



National Toxicology Program  
Department of Health and Human Services

# NTP Historical Controls Report

By Route and Vehicle

F 344/N Tac RATS

June 2013

# REPORT DESCRIPTION

This report shows the tumor rates of control group animals from selected studies. The studies used are shown on the Study Summary page.

This report is broken up into sections based on the route and vehicle used to deliver the chemical. The Table of Contents on Page 3 shows the different Route/Vehicle combinations. To see the data from all routes and vehicles combined into one set, you must run the "All Routes" report.

The individual tumor rates shown on the data pages of the report relate to the Study Summary page as follows: the tumor rates are shown in the same order as the Study Summary page, except that they are grouped horizontally in sets of three, with the males in the first set of three and the females in the second set. For example if the study summary showed the studies like this:

**Male**

M1  
M2  
M3  
M4  
M5

**Female**

F1  
F2  
F3  
F4  
F5

the data would be shown as:

<b>Male</b>			<b>Female</b>		
M1	M2	M3	F1	F2	F3
M4	M5		F4	F5	

Directly beneath the individual tumor rates on the data pages are the overall totals for that tumor/site combination. This includes the total tumors/animals, the overall mean (in parentheses), the mean of the study means, and the standard deviation of the study means.

Studies with no control animals of a particular gender are listed on the summary page with the Number of Animals shown as zero and the Start Date and Length of Study shown as "N/A". On the data pages there are blank spaces where tumor rates for these studies would normally be found, so that the male and female rates for the remaining studies can be easily compared.

# Table of Contents

Route	Vehicle	Page Number
INHALATION	AIR	4
ORAL	WATER	25

Version: Jun2013  
Contract/Lab: All Laboratories  
Species: RATS  
Strain: F 344/N Tac  
Length of Study: CHRONIC

**Toxicology Data Management System**  
Tumor Incidence for Selected Control Animal Groups  
Route: INHALATION  
Vehicle: AIR

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Report Date: 06/12/2013

**Study Summary**

Laboratory Name	Study Number	Study Start Date	Length of Study in Days	Number of Animals Total and (#/Cage)	Number Surviving and (Mean Life Span)	Maximum Mean Weekly Body Weight	Chemical
<b>Male</b>							
Battelle Northwest	056031105	05/08/06	729	50(5)	17(663)	532.6	Cobalt
<b>Female</b>							
Battelle Northwest	056031105	05/08/06	730	50(5)	35(688)	350.7	Cobalt

NOTE: The text on page 2 ("Report Description") describes how the studies listed here are displayed on the data pages that follow.

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: INHALATION  
 Vehicle: AIR

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 Report Date: 06/12/2013

		Male			Female		
<b>#All Organs:</b>							
<b>Benign Tumors</b>							
		47/50 (94%)			44/50 (88%)		
<b>Overall Incidence</b>	Total	47/50 (94%)	Mean 94%	SD 0%	Total	44/50 (88%)	Mean 88% SD 0%
.....							
<b>#All Organs:</b>							
<b>Malignant Tumors</b>							
		31/50 (62%)			25/50 (50%)		
<b>Overall Incidence</b>	Total	31/50 (62%)	Mean 62%	SD 0%	Total	25/50 (50%)	Mean 50% SD 0%
.....							
<b>#All Organs:</b>							
<b>Malignant and Benign Tumors</b>							
		50/50 (100%)			48/50 (96%)		
<b>Overall Incidence</b>	Total	50/50 (100%)	Mean 100%	SD 0%	Total	48/50 (96%)	Mean 96% SD 0%
.....							
<b>#All Organs:</b>							
<b>Hemangioma</b>							
		0/50 (0%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#All Organs:</b>							
<b>Hemangiosarcoma</b>							
		0/50 (0%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>#All Organs:</b>							
<b>Hemangiosarcoma or Hemangioma</b>							
		0/50 (0%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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 Report Date: 06/12/2013

	Male				Female			
<b>#All Organs:</b>								
<b>Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated</b>								
		21/50 (42%)				16/50 (32%)		
<b>Overall Incidence</b>	Total	21/50 (42%)	Mean 42%	SD 0%	Total	16/50 (32%)	Mean 32%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Mesothelioma: Benign, Malignant, NOS</b>								
		2/50 (4%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	2/50 (4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Mesothelioma: Malignant</b>								
		2/50 (4%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	2/50 (4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Osteoma</b>								
		0/50 (0%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Osteosarcoma or Osteoma</b>								
		0/50 (0%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>*Adrenal Cortex:</b>								
<b>Adenoma</b>								
		0/50 (0%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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 Report Date: 06/12/2013

	Male				Female			
<b>*Adrenal Medulla:</b>								
<b>Pheochromocytoma Benign</b>								
		15/50 (30%)			6/50 (12%)			
<b>Overall Incidence</b>	Total	15/50 (30%)	Mean 30%	SD 0%	Total	6/50 (12%)	Mean 12%	SD 0%
.....								
<b>*Adrenal Medulla:</b>								
<b>Pheochromocytoma Malignant</b>								
		2/50 (4%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	2/50 (4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>*Adrenal Medulla:</b>								
<b>Pheochromocytoma: Benign, Complex, Malignant, NOS</b>								
		17/50 (34%)			6/50 (12%)			
<b>Overall Incidence</b>	Total	17/50 (34%)	Mean 34%	SD 0%	Total	6/50 (12%)	Mean 12%	SD 0%
.....								
<b>#Bone:</b>								
<b>Osteoma</b>								
		0/50 (0%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#Bone:</b>								
<b>Osteosarcoma or Osteoma</b>								
		0/50 (0%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>*Brain:</b>								
<b>Astrocytoma Malignant</b>								
		1/50 (2%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: INHALATION  
 Vehicle: AIR

Page: 8  
 Report Date: 06/12/2013

		Male			Female		
<b>*Brain:</b>							
<b>Fibrous Histiocytoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
<b>*Brain:</b>							
<b>Glioma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
<b>*Brain:</b>							
<b>Granular Cell Tumor Benign</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
.....							
<b>*Brain:</b>							
<b>Oligodendroglioma, Glioma, or Astrocytoma</b>							
		1/50	(2%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)
.....							
<b>*Clitoral/Preputial Gland:</b>							
<b>Adenoma</b>							
		1/50	(2%)		2/49	(4%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	2/49 (4.08%)
.....							
<b>*Clitoral/Preputial Gland:</b>							
<b>Carcinoma</b>							
		2/50	(4%)		4/49	(8%)	
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	4/49 (8.16%)
.....							

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied



Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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 Report Date: 06/12/2013

		Male			Female		
<b>*Clitoral/Preputial Gland:</b>							
<b>  Carcinoma or Adenoma</b>							
		3/50	(6%)		6/49	(12%)	
<b>Overall Incidence</b>	Total	3/50	(6%)	Mean 6%	SD 0%	Total 6/49	(12.24%)
						Mean 12.24%	SD 0%
.....							
<b>#Ear:</b>							
<b>  Neural Crest Tumor</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total 0/50	(0%)
						Mean 0%	SD 0%
.....							
<b>#Harderian Gland:</b>							
<b>  Carcinoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total 0/50	(0%)
						Mean 0%	SD 0%
.....							
<b>#Harderian Gland:</b>							
<b>  Carcinoma or Adenoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total 0/50	(0%)
						Mean 0%	SD 0%
.....							
<b>*Heart:</b>							
<b>  Schwannoma Malignant</b>							
		1/50	(2%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total 0/50	(0%)
						Mean 0%	SD 0%
.....							
<b>#Intestine Large: Colon/Rectum:</b>							
<b>  Adenoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total 0/50	(0%)
						Mean 0%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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 Report Date: 06/12/2013

	Male				Female			
<b>#Intestine Large: Colon/Rectum:</b>								
<b>Carcinoma or Adenoma</b>								
		0/50	(0%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
<b>#Intestine Small: Ileum:</b>								
<b>Carcinoma</b>								
		0/50	(0%)			1/50	(2%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
.....								
<b>#Intestine Small: Jejunum:</b>								
<b>Carcinoma</b>								
		0/50	(0%)			1/50	(2%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
.....								
<b>#Intestine Small: Site Unspecified:</b>								
<b>Carcinoma</b>								
		0/50	(0%)			2/50	(4%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	2/50	(4%)
.....								
<b>#Intestine Small: Site Unspecified:</b>								
<b>Carcinoma or Adenoma</b>								
		0/50	(0%)			2/50	(4%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	2/50	(4%)
.....								
<b>*Islets, Pancreatic:</b>								
<b>Adenoma</b>								
		0/50	(0%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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		Male			Female				
<b>*Islets, Pancreatic:</b>									
<b>  Carcinoma</b>									
		2/50	(4%)		1/50	(2%)			
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....									
<b>*Islets, Pancreatic:</b>									
<b>  Carcinoma or Adenoma</b>									
		2/50	(4%)		1/50	(2%)			
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....									
<b>*Kidney: Renal Tubule:</b>									
<b>  Adenoma</b>									
		0/50	(0%)		0/50	(0%)			
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....									
<b>*Kidney: Renal Tubule:</b>									
<b>  Carcinoma or Adenoma</b>									
		0/50	(0%)		0/50	(0%)			
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....									
<b>*Kidney: Renal Tubule:</b>									
<b>  Lipoma</b>									
		0/50	(0%)		0/50	(0%)			
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....									
<b>*Liver:</b>									
<b>  Fibrous Histiocytoma</b>									
		0/50	(0%)		0/50	(0%)			
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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 Report Date: 06/12/2013

		Male				Female			
<b>*Liver:</b>									
<b>Hemangioma</b>									
		0/50	(0%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>*Lung:</b>									
<b>Alveolar/Bronchiolar Adenoma</b>									
		2/50	(4%)			2/50	(4%)		
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	2/50	(4%)	Mean 4% SD 0%
.....									
<b>*Lung:</b>									
<b>Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma</b>									
		2/50	(4%)			2/50	(4%)		
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	2/50	(4%)	Mean 4% SD 0%
.....									
<b>*Lung:</b>									
<b>Fibrous Histiocytoma</b>									
		0/50	(0%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>*Lung:</b>									
<b>Squamous Cell Carcinoma</b>									
		0/50	(0%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>#Lymph Node:</b>									
<b>Fibrous Histiocytoma</b>									
		0/50	(0%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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		Male			Female		
<b>#Mammary Gland: Adenoma</b>							
Overall Incidence	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>#Mammary Gland: Carcinoma</b>							
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	2/50 (4%)	Mean 4% SD 0%
.....							
<b>#Mammary Gland: Carcinoma or Adenoma</b>							
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	3/50 (6%)	Mean 6% SD 0%
.....							
<b>#Mammary Gland: Fibroadenoma</b>							
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	18/50 (36%)	Mean 36% SD 0%
.....							
<b>#Mammary Gland: Fibroma, Fibroadenoma or Adenoma</b>							
Overall Incidence	Total	1/50 (2%)	Mean 2%	SD 0%	Total	19/50 (38%)	Mean 38% SD 0%
.....							
<b>#Mammary Gland: Fibroma, Fibroadenoma, Carcinoma, or Adenoma</b>							
Overall Incidence	Total	2/50 (4%)	Mean 4%	SD 0%	Total	20/50 (40%)	Mean 40% SD 0%

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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	Male				Female			
<b>#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Papilloma Squamous or Papilloma</b>								
		0/50 (0%)			1/50 (2%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
<b>#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma</b>								
		0/50 (0%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma</b>								
		0/50 (0%)			1/50 (2%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
<b>#Oral Mucosa: Squamous Cell Carcinoma</b>								
		0/50 (0%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>*Pancreas: Adenoma</b>								
		0/50 (0%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>*Pancreas: Carcinoma or Adenoma</b>								
		0/50 (0%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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 Report Date: 06/12/2013

	Male				Female			
<b>*Pancreas:</b>								
<b>Mixed Tumor Malignant</b>								
		1/50	(2%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
<b>*Pituitary Gland: Pars Distalis or Unspecified Site:</b>								
<b>Adenoma</b>								
		27/50	(54%)			29/50	(58%)	
<b>Overall Incidence</b>	Total	27/50	(54%)	Mean 54%	SD 0%	Total	29/50	(58%)
							Mean 58%	SD 0%
.....								
<b>*Pituitary Gland: Pars Distalis or Unspecified Site:</b>								
<b>Carcinoma or Adenoma</b>								
		27/50	(54%)			29/50	(58%)	
<b>Overall Incidence</b>	Total	27/50	(54%)	Mean 54%	SD 0%	Total	29/50	(58%)
							Mean 58%	SD 0%
.....								
<b>*Prostate:</b>								
<b>Adenoma</b>								
		1/50	(2%)					
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%			
.....								
<b>*Prostate:</b>								
<b>Carcinoma or Adenoma</b>								
		1/50	(2%)					
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%			
.....								
<b>*Salivary Glands:</b>								
<b>Adenoma</b>								
		1/50	(2%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: INHALATION  
 Vehicle: AIR

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 Report Date: 06/12/2013

		Male			Female		
<b>*Salivary Glands:</b>							
<b>Carcinoma or Adenoma</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skeletal Muscle:</b>							
<b>Fibrous Histiocytoma</b>							
		0/50 (0%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Basal Cell Adenoma</b>							
		2/50 (4%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	2/50 (4%)	Mean 4%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>#Skin:</b>							
<b>Basal Cell Adenoma or Basosquamous Tumor Benign</b>							
		2/50 (4%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	2/50 (4%)	Mean 4%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>#Skin:</b>							
<b>Basal Cell Adenoma, Basosquamous Tumor Benign, or Trichoepithelioma</b>							
		4/50 (8%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	4/50 (8%)	Mean 8%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>#Skin:</b>							
<b>Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma</b>							
		4/50 (8%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	4/50 (8%)	Mean 8%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied



Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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 Report Date: 06/12/2013

		Male			Female		
<b>#Skin:</b>							
<b>Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma</b>							
		8/50 (16%)			2/50 (4%)		
<b>Overall Incidence</b>	Total	8/50 (16%)	Mean 16%	SD 0%	Total	2/50 (4%)	Mean 4% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibroma</b>							
		2/50 (4%)			2/50 (4%)		
<b>Overall Incidence</b>	Total	2/50 (4%)	Mean 4%	SD 0%	Total	2/50 (4%)	Mean 4% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Fibrous Histiocytoma</b>							
		2/50 (4%)			3/50 (6%)		
<b>Overall Incidence</b>	Total	2/50 (4%)	Mean 4%	SD 0%	Total	3/50 (6%)	Mean 6% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibrosarcoma</b>							
		0/50 (0%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibrosarcoma, Sarcoma, Myxosarcoma, or Fibrous Histiocytoma</b>							
		0/50 (0%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibrous Histiocytoma</b>							
		0/50 (0%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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	Male				Female			
<b>#Skin:</b>								
Hamartoma								
		1/50	(2%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
<b>#Skin:</b>								
Keratoacanthoma								
		4/50	(8%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	4/50	(8%)	Mean 8%	SD 0%	Total	0/50	(0%)
							Mean 0%	SD 0%
.....								
<b>#Skin:</b>								
Lipoma								
		2/50	(4%)			1/50	(2%)	
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	1/50	(2%)
							Mean 2%	SD 0%
.....								
<b>#Skin:</b>								
Neurofibrosarcoma or Schwannoma (malignant or NOS)								
		0/50	(0%)			1/50	(2%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
							Mean 2%	SD 0%
.....								
<b>#Skin:</b>								
Neurofibrosarcoma, Neurofibroma, or Schwannoma (benign, malignant or NOS)								
		0/50	(0%)			1/50	(2%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
							Mean 2%	SD 0%
.....								
<b>#Skin:</b>								
Schwannoma Malignant								
		0/50	(0%)			1/50	(2%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)
							Mean 2%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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		Male			Female		
<b>#Skin:</b>							
<b>Squamous Cell Carcinoma</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Carcinoma, Basal Cell Carcinoma, Basosquamous Tumor (malignant or NOS), or Carcinoma</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Papilloma</b>							
		0/50 (0%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Papilloma or Papilloma</b>							
		0/50 (0%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma</b>							
		5/50 (10%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	5/50 (10%)	Mean 10%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Papilloma, Papilloma, or Keratoacanthoma</b>							
		4/50 (8%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	4/50 (8%)	Mean 8%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: INHALATION  
 Vehicle: AIR

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	Male				Female				
<b>#Skin:</b>									
<b>Trichoepithelioma</b>									
		2/50	(4%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....									
<b>#Stomach, Forestomach:</b>									
<b>Squamous Cell Carcinoma or Papilloma Squamous</b>									
		0/50	(0%)			1/50	(2%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....									
<b>#Stomach, Forestomach:</b>									
<b>Squamous Cell Papilloma</b>									
		0/50	(0%)			1/50	(2%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....									
<b>*Testes:</b>									
<b>Adenoma</b>									
		35/50	(70%)						
<b>Overall Incidence</b>	Total	35/50	(70%)	Mean 70%	SD 0%				
.....									
<b>*Thymus:</b>									
<b>Thymoma Malignant</b>									
		0/46	(0%)			0/47	(0%)		
<b>Overall Incidence</b>	Total	0/46	(0%)	Mean 0%	SD 0%	Total	0/47 (0%)	Mean 0%	SD 0%
.....									
<b>*Thymus:</b>									
<b>Thymoma: Benign, Malignant, NOS</b>									
		0/46	(0%)			0/47	(0%)		
<b>Overall Incidence</b>	Total	0/46	(0%)	Mean 0%	SD 0%	Total	0/47 (0%)	Mean 0%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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		Male			Female		
<b>*Thyroid Gland: C-Cell: Adenoma</b>							
		4/49 (8%)			8/50 (16%)		
<b>Overall Incidence</b>	Total	4/49 (8.16%)	Mean 8.16%	SD 0%	Total	8/50 (16%)	Mean 16% SD 0%
.....							
<b>*Thyroid Gland: C-Cell: Carcinoma</b>							
		1/49 (2%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	1/49 (2.04%)	Mean 2.04%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>*Thyroid Gland: C-Cell: Carcinoma or Adenoma</b>							
		5/49 (10%)			9/50 (18%)		
<b>Overall Incidence</b>	Total	5/49 (10.2%)	Mean 10.2%	SD 0%	Total	9/50 (18%)	Mean 18% SD 0%
.....							
<b>*Thyroid Gland: Follicular Cell: Adenoma</b>							
		0/49 (0%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	0/49 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>*Thyroid Gland: Follicular Cell: Carcinoma</b>							
		2/49 (4%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	2/49 (4.08%)	Mean 4.08%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>*Thyroid Gland: Follicular Cell: Carcinoma or Adenoma</b>							
		2/49 (4%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	2/49 (4.08%)	Mean 4.08%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: INHALATION  
 Vehicle: AIR

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	Male				Female			
<b>#Tongue:</b>								
<b>Squamous Cell Carcinoma or Papilloma Squamous</b>								
		0/50 (0%)			1/50 (2%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
<b>#Tongue:</b>								
<b>Squamous Cell Papilloma</b>								
		0/50 (0%)			1/50 (2%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
<b>#Uterus:</b>								
<b>Deciduoma NOS</b>								
					0/50 (0%)			
<b>Overall Incidence</b>					Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#Uterus:</b>								
<b>Fibrous Histiocytoma</b>								
					0/50 (0%)			
<b>Overall Incidence</b>					Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#Uterus:</b>								
<b>Hemangiosarcoma</b>								
					1/50 (2%)			
<b>Overall Incidence</b>					Total	1/50 (2%)	Mean 2%	SD 0%
.....								
<b>#Uterus:</b>								
<b>Leiomyoma</b>								
					1/50 (2%)			
<b>Overall Incidence</b>					Total	1/50 (2%)	Mean 2%	SD 0%
.....								

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: INHALATION  
 Vehicle: AIR

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Male				Female			
<b>#Uterus:</b>							
<b>Leiomyosarcoma</b>							
				0/50	(0%)		
<b>Overall Incidence</b>				Total	0/50 (0%)	Mean 0%	SD 0%
.....							
<b>#Uterus:</b>							
<b>Polyp Stromal</b>							
				10/50	(20%)		
<b>Overall Incidence</b>				Total	10/50 (20%)	Mean 20%	SD 0%
.....							
<b>#Uterus:</b>							
<b>Sarcoma Stromal</b>							
				0/50	(0%)		
<b>Overall Incidence</b>				Total	0/50 (0%)	Mean 0%	SD 0%
.....							
<b>#Uterus:</b>							
<b>Sarcoma Stromal or Polyp Stromal</b>							
				10/50	(20%)		
<b>Overall Incidence</b>				Total	10/50 (20%)	Mean 20%	SD 0%
.....							
<b>#Zymbal's Gland:</b>							
<b>Adenoma</b>							
		1/50	(2%)				
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%
						SD 0%	
.....							
<b>#Zymbal's Gland:</b>							
<b>Carcinoma</b>							
		3/50	(6%)				
<b>Overall Incidence</b>	Total	3/50 (6%)	Mean 6%	SD 0%	Total	0/50 (0%)	Mean 0%
						SD 0%	

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
Contract/Lab: All Laboratories  
Species: RATS  
Strain: F 344/N Tac  
Length of Study: CHRONIC

**Toxicology Data Management System**  
Tumor Incidence for Selected Control Animal Groups  
**Route: INHALATION**  
**Vehicle: AIR**

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	<b>Male</b>				<b>Female</b>			
<b>#Zymbal's Gland:</b>								
<b>Carcinoma or Adenoma</b>		4/50 (8%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	4/50 (8%)	Mean 8%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

---

\*: Denominator is number of animals with tissues examined microscopically  
#: Denominator is number of animals necropsied



Version: Jun2013  
Contract/Lab: All Laboratories  
Species: RATS  
Strain: F 344/N Tac  
Length of Study: CHRONIC

**Toxicology Data Management System**  
Tumor Incidence for Selected Control Animal Groups  
Route: ORAL  
Vehicle: WATER

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**Study Summary**

Laboratory Name	Study Number	Study Start Date	Length of Study in Days	Number of Animals Total and (#/Cage)	Number Surviving and (Mean Life Span)	Maximum Mean Weekly Body Weight	Chemical
<b>Male</b>							
Battelle Columbus Laboratory	059601405	10/26/06	726	50(3)	19(658)	528.0	Water disinfection byproducts (Bromodichloroacetic acid)
<b>Female</b>							
Battelle Columbus Laboratory	059601405	10/27/06	727	50(5)	34(694)	352.8	Water disinfection byproducts (Bromodichloroacetic acid)

NOTE: The text on page 2 ("Report Description") describes how the studies listed here are displayed on the data pages that follow.

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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 Report Date: 06/12/2013

	Male				Female			
<b>#All Organs:</b>								
<b>Benign Tumors</b>								
		46/50 (92%)			41/50 (82%)			
<b>Overall Incidence</b>	Total	46/50 (92%)	Mean 92%	SD 0%	Total	41/50 (82%)	Mean 82%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Malignant Tumors</b>								
		24/50 (48%)			23/50 (46%)			
<b>Overall Incidence</b>	Total	24/50 (48%)	Mean 48%	SD 0%	Total	23/50 (46%)	Mean 46%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Malignant and Benign Tumors</b>								
		49/50 (98%)			47/50 (94%)			
<b>Overall Incidence</b>	Total	49/50 (98%)	Mean 98%	SD 0%	Total	47/50 (94%)	Mean 94%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Hemangioma</b>								
		0/50 (0%)			1/50 (2%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Hemangiosarcoma</b>								
		0/50 (0%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Hemangiosarcoma or Hemangioma</b>								
		0/50 (0%)			1/50 (2%)			
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....								

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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 Report Date: 06/12/2013

	Male				Female			
<b>#All Organs:</b>								
<b>Leukemia: Lymphocytic, Monocytic, Mononuclear, or Undifferentiated</b>								
		15/50 (30%)			19/50 (38%)			
<b>Overall Incidence</b>	Total	15/50 (30%)	Mean 30%	SD 0%	Total	19/50 (38%)	Mean 38%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Mesothelioma: Benign, Malignant, NOS</b>								
		1/50 (2%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Mesothelioma: Malignant</b>								
		1/50 (2%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Osteoma</b>								
		1/50 (2%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#All Organs:</b>								
<b>Osteosarcoma or Osteoma</b>								
		1/50 (2%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>*Adrenal Cortex:</b>								
<b>Adenoma</b>								
		2/50 (4%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	2/50 (4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: ORAL**  
**Vehicle: WATER**

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		Male			Female		
<b>*Adrenal Medulla:</b>							
<b>  Pheochromocytoma Benign</b>							
		10/50 (20%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	10/50 (20%)	Mean 20%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>*Adrenal Medulla:</b>							
<b>  Pheochromocytoma Malignant</b>							
		0/50 (0%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%
.....							
<b>*Adrenal Medulla:</b>							
<b>  Pheochromocytoma: Benign, Complex, Malignant, NOS</b>							
		10/50 (20%)			2/50 (4%)		
<b>Overall Incidence</b>	Total	10/50 (20%)	Mean 20%	SD 0%	Total	2/50 (4%)	Mean 4% SD 0%
.....							
<b>#Bone:</b>							
<b>  Osteoma</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Bone:</b>							
<b>  Osteosarcoma or Osteoma</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>*Brain:</b>							
<b>  Astrocytoma Malignant</b>							
		0/50 (0%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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	Male				Female				
<b>*Brain:</b>									
<b>Fibrous Histiocytoma</b>									
		1/50	(2%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....									
<b>*Brain:</b>									
<b>Glioma</b>									
		0/50	(0%)			1/50	(2%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%
.....									
<b>*Brain:</b>									
<b>Granular Cell Tumor Benign</b>									
		2/50	(4%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....									
<b>*Brain:</b>									
<b>Oligodendroglioma, Glioma, or Astrocytoma</b>									
		0/50	(0%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....									
<b>*Clitoral/Preputial Gland:</b>									
<b>Adenoma</b>									
		2/50	(4%)			8/50	(16%)		
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	8/50 (16%)	Mean 16%	SD 0%
.....									
<b>*Clitoral/Preputial Gland:</b>									
<b>Carcinoma</b>									
		2/50	(4%)			1/50	(2%)		
<b>Overall Incidence</b>	Total	2/50	(4%)	Mean 4%	SD 0%	Total	1/50 (2%)	Mean 2%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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 Report Date: 06/12/2013

		Male			Female		
<b>*Clitoral/Preputial Gland:</b>							
<b>  Carcinoma or Adenoma</b>							
		4/50 (8%)			8/50 (16%)		
<b>Overall Incidence</b>	Total	4/50 (8%)	Mean 8%	SD 0%	Total	8/50 (16%)	Mean 16% SD 0%
.....							
<b>#Ear:</b>							
<b>  Neural Crest Tumor</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Harderian Gland:</b>							
<b>  Carcinoma</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Harderian Gland:</b>							
<b>  Carcinoma or Adenoma</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>*Heart:</b>							
<b>  Schwannoma Malignant</b>							
		0/50 (0%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Intestine Large: Colon/Rectum:</b>							
<b>  Adenoma</b>							
		0/50 (0%)			1/50 (2%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	1/50 (2%)	Mean 2% SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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		Male			Female		
<b>#Intestine Large: Colon/Rectum:</b>							
<b>Carcinoma or Adenoma</b>							
		0/50	(0%)		1/50	(2%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50 (2%)
						Mean 2%	SD 0%
.....							
<b>#Intestine Small: Ileum:</b>							
<b>Carcinoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
<b>#Intestine Small: Jejunum:</b>							
<b>Carcinoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
<b>#Intestine Small: Site Unspecified:</b>							
<b>Carcinoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
<b>#Intestine Small: Site Unspecified:</b>							
<b>Carcinoma or Adenoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
						Mean 0%	SD 0%
.....							
<b>*Islets, Pancreatic:</b>							
<b>Adenoma</b>							
		0/50	(0%)		1/50	(2%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50 (2%)
						Mean 2%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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 Report Date: 06/12/2013

		Male				Female			
<b>*Islets, Pancreatic:</b>									
<b>  Carcinoma</b>									
		0/50	(0%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>*Islets, Pancreatic:</b>									
<b>  Carcinoma or Adenoma</b>									
		0/50	(0%)			1/50	(2%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)	Mean 2% SD 0%
.....									
<b>*Kidney: Renal Tubule:</b>									
<b>  Adenoma</b>									
		1/50	(2%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>*Kidney: Renal Tubule:</b>									
<b>  Carcinoma or Adenoma</b>									
		1/50	(2%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>*Kidney: Renal Tubule:</b>									
<b>  Lipoma</b>									
		1/50	(2%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>*Liver:</b>									
<b>  Fibrous Histiocytoma</b>									
		1/50	(2%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied



Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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		Male				Female			
<b>*Liver:</b>									
<b>Hemangioma</b>									
		0/50	(0%)			1/50	(2%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)	Mean 2% SD 0%
.....									
<b>*Lung:</b>									
<b>Alveolar/Bronchiolar Adenoma</b>									
		3/50	(6%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	3/50	(6%)	Mean 6%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>*Lung:</b>									
<b>Alveolar/Bronchiolar Carcinoma or Alveolar/Bronchiolar Adenoma</b>									
		3/50	(6%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	3/50	(6%)	Mean 6%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>*Lung:</b>									
<b>Fibrous Histiocytoma</b>									
		1/50	(2%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>*Lung:</b>									
<b>Squamous Cell Carcinoma</b>									
		1/50	(2%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>#Lymph Node:</b>									
<b>Fibrous Histiocytoma</b>									
		1/50	(2%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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		Male				Female			
<b>#Mammary Gland: Adenoma</b>									
		0/50	(0%)			1/50	(2%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)	Mean 2% SD 0%
.....									
<b>#Mammary Gland: Carcinoma</b>									
		0/50	(0%)			0/50	(0%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)	Mean 0% SD 0%
.....									
<b>#Mammary Gland: Carcinoma or Adenoma</b>									
		0/50	(0%)			1/50	(2%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	1/50	(2%)	Mean 2% SD 0%
.....									
<b>#Mammary Gland: Fibroadenoma</b>									
		0/50	(0%)			28/50	(56%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	28/50	(56%)	Mean 56% SD 0%
.....									
<b>#Mammary Gland: Fibroma, Fibroadenoma or Adenoma</b>									
		0/50	(0%)			28/50	(56%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	28/50	(56%)	Mean 56% SD 0%
.....									
<b>#Mammary Gland: Fibroma, Fibroadenoma, Carcinoma, or Adenoma</b>									
		0/50	(0%)			28/50	(56%)		
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	28/50	(56%)	Mean 56% SD 0%

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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	Male				Female			
<b>#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Papilloma Squamous or Papilloma</b>								
		0/50 (0%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma</b>								
		1/50 (2%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#Oral Cavity (Oral Mucosa, Tongue, Pharynx, Tooth, Gingiva): Squamous Cell Carcinoma, Papilloma Squamous, or Papilloma</b>								
		1/50 (2%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>#Oral Mucosa: Squamous Cell Carcinoma</b>								
		1/50 (2%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>*Pancreas: Adenoma</b>								
		1/50 (2%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>*Pancreas: Carcinoma or Adenoma</b>								
		1/50 (2%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: ORAL**  
**Vehicle: WATER**

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	Male				Female			
<b>*Pancreas:</b>								
<b>Mixed Tumor Malignant</b>								
		0/50 (0%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								
<b>*Pituitary Gland: Pars Distalis or Unspecified Site:</b>								
<b>Adenoma</b>								
		26/50 (52%)				23/50 (46%)		
<b>Overall Incidence</b>	Total	26/50 (52%)	Mean 52%	SD 0%	Total	23/50 (46%)	Mean 46%	SD 0%
.....								
<b>*Pituitary Gland: Pars Distalis or Unspecified Site:</b>								
<b>Carcinoma or Adenoma</b>								
		26/50 (52%)				23/50 (46%)		
<b>Overall Incidence</b>	Total	26/50 (52%)	Mean 52%	SD 0%	Total	23/50 (46%)	Mean 46%	SD 0%
.....								
<b>*Prostate:</b>								
<b>Adenoma</b>								
		1/50 (2%)						
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%				
.....								
<b>*Prostate:</b>								
<b>Carcinoma or Adenoma</b>								
		1/50 (2%)						
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%				
.....								
<b>*Salivary Glands:</b>								
<b>Adenoma</b>								
		0/50 (0%)				0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%
.....								

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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		Male			Female		
<b>*Salivary Glands:</b>							
<b>Carcinoma or Adenoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
<b>#Skeletal Muscle:</b>							
<b>Fibrous Histiocytoma</b>							
		1/50	(2%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
<b>#Skin:</b>							
<b>Basal Cell Adenoma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
<b>#Skin:</b>							
<b>Basal Cell Adenoma or Basosquamous Tumor Benign</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
<b>#Skin:</b>							
<b>Basal Cell Adenoma, Basosquamous Tumor Benign, or Trichoepithelioma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%
<b>#Skin:</b>							
<b>Basal Cell Carcinoma, Basal Cell Adenoma, Basosquamous Tumor (benign, malignant or NOS), or Trichoepithelioma</b>							
		0/50	(0%)		0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50 (0%)
							Mean 0%
							SD 0%

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: ORAL**  
**Vehicle: WATER**

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		Male			Female		
<b>#Skin:</b>							
<b>Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma</b>							
		9/50 (18%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	9/50 (18%)	Mean 18%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibroma</b>							
		4/50 (8%)			2/50 (4%)		
<b>Overall Incidence</b>	Total	4/50 (8%)	Mean 8%	SD 0%	Total	2/50 (4%)	Mean 4% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Fibrous Histiocytoma</b>							
		6/50 (12%)			2/50 (4%)		
<b>Overall Incidence</b>	Total	6/50 (12%)	Mean 12%	SD 0%	Total	2/50 (4%)	Mean 4% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibrosarcoma</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibrosarcoma, Sarcoma, Myxosarcoma, or Fibrous Histiocytoma</b>							
		2/50 (4%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	2/50 (4%)	Mean 4%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Fibrous Histiocytoma</b>							
		1/50 (2%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: ORAL**  
**Vehicle: WATER**

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	Male				Female			
<b>#Skin:</b>								
Hamartoma								
		0/50	(0%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
<b>#Skin:</b>								
Keratoacanthoma								
		7/50	(14%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	7/50	(14%)	Mean 14%	SD 0%	Total	0/50	(0%)
.....								
<b>#Skin:</b>								
Lipoma								
		1/50	(2%)			2/50	(4%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	2/50	(4%)
.....								
<b>#Skin:</b>								
Neurofibrosarcoma or Schwannoma (malignant or NOS)								
		0/50	(0%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
<b>#Skin:</b>								
Neurofibrosarcoma, Neurofibroma, or Schwannoma (benign, malignant or NOS)								
		0/50	(0%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
<b>#Skin:</b>								
Schwannoma Malignant								
		0/50	(0%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: ORAL**  
**Vehicle: WATER**

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		Male			Female		
<b>#Skin:</b>							
<b>Squamous Cell Carcinoma</b>							
		0/50 (0%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Carcinoma, Basal Cell Carcinoma, Basosquamous Tumor (malignant or NOS), or Carcinoma</b>							
		0/50 (0%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Papilloma</b>							
		3/50 (6%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	3/50 (6%)	Mean 6%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Papilloma or Papilloma</b>							
		3/50 (6%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	3/50 (6%)	Mean 6%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Papilloma, Papilloma, Squamous Cell Carcinoma or Keratoacanthoma</b>							
		9/50 (18%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	9/50 (18%)	Mean 18%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>#Skin:</b>							
<b>Squamous Cell Papilloma, Papilloma, or Keratoacanthoma</b>							
		9/50 (18%)			0/50 (0%)		
<b>Overall Incidence</b>	Total	9/50 (18%)	Mean 18%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied



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 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
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	Male				Female			
<b>#Skin:</b>								
<b>Trichoepithelioma</b>								
		0/50	(0%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
<b>#Stomach, Forestomach:</b>								
<b>Squamous Cell Carcinoma or Papilloma Squamous</b>								
		1/50	(2%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
.....								
<b>#Stomach, Forestomach:</b>								
<b>Squamous Cell Papilloma</b>								
		1/50	(2%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	1/50	(2%)	Mean 2%	SD 0%	Total	0/50	(0%)
.....								
<b>*Testes:</b>								
<b>Adenoma</b>								
		34/50	(68%)					
<b>Overall Incidence</b>	Total	34/50	(68%)	Mean 68%	SD 0%			
.....								
<b>*Thymus:</b>								
<b>Thymoma Malignant</b>								
		0/48	(0%)			1/48	(2%)	
<b>Overall Incidence</b>	Total	0/48	(0%)	Mean 0%	SD 0%	Total	1/48	(2.08%)
.....								
<b>*Thymus:</b>								
<b>Thymoma: Benign, Malignant, NOS</b>								
		0/48	(0%)			1/48	(2%)	
<b>Overall Incidence</b>	Total	0/48	(0%)	Mean 0%	SD 0%	Total	1/48	(2.08%)
.....								

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
**Route: ORAL**  
**Vehicle: WATER**

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		Male			Female		
<b>*Thyroid Gland: C-Cell: Adenoma</b>							
<b>Overall Incidence</b>	Total	7/50 (14%)	Mean 14%	SD 0%	Total	11/50 (22%)	Mean 22% SD 0%
.....							
<b>*Thyroid Gland: C-Cell: Carcinoma</b>							
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>*Thyroid Gland: C-Cell: Carcinoma or Adenoma</b>							
<b>Overall Incidence</b>	Total	8/50 (16%)	Mean 16%	SD 0%	Total	11/50 (22%)	Mean 22% SD 0%
.....							
<b>*Thyroid Gland: Follicular Cell: Adenoma</b>							
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>*Thyroid Gland: Follicular Cell: Carcinoma</b>							
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%
.....							
<b>*Thyroid Gland: Follicular Cell: Carcinoma or Adenoma</b>							
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0% SD 0%

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
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**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
 Vehicle: WATER

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	Male				Female			
<b>#Tongue:</b>								
<b>Squamous Cell Carcinoma or Papilloma Squamous</b>								
		0/50	(0%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
<b>#Tongue:</b>								
<b>Squamous Cell Papilloma</b>								
		0/50	(0%)			0/50	(0%)	
<b>Overall Incidence</b>	Total	0/50	(0%)	Mean 0%	SD 0%	Total	0/50	(0%)
.....								
<b>#Uterus:</b>								
<b>Deciduoma NOS</b>								
						1/50	(2%)	
<b>Overall Incidence</b>						Total	1/50	(2%)
.....								
<b>#Uterus:</b>								
<b>Fibrous Histiocytoma</b>								
						1/50	(2%)	
<b>Overall Incidence</b>						Total	1/50	(2%)
.....								
<b>#Uterus:</b>								
<b>Hemangiosarcoma</b>								
						0/50	(0%)	
<b>Overall Incidence</b>						Total	0/50	(0%)
.....								
<b>#Uterus:</b>								
<b>Leiomyoma</b>								
						0/50	(0%)	
<b>Overall Incidence</b>						Total	0/50	(0%)
.....								

\*: Denominator is number of animals with tissues examined microscopically

#: Denominator is number of animals necropsied

Version: Jun2013  
 Contract/Lab: All Laboratories  
 Species: RATS  
 Strain: F 344/N Tac  
 Length of Study: CHRONIC

**Toxicology Data Management System**  
 Tumor Incidence for Selected Control Animal Groups  
 Route: ORAL  
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Male				Female			
<b>#Uterus:</b>							
<b>Leiomyosarcoma</b>							
				1/50	(2%)		
<b>Overall Incidence</b>				Total	1/50 (2%)	Mean 2%	SD 0%
.....							
<b>#Uterus:</b>							
<b>Polyp Stromal</b>							
				4/50	(8%)		
<b>Overall Incidence</b>				Total	4/50 (8%)	Mean 8%	SD 0%
.....							
<b>#Uterus:</b>							
<b>Sarcoma Stromal</b>							
				1/50	(2%)		
<b>Overall Incidence</b>				Total	1/50 (2%)	Mean 2%	SD 0%
.....							
<b>#Uterus:</b>							
<b>Sarcoma Stromal or Polyp Stromal</b>							
				5/50	(10%)		
<b>Overall Incidence</b>				Total	5/50 (10%)	Mean 10%	SD 0%
.....							
<b>#Zymbal's Gland:</b>							
<b>Adenoma</b>							
		0/50	(0%)				
<b>Overall Incidence</b>	Total	0/50 (0%)	Mean 0%	SD 0%	Total	0/50 (0%)	Mean 0%
							SD 0%
.....							
<b>#Zymbal's Gland:</b>							
<b>Carcinoma</b>							
		1/50	(2%)				
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%
							SD 0%
.....							

\*: Denominator is number of animals with tissues examined microscopically  
 #: Denominator is number of animals necropsied

Version: Jun2013  
Contract/Lab: All Laboratories  
Species: RATS  
Strain: F 344/N Tac  
Length of Study: CHRONIC

**Toxicology Data Management System**  
Tumor Incidence for Selected Control Animal Groups  
Route: ORAL  
Vehicle: WATER

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	Male				Female			
<b>#Zymbal's Gland:</b>								
<b>Carcinoma or Adenoma</b>								
		1/50 (2%)			0/50 (0%)			
<b>Overall Incidence</b>	Total	1/50 (2%)	Mean 2%	SD 0%	Total	0/50 (0%)	Mean 0%	SD 0%

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\*: Denominator is number of animals with tissues examined microscopically  
#: Denominator is number of animals necropsied