 2.05	35.89 ± 2.13	38.10 ± 2.84	33.90 ± 2.97	29.00 ± 0.00
Relative	2.10 ± 0.38	1.62 ± 0.10	1.78 ± 0.09	1.86 ± 0.10	1.67 ± 0.14	1.49 ± 0.04

* Significantly different ($P \leq 0.05$) from the control group by Williams' or Dunnett's test.
** $P \leq 0.01$
[a] Organ weights are given in grams unless otherwise specified; organ-weight-to-body-weight ratios are given as mg organ weight/g body weight (mean ± standard error).
[b] Organ weights are given in milligrams.
[c] n=1; no standard error calculated due to high mortality.
[d] n=9

TABLE F6
Organ Weights and Organ-Weight-to-Body-Weight Ratios for Mice at the 15-Month Interim Evaluation in the 2-Year Gavage Studies of Resorcinol[a]

	Vehicle Control	112 mg/kg	225 mg/kg
Male			
Number weighed	10	10	10
Necropsy body wt	30.3 ± 1.0	31.1 ± 0.7	31.4 ± 0.7
Brain			
Absolute	0.45 ± 0.01	0.44 ± 0.01	0.45 ± 0.01
Relative	15.0 ± 0.6	14.2 ± 0.5	14.3 ± 0.4
R. Kidney			
Absolute	0.30 ± 0.02	0.32 ± 0.02	0.30 ± 0.02
Relative	10.1 ± 0.6	10.2 ± 0.5	9.6 ± 0.3
Liver			
Absolute	1.38 ± 0.07	1.34 ± 0.02	1.33 ± 0.04
Relative	45.9 ± 2.5	43.3 ± 0.7	42.4 ± 1.0
Female			
Number weighed	10	10	10
Necropsy body wt	28.1 ± 1.2	29.2 ± 1.9	27.5 ± 1.0
Brain			
Absolute	0.46 ± 0.01	0.48 ± 0.01	0.46 ± 0.01
Relative	16.6 ± 0.5	17.1 ± 0.9	16.8 ± 0.6
R. Kidney			
Absolute	0.20 ± 0.01	0.20 ± 0.01[b]	0.24 ± 0.03
Relative	7.25 ± 0.27	6.86 ± 0.34	8.89 ± 1.08
Liver			
Absolute	1.21 ± 0.05	1.29 ± 0.05	1.23 ± 0.05
Relative	43.4 ± 1.5	44.8 ± 1.6	45.0 ± 1.3

[a] Organ weights are given in grams; organ-weight-to-body-weight ratios are given as mg organ weight/g body weight (mean ± standard error). Values are not significant by Williams' or Dunnett's test.
[b] n=9

APPENDIX G
HEMATOLOGY AND CLINICAL CHEMISTRY RESULTS

TABLE G1
Hematology and Clinical Chemistry Data for Rats in the 13-Week Gavage Studies of Resorcinol[a]

Analysis	Vehicle Control	32 mg/kg	65 mg/kg	130 mg/kg	260 mg/kg
Male					
Number examined	8	8	8	8	8
Hematology					
Hematocrit (%)	48.3 ± 0.3	47.0 ± 0.4	47.5 ± 0.6	48.6 ± 0.6	47.8 ± 0.6
Hemoglobin (g/dL)	17.4 ± 0.2	16.9 ± 0.2	17.1 ± 0.2	17.5 ± 0.2	17.3 ± 0.2
Erythrocytes ($10^6/\mu L$)	8.09 ± 0.07	7.86 ± 0.08	7.93 ± 0.07	8.15 ± 0.11	7.98 ± 0.08
Mean cell volume (fL)	59.5 ± 0.3	59.7 ± 0.3	59.9 ± 0.3	59.7 ± 0.3	59.9 ± 0.3
Mean cell hemoglobin (g/dL)	21.5 ± 0.1	21.5 ± 0.1	21.5 ± 0.1	21.4 ± 0.1	21.7 ± 0.1
Mean cell hemoglobin concentration (g/dL)	36.1 ± 0.2	35.9 ± 0.1	35.9 ± 0.2	35.9 ± 0.2	36.2 ± 0.2
Leukocytes ($10^3/\mu L$)	7.28 ± 0.38	7.15 ± 0.40	6.73 ± 0.17	7.52 ± 0.31	7.53 ± 0.67
Segmented neutrophils ($10^3/\mu L$)	1.27 ± 0.09	1.39 ± 0.12	1.29 ± 0.12	1.34 ± 0.14	1.24 ± 0.10
Lymphocytes ($10^3/\mu L$)	5.69 ± 0.29	5.47 ± 0.32	5.21 ± 0.09	5.91 ± 0.32	6.00 ± 0.56
Monocytes ($10^3/\mu L$)	0.24 ± 0.03	0.21 ± 0.04	0.16 ± 0.04	0.17 ± 0.03	0.20 ± 0.04
Eosinophils ($10^3/\mu L$)	0.09 ± 0.02	0.09 ± 0.02	0.05 ± 0.02	0.09 ± 0.03	0.08 ± 0.03
Clinical chemistry					
Urea nitrogen (mg/dL)	14.6 ± 0.3	14.7 ± 0.5	14.8 ± 0.4	14.3 ± 0.3	15.4 ± 0.6
Creatinine (mg/dL)	0.62 ± 0.03	0.66 ± 0.03	0.64 ± 0.03	0.63 ± 0.03	0.68 ± 0.03
Sodium (meq/L)	148 ± 0	149 ± 1	148 ± 1	147 ± 1	149 ± 1
Potassium (meq/L)	5 ± 0	6 ± 0	5 ± 0	6 ± 0	5 ± 0
Chloride (mg/dL)	105 ± 1	106 ± 1	105 ± 1	104 ± 1	104 ± 1
Calcium (mg/dL)	10.2 ± 0.2	10.3 ± 0.2	10.3 ± 0.1	10.3 ± 0.2	10.3 ± 0.2
Phosphorus (mg/dL)	6.7 ± 0.1	6.5 ± 0.2	6.6 ± 0.2	6.5 ± 0.1	6.9 ± 0.2
Total protein (g/L)	6.9 ± 0.1	7.0 ± 0.1	7.1 ± 0.1	7.1 ± 0.1	7.2 ± 0.1
Albumin (g/dL)	3.5 ± 0.0	3.6 ± 0.0	3.6 ± 0.0	3.6 ± 0.0	3.6 ± 0.0
A/G ratio	1.0 ± 0.0	1.1 ± 0.0	1.0 ± 0.0	1.0 ± 0.0	1.0 ± 0.0
Total bilirubin (mg/dL)	0.1 ± 0.0	0.1 ± 0.0	0.1 ± 0.0	0.1 ± 0.0	0.1 ± 0.0
Methemoglobin (%)	7.05 ± 1.54	8.23 ± 2.07	3.99 ± 1.66	6.24 ± 2.30	3.02 ± 0.77
ALT (IU/L)	38 ± 2	39 ± 3	36 ± 1	40 ± 2	40 ± 2
AST (IU/L)	81 ± 6	80 ± 5	75 ± 3	78 ± 5	82 ± 7
LDH (IU/L)	825 ± 106	769 ± 90	716 ± 71	764 ± 98	862 ± 91
OCT (IU/L)	2 ± 1	2 ± 1	2 ± 1	3 ± 1	3 ± 1
SDH (IU/L)	9 ± 1	10 ± 1	9 ± 0	9 ± 0	7 ± 1**
Cholinesterase (IU/L)	913 ± 35	920 ± 38	914 ± 27	886 ± 15	911 ± 49
T_3 ($\mu g/dL$)	107 ± 7	-[b]	-	109 ± 6	-
T_4 ($\mu g/dL$)	7 ± 0	-	-	7 ± 0	-

TABLE G1
Hematology and Clinical Chemistry Data for Rats in the 13-Week Gavage Studies of Resorcinol
(continued)

Analysis	Vehicle Control	32 mg/kg	65 mg/kg	130 mg/kg	260 mg/kg
Female					
Number examined	6	6	6	6	6
Hematology					
Hematocrit (%)	47.5 ± 1.0	45.6 ± 1.0	45.9 ± 1.0	48.0 ± 1.0	46.8 ± 1.0
Hemoglobin (g/dL)	17.0 ± 0.3	16.3 ± 0.3	16.4 ± 0.2	17.1 ± 0.2	16.7 ± 0.2
Erythrocytes ($10^6/\mu L$)	7.48 ± 0.15	7.21 ± 0.12	7.21 ± 0.12	7.52 ± 0.08	7.37 ± 0.10
Mean cell volume (fL)	63.5 ± 0.3	63.2 ± 0.2	63.6 ± 0.2	64.0 ± 0.2	63.5 ± 0.3
Mean cell hemoglobin (pg)	22.7 ± 0.1	22.6 ± 0.1	22.8 ± 0.1	22.8 ± 0.1	22.7 ± 0.1
Mean cell hemoglobin concentration (g/dL)	35.7 ± 0.1	35.8 ± 0.1	35.9 ± 0.1	35.7 ± 0.2	35.7 ± 0.2
Leukocytes ($10^3/\mu L$)	4.88 ± 0.41	5.32 ± 0.45	5.64 ± 0.46	5.69 ± 0.40	5.60 ± 0.53
Segmented neutrophils ($10^3/\mu L$)	0.88 ± 0.11	1.03 ± 0.07	1.05 ± 0.14	1.01 ± 0.12	1.11 ± 0.16
Lymphocytes ($10^3/\mu L$)	3.79 ± 0.33	4.07 ± 0.42	4.42 ± 0.36	4.48 ± 0.30	4.23 ± 0.42
Monocytes ($10^3/\mu L$)	0.15 ± 0.02	0.16 ± 0.02	0.10 ± 0.02	0.16 ± 0.03	0.20 ± 0.03
Eosinophils ($10^3/\mu L$)	0.05 ± 0.01	0.06 ± 0.02	0.07 ± 0.02	0.05 ± 0.02	0.06 ± 0.04
Clinical chemistry					
Urea nitrogen (mg/dL)	15.9 ± 0.5	14.3 ± 0.6	14.8 ± 0.4	14.6 ± 0.4	13.5 ± 0.3**
Creatinine (mg/dL)	0.58 ± 0.03	0.57 ± 0.03	0.64 ± 0.05	0.63 ± 0.03	0.62 ± 0.03
Sodium (meq/L)	147 ± 1	147 ± 1	149 ± 1	148 ± 1	149 ± 1
Potassium (meq/L)	6 ± 0	5 ± 0	5 ± 0	5 ± 0	6 ± 0
Chloride (meq/L)	107 ± 1	107 ± 1	107 ± 1	106 ± 1	109 ± 1
Calcium (mg/dL)	10.2 ± 0.2	10.2 ± 0.2	10.3 ± 0.2	10.1 ± 0.2	10.1 ± 0.2
Phosphorus (mg/dL)	5.8 ± 0.3	5.9 ± 0.2	6.1 ± 0.2	6.2 ± 0.2	6.5 ± 0.3
Total protein (g/dL)	6.8 ± 0.1	6.4 ± 0.1*	6.8 ± 0.1	6.9 ± 0.1	6.8 ± 0.1
Albumin (g/dL)	3.6 ± 0.0	3.4 ± 0.1	3.6 ± 0.0	3.6 ± 0.0	3.6 ± 0.0
A/G ratio	1.1 ± 0.0	1.1 ± 0.0	1.1 ± 0.0	1.1 ± 0.0	1.1 ± 0.0
Total bilirubin (mg/dL)	0.1 ± 0.0	0.1 ± 0.0	0.1 ± 0.0	0.1 ± 0.0	0.1 ± 0.0
Methemoglobin (%)	2.87 ± 1.25	9.54 ± 2.40	8.82 ± 2.56	6.48 ± 1.89	3.85 ± 2.02
ALT (IU/L)	33 ± 2	33 ± 2	35 ± 2	38 ± 3	37 ± 2
AST (IU/L)	83 ± 5	80 ± 5	80 ± 6	85 ± 7	84 ± 6
LDH (IU/L)	659 ± 75	570 ± 76	619 ± 84	593 ± 74	751 ± 86
OCT (IU/L)	3 ± 1	3 ± 1	3 ± 1	7 ± 2	1 ± 0
SDH (IU/L)	8 ± 0	8 ± 0	7 ± 1	8 ± 1	8 ± 0
Cholinesterase (IU/L)	4,266 ± 177	3,972 ± 173	4,275 ± 139	3,936 ± 183	3,241 ± 154**
T_3 ($\mu g/dL$)	118 ± 8	–	–	112 ± 7	–
T_4 ($\mu g/dL$)	5 ± 0	–	–	4 ± 0	–

* Statistically significant ($P \leq 0.05$) from the control group by Dunn's or Shirley's test.
** $P \leq 0.01$
[a] Mean ± standard error. ALT = alanine aminotransferase; AST = aspartate aminotransferase; LDH = lactate dehydrogenase; OCT = ornithine carbamoyltransferase; SDH = sorbitol dehydrogenase; T_3 = triiodothyronine; T_4 = thyroxine; no measurements taken for males or females receiving 520 mg/kg due to 100% mortality in these groups.
[b] Analysis not performed for this group.

TABLE G2
Hematology and Clinical Chemistry Data for Rats at the 15-Month Interim Evaluation in the 2-Year Gavage Studies of Resorcinol[a]

Analysis	Vehicle Control	112 mg/kg
Male		
Number examined	10	10
Hematology		
Hematocrit (%)	48.8 ± 0.4	49.9 ± 0.8
Hemoglobin (g/dL)	16.8 ± 0.1	17.1 ± 0.2
Erythrocytes ($10^6/\mu L$)	8.58 ± 0.06	8.72 ± 0.12
Mean cell volume (fL)	56.8 ± 0.3	57.2 ± 0.4
Mean cell hemoglobin (pg)	19.5 ± 0.1	19.6 ± 0.1
Mean cell hemoglobin concentration (g/dL)	34.4 ± 0.1	34.3 ± 0.1
Leukocytes ($10^3/\mu L$)	6.37 ± 0.25	6.35 ± 0.35
Segmented neutrophils ($10^3/\mu L$)	2.25 ± 0.19	2.48 ± 0.27
Lymphocytes ($10^3/\mu L$)	3.82 ± 0.14	3.60 ± 0.15
Monocytes ($10^3/\mu L$)	0.17 ± 0.03	0.16 ± 0.02
Eosinophils ($10^3/\mu L$)	0.14 ± 0.04	0.11 ± 0.02
Nucleated erythrocytes (/100 leukocytes)	0.70 ± 0.30	0.30 ± 0.21
Clinical chemistry		
Urea nitrogen (mg/dL)	15.7 ± 0.5	15.8 ± 0.7
Alkaline phosphatase (IU/L)	58 ± 3	56 ± 4
ALT (IU/L)	51 ± 2	51 ± 5
AST (IU/L)	80 ± 3	81 ± 6
SDH (IU/L)	21 ± 1	22 ± 1

TABLE G2
Hematology and Clinical Chemistry Data for Rats at the 15-Month Interim Evaluation in the 2-Year Gavage Studies of Resorcinol (continued)

Analysis	Vehicle Control	50 mg/kg	100 mg/kg	150 mg/kg
Female				
Number examined	10	10	10	10
Hematology				
Hematocrit (%)	50.3 ± 1.8	52.9 ± 0.5	52.5 ± 0.3	50.3 ± 1.7
Hemoglobin (g/dL)	15.4 ± 0.6	16.1 ± 0.2	15.9 ± 0.1	15.4 ± 0.5
Erythrocytes ($10^6/\mu L$)	7.40 ± 0.18	7.72 ± 0.08	7.62 ± 0.04	7.25 ± 0.28
Mean cell volume (fL)	67.9 ± 1.0	68.5 ± 0.3	69.0 ± 0.3	69.4 ± 0.3
Mean cell hemoglobin (pg)	20.7 ± 0.4	20.8 ± 0.3	20.8 ± 0.1	21.2 ± 0.2
Mean cell hemoglobin concentration (g/dL)	30.6 ± 0.2	30.4 ± 0.3	30.2 ± 0.1	30.6 ± 0.2
Leukocytes ($10^3/\mu L$)	4.03 ± 0.25	4.51 ± 0.31	4.34 ± 0.19	4.41 ± 0.30
Segmented neutrophils ($10^3/\mu L$)	1.28 ± 0.17	1.73 ± 0.20	1.57 ± 0.15	1.30 ± 0.14
Lymphocytes ($10^3/\mu L$)	2.67 ± 0.18	2.70 ± 0.23	2.64 ± 0.12	3.02 ± 0.21
Monocytes ($10^3/\mu L$)	0.04 ± 0.02	0.02 ± 0.01	0.01 ± 0.01	0.02 ± 0.01
Eosinophils ($10^3/\mu L$)	0.04 ± 0.02	0.06 ± 0.02	0.09 ± 0.02	0.07 ± 0.02
Nucleated erythrocytes (/100 leukocytes)	1.50 ± 0.40	0.80 ± 0.29	0.90 ± 0.35	1.60 ± 0.476
Clinical chemistry				
Urea nitrogen (mg/dL)	17.2 ± 0.7	16.8 ± 0.8	16.7 ± 0.5	16.4 ± 0.6
Alkaline phosphatase (IU/L)	44 ± 2	43 ± 2	44 ± 2	48 ± 2
ALT (IU/L)	67 ± 12	59 ± 13	40 ± 3	45 ± 5
AST (IU/L)	89 ± 12	86 ± 16	59 ± 3	61 ± 5
SDH (IU/L)	34 ± 10	27 ± 8	12 ± 2*	16 ± 5*

* Statistically significant ($P \leq 0.05$) from the control group by Dunn's or Shirley's test.
[a] Mean ± standard error. ALT = alanine aminotransferase; AST = aspartate aminotransferase; SDH = sorbitol dehydrogenase

TABLE G3
Hematology and Clinical Chemistry Data for Mice in the 13-Week Gavage Studies of Resorcinol[a]

Analysis	Vehicle Control	28 mg/kg	56 mg/kg	112 mg/kg	225 mg/kg	420 mg/kg
Male						
Number analyzed	10	10	10	9	10	2
Hematology						
Hematocrit (%)	37.7 ± 0.7	38.4 ± 0.8	38.0 ± 0.8	36.5 ± 1.1	37.4 ± 0.7	35.1 ± 0.9
Hemoglobin (g/dL)	15.3 ± 0.2	15.4 ± 0.3	15.4 ± 0.2	14.8 ± 0.4	15.2 ± 0.2	14.6 ± 0.2
Erythrocytes ($10^6/\mu L$)	7.76 ± 0.09	7.76 ± 0.12	7.87 ± 0.08	7.42 ± 0.15	7.66 ± 0.09	7.47 ± 0.18
Mean cell volume (fL)	48.7 ± 0.5	49.6 ± 0.5	48.3 ± 0.6	49.2 ± 0.7	48.8 ± 0.6	47.0 ± 0.0
Mean cell hemoglobin (pg)	19.7 ± 0.1	19.8 ± 0.1	19.6 ± 0.1	19.9 ± 0.2	19.8 ± 0.1	19.6 ± 0.2
Mean cell hemoglobin concentration (g/dL)	40.6 ± 0.4	40.1 ± 0.3	40.1 ± 0.7	40.5 ± 0.4	40.6 ± 0.3	41.6 ± 0.5
Leukocytes ($10^3/\mu L$)	3.87 ± 0.29	2.60 ± 0.24	3.71 ± 0.57	3.21 ± 0.71	3.86 ± 0.35	2.20 ± 0.00
Segmented neutrophils ($10^3/\mu L$)	0.75 ± 0.09	0.65 ± 0.03	0.83 ± 0.23	0.74 ± 0.15	0.87 ± 0.09	0.47 ± 0.03
Lymphocytes ($10^3/\mu L$)	2.94 ± 0.22	1.89 ± 0.22	2.79 ± 0.42	2.41 ± 0.57	2.86 ± 0.27	1.67 ± 0.02
Monocytes ($10^3/\mu L$)	0.13 ± 0.02	0.05 ± 0.02*	0.08 ± 0.02	0.06 ± 0.02*	0.12 ± 0.02	0.03 ± 0.01
Eosinophils ($10^3/\mu L$)	0.05 ± 0.01	0.01 ± 0.00	0.00 ± 0.00	0.00 ± 0.00*	0.02 ± 0.01	0.02 ± 0.00
Clinical chemistry						
Urea nitrogen (mg/dL)	22.2 ± 0.8[d]	22.7 ± 1.0[e]	24.7 ± 0.7[d]	25.9 ± 1.1[c]	22.8 ± 0.8[f]	-[k]
Phosphorus (mg/dL)	11.5 ± 0.7[e]	10.5 ± 0.8[g]	10.8 ± 0.9[d]	12.9 ± 1.1[f]	11.5 ± 1.0[d]	8.7[h]
Total protein (g/dL)	7.3 ± 0.4[g]	7.3 ± 0.2[b]	7.1 ± 0.1[i]	7.3 ± 0.3[d]	7.6 ± 0.3[b]	7.0[h]
Albumin (g/dL)	3.5 ± 0.1[g]	3.4 ± 0.0	3.4 ± 0.0[g]	3.4 ± 0.1	3.6 ± 0.0	3.7[h]
A/G ratio	0.9 ± 0.0[g]	0.9 ± 0.0[b]	0.9 ± 0.0[i]	0.9 ± 0.1[d]	0.9 ± 0.0[b]	1.1[h]
Methemoglobin (%)	2.86 ± 1.04[j]	3.72 ± 0.88[b]	1.31 ± 0.62	3.45 ± 1.50	2.73 ± 0.97	5.34 ± 3.85
ALT (IU/L)	191 ± 55[g]	169 ± 37	172 ± 34[b]	206 ± 36[g]	189 ± 32[g]	127 ± 26
LDH (IU/L)	1155 ± 367[c]	1,337 ± 80[e]	1,174 ± 44[f]	1,559 ± 62[c]	1,188 ± 126[f]	1,644[h]
SDH (IU/L)	121 ± 42[f]	120 ± 23[j]	126 ± 11[j]	123 ± 15[j]	124 ± 14[g]	141[h]
Cholinesterase (IU/L)	7,713 ± 122	7,591 ± 277[f]	7,786 ± 539[f]	8,023 ± 656[c]	8,262[h]	-[k]

TABLE G3
Hematology and Clinical Chemistry Data for Mice in the 13-Week Gavage Studies of Resorcinol
(continued)

Analysis	Vehicle Control	28 mg/kg	56 mg/kg	112 mg/kg	225 mg/kg	420 mg/kg
Female						
Number analyzed	10	10	10	10	10	2
Hematology						
Hematocrit (%)	38.5 ± 1.0	38.0 ± 0.7	38.7 ± 0.8	37.6 ± 0.7	37.8 ± 0.6	37.9 ± 3.6
Hemoglobin (g/dL)	15.3 ± 0.3	15.2 ± 0.3	15.5 ± 0.3	15.1 ± 0.2	15.1 ± 0.2	14.8 ± 1.5
Erythrocytes ($10^6/\mu L$)	7.77 ± 0.13	7.68 ± 0.09	7.87 ± 0.12	7.63 ± 0.11	7.73 ± 0.10	7.46 ± 0.88
Mean cell volume (fL)	49.7 ± 0.6	49.5 ± 0.5	49.1 ± 0.5	49.4 ± 0.4	49.0 ± 0.4	51.00 ± 1.00
Mean cell hemoglobin (pg)	19.7 ± 0.1	19.8 ± 0.2	19.8 ± 0.1	19.8 ± 0.1	19.6 ± 0.1	19.9 ± 0.3
Mean cell hemoglobin concentration (g/dL)	39.8 ± 0.3	40.1 ± 0.3	40.2 ± 0.3	40.1 ± 0.3	40.0 ± 0.4	39.1 ± 0.3
Leukocytes ($10^3/\mu L$)	3.52 ± 0.37	3.15 ± 0.39	3.58 ± 0.31	4.02 ± 0.44	3.83 ± 0.47	2.60 ± 0.90
Segmented neutrophils ($10^3/\mu L$)	0.79 ± 0.09	0.68 ± 0.10	0.85 ± 0.09	0.82 ± 0.11	0.80 ± 0.13	0.68 ± 0.05
Lymphocytes ($10^3/\mu L$)	2.62 ± 0.33	2.37 ± 0.30	2.65 ± 0.22	3.04 ± 0.34	2.90 ± 0.35	1.92 ± 0.95
Monocytes ($10^3/\mu L$)	0.08 ± 0.01	0.07 ± 0.02	0.05 ± 0.02	0.13 ± 0.02	0.10 ± 0.01	0.00 ± 0.00
Eosinophils ($10^3/\mu L$)	0.03 ± 0.01	0.02 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.03 ± 0.01	0.00 ± 0.00
Clinical chemistry						
Urea nitrogen (mg/dL)	19.5 ± 0.9[e]	20.0 ± 1.1[e]	19.5 ± 0.9[e]	20.8 ± 1.0[d]	18.0 ± 2.1[j]	21.9 ± 0.5
Calcium (mg/dL)	11.4 ± 0.2[j]	11.1 ± 0.1[e]	11.0 ± 0.1[j]	10.9 ± 0.6[f]	11.4 ± 0.3[c]	11.4[h]
Phosphorus (mg/dL)	10.0 ± 0.7[e]	9.2 ± 0.6[g]	10.4 ± 0.7[d]	10.6 ± 0.6[d]	10.7 ± 0.4[d]	12.1 ± 0.4
Total protein (g/dL)	6.9 ± 0.1	6.6 ± 0.1	6.8 ± 0.2[b]	6.9 ± 0.2	7.2 ± 0.3	7.2 ± 0.1
Albumin (g/dL)	3.7 ± 0.0	3.7 ± 0.1	3.7 ± 0.1	3.6 ± 0.1	3.7 ± 0.0	3.8 ± 0.2
A/G ratio	1.2 ± 0.0	1.2 ± 0.0	1.2 ± 0.1[b]	1.1 ± 0.0	1.1 ± 0.1	1.1 ± 0.1
Methemoglobin (%)	3.25 ± 1.37	2.14 ± 0.79	2.79 ± 0.92	3.87 ± 1.32	2.19 ± 0.73	3.20 ± 3.20
ALT (IU/L)	97 ± 22	56 ± 9	159 ± 30	111 ± 20	130 ± 26[g]	123 ± 1
LDH (IU/L)	1,183 ± 144[d]	804 ± 78[i]	904 ± 108[j]	854 ± 171[j]	1,002 ± 74[c]	1294[h]
SDH (IU/L)	85 ± 8[j]	84 ± 12[j]	90 ± 10[j]	92 ± 9[j]	95 ± 16[j]	-[k]

* Statistically significant ($P \leq 0.05$) from the control group by Dunn's or Shirley's test.
[a] Mean ± standard error; A/G ration = albumin/globulin ratio; ALT = alanine aminotransferase; LDH = lactate dehydrogenase; SDH = sorbitol dehydrogenase
[b] n=9
[c] n=2
[d] n=5
[e] n=6
[f] n=3
[g] n=8
[h] n=1; no standard error calculated due to high mortality
[i] n=7
[j] n=4
[k] n=0; no data calculated due to 100% mortality

TABLE G4
Hematology and Clinical Chemistry Data for Mice at the 15-Month Interim Evaluation in the 2-Year Gavage Studies of Resorcinol[a]

Analysis	Vehicle Control	112 mg/kg	225 mg/kg
Male			
Number examined	10	10	10
Hematology			
Hematocrit (%)	38.1 ± 0.7	37.3 ± 0.4	36.8 ± 0.8
Hemoglobin (g/dL)	15.3 ± 0.3	15.3 ± 0.1	14.9 ± 0.3
Erythrocytes ($10^6/\mu L$)	8.12 ± 0.15	7.98 ± 0.09	7.77 ± 0.21
Mean cell volume (fL)	47.0 ± 0.6	46.8 ± 0.4	47.5 ± 0.7
Mean cell hemoglobin (pg)	18.9 ± 0.2	19.2 ± 0.2	19.3 ± 0.3
Mean cell hemoglobin concentration (g/dL)	40.3 ± 0.1	41.0 ± 0.2**	40.5 ± 0.1
Leukocytes ($10^3/\mu L$)	6.00 ± 0.81	5.65 ± 0.33	6.32 ± 0.46
Segmented neutrophils ($10^3/\mu L$)	2.01 ± 0.57	1.19 ± 0.16	1.53 ± 0.21
Lymphocytes ($10^3/\mu L$)	3.85 ± 0.39	4.27 ± 0.21	4.53 ± 0.32
Monocytes ($10^3/\mu L$)	0.08 ± 0.02	0.07 ± 0.03	0.09 ± 0.02
Eosinophils ($10^3/\mu L$)	0.08 ± 0.03	0.14 ± 0.04	0.14 ± 0.06
Nucleated erythrocytes (/100 leukocytes)	0.00 ± 0.00	0.00 ± 0.00	0.00 ± 0.00
Clinical chemistry			
Urea nitrogen (mg/dL)	20.0 ± 2.6	16.8 ± 0.7	17.3 ± 0.8
Alkaline phosphatase (IU/L)	35 ± 3[b]	36 ± 1	36 ± 3
ALT (IU/L)	56 ± 5[b]	54 ± 9	52 ± 9
AST (IU/L)	62 ± 6[b]	53 ± 2	57 ± 6
SDH (IU/L)	59 ± 6[b]	52 ± 4	52 ± 3
Female			
Number examined	10	10	10
Hematology			
Hematocrit (%)	38.4 ± 0.6	38.2 ± 0.4	38.5 ± 0.4
Hemoglobin (g/dL)	15.4 ± 0.2	15.4 ± 0.1	15.4 ± 0.1
Erythrocytes ($10^6/\mu L$)	8.01 ± 0.12	7.93 ± 0.09	8.03 ± 0.09
Mean cell volume (fL)	47.9 ± 0.2	48.4 ± 0.3	47.8 ± 0.2
Mean cell hemoglobin (pg)	19.2 ± 0.1	19.5 ± 0.1	19.2 ± 0.1
Mean cell hemoglobin concentration (g/dL)	40.1 ± 0.2	40.4 ± 0.2	40.0 ± 0.2
Leukocytes ($10^3/\mu L$)	4.96 ± 0.56	5.07 ± 0.50	5.47 ± 0.65
Segmented neutrophils ($10^3/\mu L$)	1.29 ± 0.16	1.40 ± 0.18	1.37 ± 0.25
Lymphocytes ($10^3/\mu L$)	3.44 ± 0.41	3.47 ± 0.34	3.84 ± 0.41
Monocytes ($10^3/\mu L$)	0.11 ± 0.03	0.03 ± 0.02	0.15 ± 0.04
Eosinophils ($10^3/\mu L$)	0.11 ± 0.02	0.15 ± 0.03	0.10 ± 0.03
Nucleated erythrocytes (/100 leukocytes)	0.10 ± 0.10	0.00 ± 0.00	0.00 ± 0.00
Clinical chemistry			
Urea nitrogen (mg/dL)	16.6 ± 0.7	18.9 ± 1.9	18.2 ± 1.3
Alkaline phosphatase (IU/L)	77 ± 6	86 ± 8[b]	97 ± 4*
ALT (IU/L)	42 ± 6	38 ± 4[b]	38 ± 1
AST (IU/L)	55 ± 3	64 ± 4	65 ± 5
SDH (IU/L)	39 ± 2	41 ± 1	41 ± 2

* Significantly different ($P \leq 0.05$) from the control group by Dunn's or Shirley's test.
** $P \leq 0.01$
[a] Mean ± standard error. ALT = alanine aminotransferase; AST = aspartate aminotransferase; SDH = sorbitol dehydrogenase
[b] n=9

APPENDIX H
CHEMICAL CHARACTERIZATION AND DOSE FORMULATION STUDIES

CHEMICAL CHARACTERIZATION AND DOSE FORMULATION STUDIES

PROCUREMENT AND CHARACTERIZATION OF RESORCINOL

Resorcinol was obtained from NAPP Chemicals (Lodi, NJ) in one lot that was used throughout the studies. Reports from the analytical chemistry laboratory, Midwest Research Institute (MRI; Kansas City, MO), on analyses performed in support of the resorcinol studies are on file at the National Institute of Environmental Health Sciences.

The study chemical, a white, crystalline powder, was identified as resorcinol by infrared, ultraviolet/visible, and nuclear magnetic resonance spectroscopy. All spectra (Figures H1 and H2) were consistent with those expected for the structure and with the literature description for the spectra of resorcinol (Sadtler Standard Spectra).

The purity of the lot was found to be greater than 99% by Karl Fischer water analysis, titration, elemental analysis, thin-layer chromatography (TLC), and high-performance liquid chromatography (HPLC). Titration of the acid group was performed with 0.1 N tetrabutylammonium hydroxide in methanol:2-propanol (1:9) and the sample was dissolved in dimethylformamide. Elemental analyses for carbon and hydrogen were in agreement with the theoretical values for resorcinol. TLC was performed on silica gel plates with two solvent systems: 1) methylene chloride:methanol:acetic acid (90:5:5) and 2) ethyl acetate:acetic acid (95:5). Visualization was accomplished by using a spray of 0.4% methanolic solution of 2,6-dibromoquinone chloroimide and ammonia vapor. After drying, the plates were examined under short wavelength ultraviolet light (254 nm). A major spot was noted in both systems. HPLC was performed with a Varian Micropak MCH-10 column (30 cm × 4 mm ID) and a mobile phase of two solvent systems: 1) water with the pH adjusted to 2.0 with concentrated phosphoric acid and 2) methanol with an equal volume of concentrated phosphoric acid as added to solvent 1, with a ratio of 40:60 solvent 1:2, at a flow rate of 1.0 mL/minute. Detection was with ultraviolet light at 280 nm. An impurity with an area of 0.13% of the major peak area was seen after the major peak. The sample had a purity of 102% relative to the USP standard.

Stability studies were performed by the study laboratory using HPLC with the system described above except a mobile phase of 65:35 solvent 1:2 was used at a flow rate of 1.5 mL/minute and using acetanilide as an internal standard. These studies indicated that resorcinol was stable as a bulk chemical for 2 weeks at temperatures to 60° C, when stored under nitrogen headspace and protected from light. The stability of the bulk chemical was monitored periodically at the study laboratory with titration and HPLC analysis methods similar to those described above. No change in purity was observed.

PREPARATION AND ANALYSIS OF DOSE FORMULATIONS

The dose formulations for gavage administration were prepared by mixing appropriate amounts of resorcinol and deionized water (Table H1). Dose formulation stability studies were conducted by the analytical chemistry laboratory. The formulations were diluted to 100 mL with water, passed through a 0.5 μm filter, and then 15 μL was injected into an HPLC system equipped with a Waters μBondpak C_{18} column (300 mm × 4 mm ID), Whatman CO: PELL guard column (70 mm × 4 mm ID), and a 280 nm ultraviolet detector. The mobile phase was 95% water:acetic acid (99:1 v/v) and 5% acetonitrile:acetic acid (99:1 v/v) with a flow rate of 1.5 mL/minute. Stability of the formulations was established for at least 14 days for storage in the dark at room temperature and under simulated dosing conditions (exposed to air and light for 3 hours). No special handling was required during routine dosing.

Periodic analyses of the dose formulations of resorcinol were conducted at the study laboratory and at the analytical chemistry laboratory using ultraviolet spectroscopy. The method required a dilution of the formulations in water and determination of the absorbance at 273 nm. Dose formulations were analyzed

once during the 17-day studies and twice during the 13-week studies. The results were within 6% of the target concentrations for the 17-day samples (Table H2). Dose formulation samples for the 13-week studies ranged from –4% to +7% of the target concentrations (Table H3). During the 2-year studies, all samples were within 10% of the target concentrations (Table H4). Results of the referee analyses of the dose formulations supplied by the analytical laboratory indicated good agreement with the results obtained by the study laboratory (Table G5). Animal room samples from each dose level were analyzed periodically during the 2-year studies. The concentrations of all animal room samples were within 10% of the target concentrations.

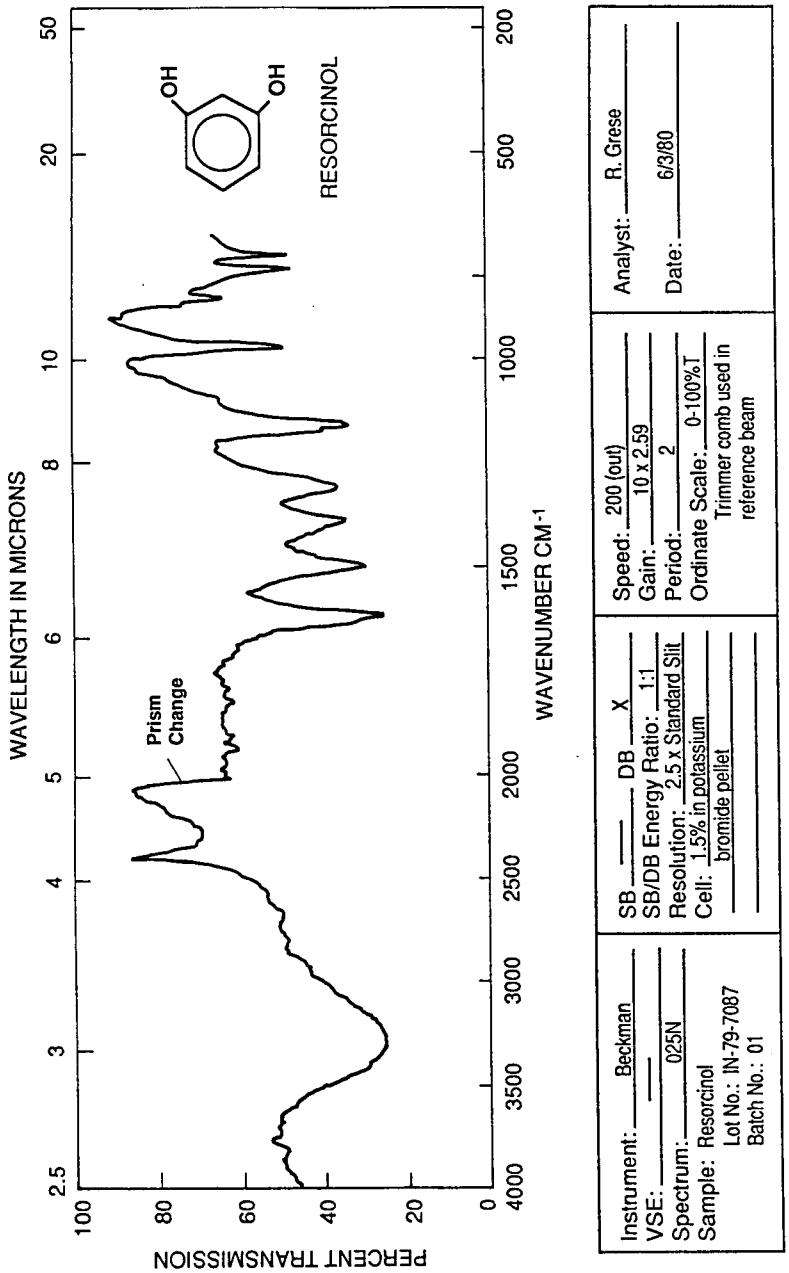

FIGURE H1
Infrared Absorption Spectrum of Resorcinol

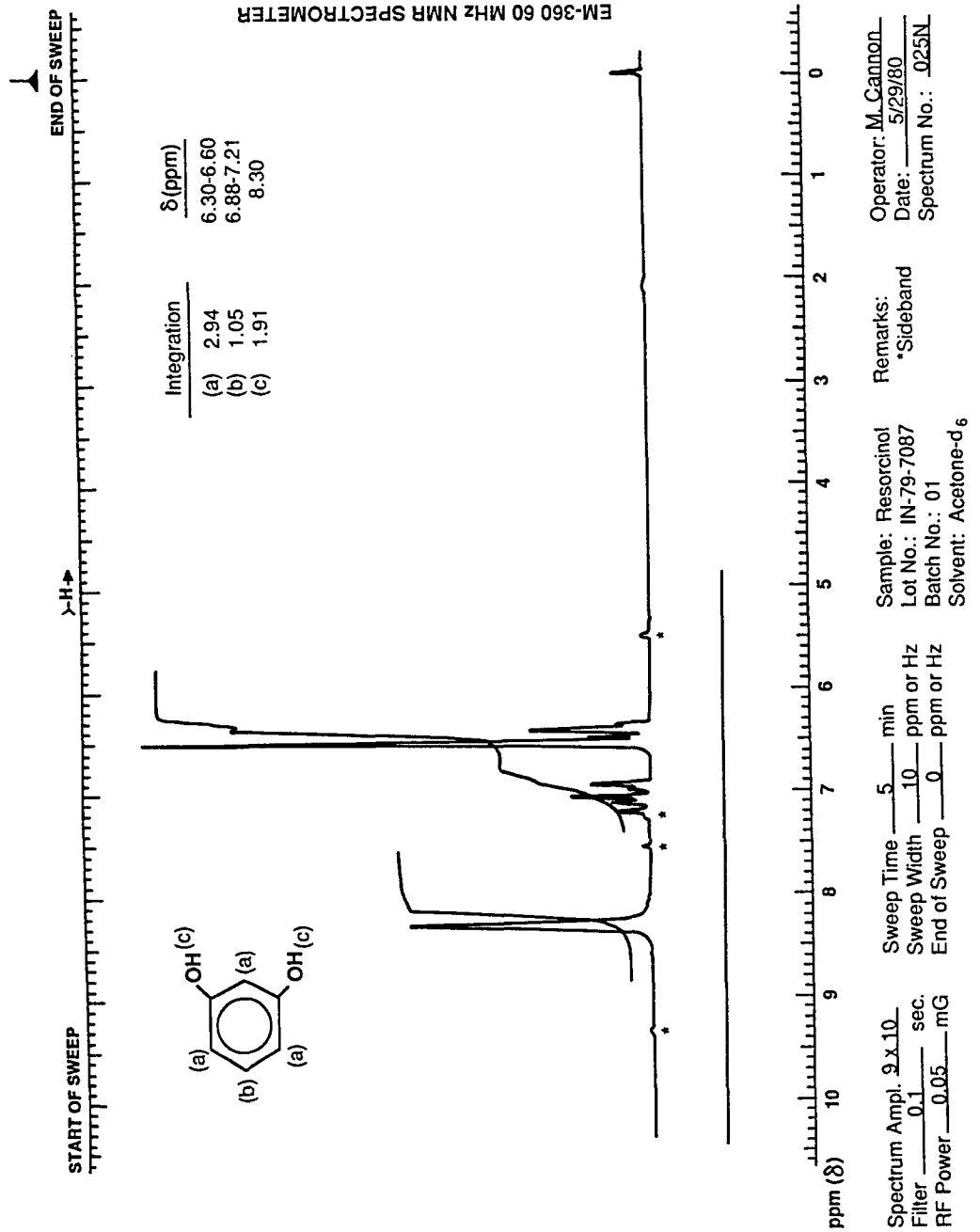

FIGURE H2
Nuclear Magnetic Resonance Spectrum of Resorcinol

TABLE H1
Preparation and Storage of Dose Formulations in the Gavage Studies of Resorcinol

17-Day Studies	13-Week Studies	2-Year Studies
Preparation		
Resorcinol was mixed in the appropriate amount of deionized water. Solutions were prepared twice weekly.	Resorcinol was mixed in the appropriate amount of deionized water. Solutions were prepared every two weeks until week 4 then weekly, thereafter.	Resorcinol was mixed in the appropriate amount of deionized water. Solutions were prepared fresh weekly through September 1983, then every two weeks thereafter.
Lot		
IN-79-7087	IN-79-7087	IN-79-7087
Maximum Storage Time		
1 week	2 weeks until week 4, then 1 week	3 weeks
Storage Conditions		
Solutions were stored at room temperature in the dark.	Solutions were stored in Nalgene containers at room temperature in the dark.	Solutions were stored in Nalgene containers at room temperature in the dark.
Study Laboratory		
International Research and Development Corporation Mattawan, MI	International Research and Development Corporation Mattawan, MI	International Research and Development Corporation Mattawan, MI
Referee Laboratory		
Midwest Research Institute, Kansas City, MO	Midwest Research Institute, Kansas City, MO	Midwest Research Institute, Kansas City, MO

TABLE H2
Results of Analysis of Dose Formulations Administered to Rats and Mice in the 17-Day Gavage Studies of Resorcinol

Date Prepared	Date Analyzed	Target Concentration[a] (mg/mL)	Determined Concentration[b] (mg/mL)	Difference from Target (%)
Rats				
24 February 1981	24 March 1981	2.75	2.72	-1
		5.50	5.60	+2
		11.00	11.20	+2
		22.50	22.00	-2
		45.00	44.30	-2
Mice				
25 February 1981	24 March 1981	3.75	3.51	-6
		7.50	7.21	-4
		15.00	14.40	-4
		30.00	28.60	-5
		60.00	56.40	-6

[a] Dose volume = 10 mL/kg; Rats: 2.75 mg/mL = 27.5 mg/kg, 5.50 mg/mL = 55 mg/kg, 11 mg/mL = 110 mg/kg, 22.5 mg/mL = 225 mg/kg, 45 mg/mL = 450 mg/kg; Mice: 3.75 mg/mL = 37.5 mg/kg, 7.5 mg/mL = 75 mg/kg, 15 mg/mL = 150 mg/kg, 30 mg/mL = 300 mg/kg, 60 mg/mL = 600 mg/kg

[b] Averaged values from the results of duplicate analysis

TABLE H3
Results of Analysis of Dose Formulations Administered to Rats and Mice in the 13-Week Gavage Studies of Resorcinol

Date Prepared	Date Analyzed	Target Concentration[a] (mg/mL)	Determined Concentration[b] (mg/mL)	Difference from Target (%)
Rats				
6 July 1981	7 July 1981	6.4	6.74	+5
		13.0	13.6	+5
		26.0	27.6	+6
		52.0	55.1	+6
		104.0	106	+2
12 August 1981	14 August 1981	6.4	6.24	-3
		13.0	12.9	-1
		26.0	25.7	-1
		52.0	49.9	-4
		104.0	103	-1
Mice				
3 July 1981	9 July 1981	2.8	2.87	+3
		5.6	5.73	+2
		11.2	11.2	0
		22.5	22.8	+1
		42.0	44.8	+7
14 August 1981	17 August 1981	2.8	2.80	0
		5.6	5.36	-4
		11.2	11.3	+1
		22.5	22.3	-1
		42.0	41.4	-1

[a] Rats: Dose volume = 5 mL/kg; 6.4 mg/mL = 32 mg/kg, 13 mg/mL = 65 mg/kg, 26 mg/mL = 130 mg/kg, 52 mg/mL = 260 mg/kg, 104 mg/mL = 520 mg/kg;
Mice: Dose volume = 10 mL/kg; 2.8 mg/mL = 28 mg/kg, 5.6 mgmL = 56 mg/kg, 11.2 mg/mL = 112 mg/kg, 22.5 mg/mL = 225 mg/kg, 42 mg/mL = 420 mg/kg

[b] Averaged values from the results of duplicate analysis

TABLE H4
Results of Analysis of Dose Formulations Administered to Rats and Mice in the 2-Year Gavage Studies of Resorcinol

Date Prepared	Date Analyzed	Target Concentration[a] (mg/mL)	Determined Concentration[b] (mg/mL)	Difference from Target (%)
Male Rats				
16 August 1982	16 August 1982	22.4	22.4	0
		45.0	45.6	+1
	20 August 1982[c]	22.4	22.7	+1
		45.0	45.8	+2
11 October 1982	13 October 1982	22.4	22.4	0
		45.0	45.8	+2
27 December 1982	28 December 1982	22.4	21.9	-2
		45.0	43.9	-2
24 January 1983	26 January 1983	22.4	22.5	0
		45.0	45.2	0
28 February 1983	1 March 1983	22.4	22.4	0
		45.0	45.4	+1
11 April 1983	12 April 1983	22.4	22.5	0
		45.0	45.7	+2
4 July 1983	7 July 1983	22.4	21.6	-3
		45.0	43.2	-4
11 July 1983	13 July 1983	22.4	22.7	+1
		45.0	45.4	+1
1 August 1983	4 August 1983	22.4	22.6	+1
		45.0	45.0	0
19 October 1983	19 October 1983	22.4	22.9	+2
		45.0	46.4	+3
14 December 1983	19 December 1983	22.4	22.7	+1
		45.0	45.5	+1
	6 January 1984[c]	22.4	22.5	0
		45.0	45.5	+1
8 February 1984	13 February 1984	22.4	22.6	+1
		45.0	45.4	+1
4 April 1984	5 April 1984	22.4	22.6	+1
		45.0	44.7	-1
30 May 1984	30 May 1984	22.4	22.5	0
		45.0	45.4	+1
	14 June 1984[c]	22.4	22.4	0
		45.0	45.5	+1
25 July 1984	26 July 1984	22.4	22.7	+1
		45.0	45.3	+1

TABLE H4
Results of Analysis of Dose Formulations Administered to Rats and Mice in the 2-Year Gavage Studies of Resorcinol (continued)

Date Prepared	Date Analyzed	Target Concentration (mg/mL)	Determined Concentration (mg/mL)	Difference from Target (%)
Female Rats				
9 May 1983	10 May 1983	10.0	10.0	0
		20.0	20.1	+1
		30.0	30.3	+1
	13 May 1983[c]	10.0	10.0	0
		20.0	20.3	+2
		30.0	30.4	+1
4 July 1983	7 July 1983	10.0	10.1	+1
		20.0	20.7	+4
		30.0	29.6	-1
29 August 1983	31 August 1983	10.0	10.0	0
		20.0	20.2	+1
		30.0	29.9	0
5 October 1983	6 October 1983	10.0	10.1	+1
		20.0	20.2	+1
		30.0	30.3	+1
	19 October 1983[c]	10.0	10.1	+1
		20.0	20.3	+2
		30.0	30.1	0
30 November 1983	1 December 1983	10.0	10.2	+2
		20.0	19.7	-1
		30.0	28.5	-5
25 January 1984	27 January 1984	10.0	10.0	0
		20.0	20.2	+1
		30.0	30.1	0
21 March 1984	22 March 1984	10.0	9.9	-1
		20.0	20.1	+1
		30.0	30.1	0
	5 April 1984[c]	10.0	10.0	0
		20.0	19.7	-1
		30.0	30.1	0
16 May 1984	16 May 1984	10.0	9.9	-1
		20.0	20.0	0
		30.0	29.9	0

TABLE H4
Results of Analysis of Dose Formulations Administered to Rats and Mice in the 2-Year Gavage Studies of Resorcinol (continued)

Date Prepared	Date Analyzed	Target Concentration (mg/mL)	Determined Concentration (mg/mL)	Difference from Target (%)
Female Rats (continued)				
11 July 1984	12 July 1984	10.0	10.0	0
		20.0	20.1	+1
		30.0	30.2	+1
5 September 1984	7 September 1984	10.0	10.1	+1
		20.0	20.1	+1
		30.0	30.2	+1
	21 September 1984[c]	10.0	10.1	+1
		20.0	20.3	+2
		30.0	30.0	0
31 October 1984	1 November 1984	10.0	10.0	0
		20.0	20.1	+1
		30.0	30.1	0
	16 November 1984[c]	10.0	10.2	+2
26 December 1984	26 December 1984	10.0	10.0	0
		20.0	20.1	+1
		30.0	30.0	0
20 February 1985	20 February 1985	10.0	10.0	0
		20.0	20.2	+1
		30.0	30.1	0
	7 March 1985[c]	10.0	10.1	+1
		20.0	20.3	+2
		30.0	30.4	+1
17 April 1985	17 April 1985	10.0	10.0	0
		20.0	20.1	+1
		30.0	30.1	0
Mice				
9 August 1982	10 August 1982	11.2	11.1	-1
		22.5	22.4	0
	13 August 1982[c]	11.2	11.5	+3
		22.5	23.4	+4
11 October 1982	13 October 1982	11.2	11.2	0
		22.5	22.4	0
27 December 1982	28 December 1982	11.2	10.9	-3
		22.5	22.0	-2
17 January 1983	19 January 1983	11.2	11.6	+3
		22.5	23.3	+3

TABLE H4
Results of Analysis of Dose Formulations Administered to Rats and Mice in the 2-Year Gavage Studies of Resorcinol (continued)

Date Prepared	Date Analyzed	Target Concentration (mg/mL)	Determined Concentration (mg/mL)	Difference from Target (%)
Mice (continued)				
28 February 1983	1 March 1983	11.2	11.3	+1
		22.5	22.7	+1
11 April 1983	12 April 1983	11.2	11.3	+1
		22.5	22.7	+1
4 July 1983	6 July 1983	11.2	11.6	+4
		22.5	24.3	+8
	7 July 1983[c]	11.2	11.0	-2
		22.5	23.9	+6
1 August 1983	4 August 1983	11.2	11.1	-1
		22.5	22.5	0
19 October 1983	19 October 1983	11.2	11.1	-1
		22.5	23.2	+3
14 December 1983	19 December 1983	11.2	11.3	+1
		22.5	22.8	+1
	22 December 1984[c]	11.2	11.5	+3
		22.5	23.0	+2
8 February 1984	13 February 1984	11.2	11.1	-1
		22.5	22.5	0
4 April 1984	5 April 1984	11.2	11.3	+1
		22.5	22.8	+1
30 May 1984	30 May 1984	11.2	11.3	+1
		22.5	22.6	0
	7 June 1984[c]	11.2	11.4	+2
		22.5	22.6	0
25 July 1984	26 July 1984	11.2	11.2	0
		22.5	22.7	+1

[a] Rats: Dose volume = 5 mL/kg; 10 mg/mL = 50 mg/kg, 20 mg/mL = 100 mg/kg, 22.4 mg/mL = 112 mg/kg, 30 mg/mL = 150 mg/kg, 45 mg/mL = 225 mg/kg;
Mice: Dose volume = 10 mL/kg; 11.2 mg/mL = 112 mg/kg, 22.5 mg/mL = 225 mg/kg
[b] Averaged values from the results of duplicate analyses
[c] Animal room samples

TABLE H5
Results of Referee Analysis of Dose Formulations Administered to Rats and Mice in the 13-Week and 2-Year Gavage Studies of Resorcinol

Date Prepared	Date Analyzed	Target Concentration (mg/mL)	Determined Concentration (mg/mL)	Difference from Target (%)
13-Week Studies				
Mice				
17 July 1981	20 July 1981	2.8	2.75[a]	-2
2-Year Studies				
Male Rats				
28 February 1983	3 March 1983	44.8	44.8[b]	0
1 August 1983	8 August 1983	22.3	22.3[b]	0
Female Rats				
21 March 1984	6 April 1984	20.0	20.0[b]	0
31 October 1984	8 November 1984	10.0	10.1[b]	+1
31 October 1984	19 November 1984	10.0	10.1[b]	+1
17 April 1985	25 April 1985	30.0	29.9[b]	0
Mice				
9 August 1982	12 August 1982	11.2	11.3[b]	-1

[a] Averaged values from the results of duplicate analysis
[b] Averaged values from the results of triplicate analysis

APPENDIX I
INGREDIENTS, NUTRIENT COMPOSITION, AND CONTAMINANT LEVELS IN NIH-07 RAT AND MOUSE RATION

TABLE I1
Ingredients of NIH-07 Rat and Mouse Ration[a]

Ingredients[b]	Percent by Weight
Ground #2 yellow shelled corn	24.50
Ground hard winter wheat	23.00
Soybean meal (49% protein)	12.00
Fish meal (60% protein)	10.00
Wheat middlings	10.00
Dried skim milk	5.00
Alfalfa meal (dehydrated, 17% protein)	4.00
Corn gluten meal (60% protein)	3.00
Soy oil	2.50
Dried brewer's yeast	2.00
Dry molasses	1.50
Dicalcium phosphate	1.25
Ground limestone	0.50
Salt	0.50
Premixes (vitamin and mineral)	0.25

[a] NCI, 1976; NIH, 1978
[b] Ingredients ground to pass through a U.S. Standard Screen No. 16 before being mixed

TABLE I2
Vitamins and Minerals in NIH-07 Rat and Mouse Ration[a]

	Amount	Source
Vitamins		
A	5,500,000 IU	Stabilized vitamin A palmitate or acetate
D_3	4,600,000 IU	D-activated animal sterol
K_3	2.8 g	Menadione
d-α-Tocopheryl acetate	20,000 IU	
Choline	560.0 g	Choline chloride
Folic acid	2.2 g	
Niacin	30.0 g	
d-Pantothenic acid	18.0 g	*d*-Calcium pantothenate
Riboflavin	3.4 g	
Thiamine	10.0 g	Thiamine mononitrate
B_{12}	4,000 μg	
Pyridoxine	1.7 g	Pyridoxine hydrochloride
Biotin	140.0 mg	*d*-Biotin
Minerals		
Iron	120.0 g	Iron sulfate
Manganese	60.0 g	Manganous oxide
Zinc	16.0 g	Zinc oxide
Copper	4.0 g	Copper sulfate
Iodine	1.4 g	Calcium iodate
Cobalt	0.4 g	Cobalt carbonate

[a] Per ton (2,000 lb) of finished product

TABLE I3
Nutrient Composition of NIH-07 Rat and Mouse Ration

Nutrients	Mean ± Standard Deviation	Range	Number of Samples
Protein (% by weight)	22.87 ± 1.09	21.3–26.3	33
Crude fat (% by weight)	5.36 ± 0.71	3.3–5.7	33
Crude fiber (% by weight)	3.49 ± 0.47	2.8–5.6	33
Ash (% by weight)	6.59 ± 0.35	5.7–7.3	33
Amino Acids (% of total diet)			
Arginine	1.308 ± 0.606	1.210–1.390	8
Cystine	0.306 ± 0.084	0.181–0.400	8
Glycine	1.150 ± 0.047	1.060–1.210	8
Histidine	0.576 ± 0.024	0.531–0.607	8
Isoleucine	0.917 ± 0.029	0.881–0.944	8
Leucine	1.946 ± 0.055	1.850–2.040	8
Lysine	1.270 ± 0.058	1.200–1.370	8
Methionine	0.448 ± 0.128	0.306–0.699	8
Phenylalanine	0.987 ± 0.140	0.655–1.110	8
Threonine	0.877 ± 0.042	0.824–0.940	8
Tryptophan	0.236 ± 0.176	0.107–0.671	8
Tyrosine	0.676 ± 0.105	0.564–0.794	8
Valine	1.103 ± 0.040	1.050–1.170	8
Essential Fatty Acids (% of total diet)			
Linoleic	2.393 ± 0.258	1.830–2.570	7
Linolenic	0.280 ± 0.040	0.210–0.320	7
Vitamins			
Vitamin A (IU/kg)	11,712 ± 4,312	4,100–24,000	33
Vitamin D (IU/kg)	4,450 ± 1,382	3,000–6,300	4
α–Tocopherol (ppm)	37.95 ± 9.406	22.50–48.90	8
Thiamine (ppm)	18.33 ± 3.71	12.0–27.0	33
Riboflavin (ppm)	7.92 ± 0.87	6.10–9.00	8
Niacin (ppm)	103.38 ± 26.59	65.0–150.0	8
Pantothenic acid (ppm)	29.54 ± 3.60	23.0–34.0	8
Pyridoxine (ppm)	9.55 ± 3.48	5.60–14.0	8
Folic acid (ppm)	2.25 ± 0.73	1.80–3.70	8
Biotin (ppm)	0.254 ± 0.042	0.19–0.32	8
Vitamin B_{12} (ppb)	38.45 ± 22.01	10.6–65.0	8
Choline (ppm)	3,089 ± 328.69	2,400–3,430	8
Minerals			
Calcium (%)	1.25 ± 0.14	0.95–1.54	33
Phosphorus (%)	0.95 ± 0.06	0.87–1.10	33
Potassium (%)	0.883 ± 0.078	0.772–0.971	6
Chloride (%)	0.526 ± 0.092	0.380–0.635	8
Sodium (%)	0.313 ± 0.390	0.258–0.371	8
Magnesium (%)	0.168 ± 0.010	0.151–0.181	8
Sulfur (%)	0.280 ± 0.064	0.208–0.420	8
Iron (ppm)	360.54 ± 100	255.0–523.0	8
Manganese (ppm)	91.97 ± 6.01	81.70–99.40	8
Zinc (ppm)	54.72 ± 5.67	46.10–64.50	8
Copper (ppm)	11.06 ± 2.50	8.090–15.39	8
Iodine (ppm)	3.37 ± 0.92	1.52–4.13	6
Chromium (ppm)	1.79 ± 0.36	1.04–2.09	8
Cobalt (ppm)	0.681 ± 0.14	0.490–0.780	4

TABLE I4
Contaminant Levels in NIH-07 Rat and Mouse Ration

	Mean ± Standard Deviation[a]	Range	Number of Samples
Contaminants			
Arsenic (ppm)	0.57 ± 0.17	0.17–0.94	33
Cadmium (ppm)	<0.10	–	33
Lead (ppm)	0.72 ± 0.56	0.33–3.37	33
Mercury (ppm)	<0.05	–	33
Selenium (ppm)	0.31 ± 0.07	0.13–0.42	33
Aflatoxins (ppb)	<5.0	–	33
Nitrate nitrogen (ppm)[b]	10.12 ± 5.26	0.10–22.0	33
Nitrite nitrogen (ppm)[b]	1.08 ± 1.56	0.10–7.20	33
BHA (ppm)[c]	3.58 ± 4.22	2.00–17.0	33
BHT (ppm)[c]	2.67 ± 2.31	1.00–12.0	33
Aerobic plate count (CFU/g)[d]	52,512 ± 39,512	6,600–130,000	33
Coliform (MPN/g)[e]	12.80 ± 15.81	3.00–43	33
Coliform (MPN/g)[f]	46.79 ± 114.66	3.00–460	30
E. coli (MPN/g)[g]	3.04 ± 0.17	3.00–4.00	33
Total nitrosamines (ppb)[h]	6.73 ± 5.61	1.80–30.90	33
N-Nitrosodimethylamine (ppb)[h]	5.61 ± 5.54	0.80–30.00	33
N-Nitrosopyrrolidine (ppb)[h]	1.12 ± 0.47	0.81–3.40	33
Pesticides (ppm)			
α-BHC[i]	<0.01	–	33
β-BHC	<0.02	–	33
γ-BHC	<0.01	–	33
δ-BHC	<0.01	–	33
Heptachlor	<0.01	–	33
Aldrin	<0.01	–	33
Heptachlor epoxide	<0.01	–	33
DDE	<0.01	–	33
DDD	<0.01	–	33
DDT	<0.01	–	33
HCB	<0.01	–	33
Mirex	<0.01	–	33
Methoxychlor	<0.05	–	33
Dieldrin	<0.01	–	33
Endrin	<0.01	–	33
Telodrin	<0.01	–	33
Chlordane	<0.05	–	33
Toxaphene	<0.1	–	33
Estimated PCB's	<0.2	–	33
Ronnel	<0.01	–	33
Ethion	<0.02	–	33
Trithion	<0.05	–	33
Diazinon	<0.1	–	33
Methyl parathion	<0.02	–	33
Ethyl parathion	<0.02	–	33
Malathion[j]	0.13 ± 0.13	0.05–0.69	33
Endosulfan I	<0.01	–	33
Endosulfan II	<0.01	–	33
Endosulfan sulfate	<0.03	–	33

TABLE I4
Contaminant Levels in NIH-07 Rat and Mouse Ration (continued)

[a] For values less than the limit of detection, the detection limit is given for the mean.
[b] Sources of contamination: alfalfa, grains, and fish meal
[c] Sources of contamination: soy oil and fish meal
[d] CFU = colony forming units
[e] MPN = most probable number; the mean, standard deviation, and range exclude the three large values, 460 MPN/g, 460 MPN/g, and 249 MPN/g, obtained in batches milled on 23 September 1982, 20 September 1983, and 14 September 1984, respectively.
[f] The mean, standard deviation, and range include the three large values obtained in batches milled on 23 September 1982, 20 September 1983, and 14 September 1984.
[g] All values reported as <3 MPN/g except for the batch milled on 17 October 1984 (4.0 MPN/g).
[h] All values were corrected for percent recovery.
[i] BHC = hexachlorocyclohexane or benzene hexachloride
[j] Twenty lots contained >0.05 ppm.

APPENDIX J
SENTINEL ANIMAL PROGRAM

SENTINEL ANIMAL PROGRAM

METHODS

Rodents used in the Carcinogenesis Program of the National Toxicology Program are produced in optimally clean facilities to eliminate potential pathogens that may affect study results. The Sentinel Animal Program is part of the periodic monitoring of animal health that occurs during the toxicologic evaluation of chemical compounds. The sentinel animals come from the same production source and weanling groups as the animals used for the studies of chemical compounds, and these animals and the study animals are subject to identical environmental conditions.

Rats

During the 13-week studies, five F344/N rats of each sex were maintained with the study animals to serve as sentinel animals. At termination of the 13-week studies, blood samples were obtained from the orbital sinuses of the sentinel rats. Blood collected from each animal was allowed to clot, and the serum was separated. The serum was cooled on ice and shipped to Microbiological Associates, Inc. (Bethesda, MD) for determination of antibody titers. The following tests were performed:

Method of Analysis	Time of Analysis
Hemagglutination Inhibition	
PVM (pneumonia virus of mice)	Study termination
Sendai	Study termination
KRV (Kilham rat virus)	Study termination
H-1 (Toolan's H-1 virus)	Study termination
Complement Fixation	
RCV (rat corona virus)	Study termination

During the 2-year studies, 15 F344/N rats of each sex were maintained with the study animals to serve as sentinel animals. Blood was drawn from five rats of each sex at 6, 12, and 18 months following study initiation. Five randomly selected control animals of each sex were bled at study termination (24 months). Blood collected from each animal was allowed to clot, and the serum was separated. The serum was cooled on ice and shipped to Microbiological Associates, Inc. (Bethesda, MD) for determination of antibody titers. The following tests were performed:

Method of Analysis	Time of Analysis
Males	
Hemagglutination Inhibition	
PVM	6, 12, 18, and 24 months
Sendai	6, 12, 18, and 24 months
KRV	6, 12, 18, and 24 months
H-1	6, 12, 18, and 24 months
ELISA	
RCV/SDA (rat corona virus/sialodacryoadenitis virus)	6, 12, 18, and 24 months
Mycoplasma pulmonis	24 months

Method of Analysis	Time of Analysis
Females	
Hemagglutination Inhibition	
PVM	6 and 12 months
Sendai	6 and 12 months
KRV	6, 12, 18, and 24 months
H-1	6, 12, 18, and 24 months
ELISA	
PVM	18 and 24 months
Sendai	18 and 24 months
RCV/SDA	6, 12, 18, and 24 months
Mycoplasma pulmonis	18 and 24 months
Mycoplasma arthritidis	18 and 24 months

Mice

During the 13-week studies, five B6C3F$_1$ mice of each sex were maintained with the study animals to serve as sentinel animals. At termination of the 13-week studies, blood samples were obtained from the orbital sinuses of the sentinel mice. Blood collected from each animal was allowed to clot, and the serum was separated. The serum was cooled on ice and shipped to Microbiological Associates, Inc. (Bethesda, MD) for determination of antibody titers. The following tests were performed:

Method of Analysis	Time of Analysis
Hemagglutination Inhibition	
PVM	Study termination
Sendai	Study termination
Reovirus 3	Study termination
GDVII (mouse encephalomyelitis virus)	Study termination
Polyoma virus	Study termination
MVM (minute virus of mice)	Study termination
Ectromelia virus (mouse pox)	Study termination
Complement Fixation	
LCM (lymphocytic choriomeningitis virus)	Study termination
MHV (mouse hepatitis virus)	Study termination

During the 2-year studies, 15 B6C3F$_1$ mice of each sex were maintained with the study animals to serve as sentinel animals. Blood was drawn from five mice of each sex at 6, 12, and 18 months following study initiation. Five randomly selected control animals of each sex were bled at study termination (24 months). Blood collected from each animal was allowed to clot, and the serum was separated. The serum was cooled on ice and shipped to Microbiological Associates, Inc. (Bethesda, MD) for determination of antibody titers. The following tests were performed:

Method of Analysis	Time of Analysis
Hemagglutination Inhibition	
PVM	6, 12, 18, and 24 months
Reovirus 3	6, 12, 18, and 24 months
GDVII	6, 12, and 18 months
Polyoma virus	6, 12, 18, and 24 months
Sendai	6, 12, 18, and 24 months
MVM	6, 12, 18, and 24 months
Ectromelia virus	6, 12, 18, and 24 months
Complement Fixation	
Mouse adenoma virus	12, 18, and 24 months
LCM	6, 12, 18, and 24 months
MHV	6 months
ELISA	
MHV	12, 18, and 24 months
GDVII	24 months
Mycoplasma pulmonis	24 months

TABLE J1
Murine Virus Antibody Determinations for Rats and Mice in the 13-Week and 2-Year Gavage Studies of Resorcinol

	Interval	Incidence of Antibody in Sentinel Animals[a]	Positive Serologic Reaction for
13-Week Studies			
Rats	13 weeks	0/10	None positive
Mice	13 weeks	0/10	None positive
2-Year Studies			
Rats	6 months	5/10	RCV
		5/10	Sendai
	12 months	5/10	RCV/SDA
		3/10	Sendai
	18 months	4/10	RCV/SDA
		5/10	Sendai
	24 months	5/10	RCV/SDA
		5/10	Sendai
Mice	6 months	1/10	MHV
	12 months	6/10	MHV
	18 months	10/10	MHV
	24 months	10/10	MHV

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TR No.	CHEMICAL
201	2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (Dermal)
206	1,2-Dibromo-3-chloropropane
207	Cytembena
208	FD & C Yellow No. 6
209	2,3,7,8-Tetrachlorodibenzo-*p*-dioxin (Gavage)
210	1,2-Dibromoethane
211	C.I. Acid Orange 10
212	Di(2-ethylhexyl)adipate
213	Butyl Benzyl Phthalate
214	Caprolactam
215	Bisphenol A
216	11-Aminoundecanoic Acid
217	Di(2-ethylhexyl)phthalate
219	2,6-Dichloro-p-phenylenediamine
220	C.I. Acid Red 14
221	Locust Bean Gum
222	C.I. Disperse Yellow 3
223	Eugenol
224	Tara Gum
225	D & C Red No. 9
226	C.I. Solvent Yellow 14
227	Gum Arabic
228	Vinylidene Chloride
229	Guar Gum
230	Agar
231	Stannous Chloride
232	Pentachloroethane
233	2-Biphenylamine Hydrochloride
234	Allyl Isothiocyanate
235	Zearalenone
236	*D*-Mannitol
237	1,1,1,2-Tetrachloroethane
238	Ziram
239	Bis(2-chloro-1-methylethyl)ether
240	Propyl Gallate
242	Diallyl Phthalate (Mice)
243	Trichloroethylene (Rats and Mice)
244	Polybrominated Biphenyl Mixture
245	Melamine
246	Chrysotile Asbestos (Hamsters)
247	L-Ascorbic Acid
248	4,4'-Methylenedianiline Dihydrochloride
249	Amosite Asbestos (Hamsters)
250	Benzyl Acetate
251	2,4- & 2,6-Toluene Diisocyanate
252	Geranyl Acetate
253	Allyl Isovalerate
254	Dichloromethane (Methylene Chloride)
255	1,2-Dichlorobenzene
257	Diglycidyl Resorcinol Ether
259	Ethyl Acrylate
261	Chlorobenzene
263	1,2-Dichloropropane
266	Monuron
267	1,2-Propylene Oxide
269	Telone II® (1,3-Dichloropropene)
271	HC Blue No. 1
272	Propylene
273	Trichloroethylene (Four Rat Strains)
274	Tris(2-ethylhexyl)phosphate
275	2-Chloroethanol
276	8-Hydroxyquinoline
277	Tremolite
278	2,6-Xylidine
279	Amosite Asbestos
280	Crocidolite Asbestos
281	HC Red No. 3
282	Chlorodibromomethane
284	Diallylphthalate (Rats)
285	C.I. Basic Red 9 Monohydrochloride
287	Dimethyl Hydrogen Phosphite
288	1,3-Butadiene
289	Benzene
291	Isophorone
293	HC Blue No. 2
294	Chlorinated Trisodium Phosphate
295	Chrysotile Asbestos (Rats)
296	Tetrakis(hydroxymethyl) phosphonium Sulfate & Tetrakis(hydroxymethyl) phosphonium Chloride
298	Dimethyl Morpholinophosphoramidate
299	C.I. Disperse Blue 1
300	3-Chloro-2-methylpropene
301	*o*-Phenylphenol
303	4-Vinylcyclohexene
304	Chlorendic Acid
305	Chlorinated Paraffins (C_{23}, 43% chlorine)
306	Dichloromethane (Methylene Chloride)
307	Ephedrine Sulfate
308	Chlorinated Paraffins (C_{12}, 60% chlorine)
309	Decabromodiphenyl Oxide
310	Marine Diesel Fuel and JP-5 Navy Fuel
311	Tetrachloroethylene (Inhalation)
312	*n*-Butyl Chloride
313	Mirex
314	Methyl Methacrylate
315	Oxytetracycline Hydrochloride
316	1-Chloro-2-methylpropene
317	Chlorpheniramine Maleate
318	Ampicillin Trihydrate
319	1,4-Dichlorobenzene
320	Rotenone
321	Bromodichloromethane
322	Phenylephrine Hydrochloride
323	Dimethyl Methylphosphonate
324	Boric Acid
325	Pentachloronitrobenzene
326	Ethylene Oxide
327	Xylenes (Mixed)
328	Methyl Carbamate
329	1,2-Epoxybutane
330	4-Hexylresorcinol
331	Malonaldehyde, Sodium Salt
332	2-Mercaptobenzothiazole
333	*N*-Phenyl-2-naphthylamine
334	2-Amino-5-nitrophenol
335	C.I. Acid Orange 3
336	Penicillin VK
337	Nitrofurazone

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338	Erythromycin Stearate
339	2-Amino-4-nitrophenol
340	Iodinated Glycerol
341	Nitrofurantoin
342	Dichlorvos
343	Benzyl Alcohol
344	Tetracycline Hydrochloride
345	Roxarsone
346	Chloroethane
347	D-Limonene
348	*a*-Methyldopa Sesquihydrate
349	Pentachlorophenol
350	Tribromomethane
351	*p*-Chloroaniline Hydrochloride
352	N-Methylolacrylamide
353	2,4-Dichlorophenol
354	Dimethoxane
355	Diphenhydramine Hydrochloride
356	Furosemide
357	Hydrochlorothiazide
358	Ochratoxin A
359	8-Methoxypsoralen
360	N,N-Dimethylaniline
361	Hexachloroethane
362	4-Vinyl-1-Cyclohexene Diepoxide
363	Bromoethane (Ethyl Bromide)
364	Rhodamine 6G (C.I. Basic Red 1)
365	Pentaerythritol Tetranitrate
366	Hydroquinone
367	Phenylbutazone
368	Nalidixic Acid
369	Alpha-Methylbenzyl Alcohol
370	Benzofuran
371	Toluene
372	3,3'-Dimethoxybenzidine Dihydrochloride
373	Succinic Anhydride
374	Glycidol
375	Vinyl Toluene
376	Allyl Glycidyl Ether
377	*o*-Chlorobenzalmalononitrile
378	Benzaldehyde
379	2-Chloroacetophenone
380	Epinephrine Hydrochloride
381	*d*-Carvone
382	Furfural
385	Methyl Bromide
386	Tetranitromethane
387	Amphetamine Sulfate
388	Ethylene Thiourea
389	Sodium Azide
390	3,3'-Dimethylbenzidine Dihydrochloride
391	Tris(2-chloroethyl) Phosphate
392	Chlorinated Water and Chloraminated Water
393	Sodium Fluoride
395	Probenecid
396	Monochloroacetic Acid
399	Titanocene Dichloride
401	2,4-Diaminophenol Dihydrochloride
405	C.I. Acid Red 114
406	γ-Butyrolactone
407	C.I. Pigment Red 3
410	Naphthalene
415	Polysorbate 80
419	HC Yellow 4

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