

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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**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.

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		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

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	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

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		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

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		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%)
							Mean 0%
							SD 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%)
							Mean 0%
							SD 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%)
							Mean 0%
							SD 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%)
							Mean 0%
							SD 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%)
							Mean 4.08%
							SD 0%
.....							
<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%)
							Mean 8.16%
							SD 0%

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		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%

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		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%)	Mean 0% SD 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%)	Mean 2% SD 0%
.....									
<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%)	Mean 2% SD 0%
.....									
<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%)	Mean 4% SD 0%
.....									
<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%)	Mean 4% SD 0%
.....									
<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%)	Mean 0% SD 0%

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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%

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		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

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

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#: Denominator is number of animals necropsied

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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								

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	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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		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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		Male			Female		
<b>#Skin:</b>							
Basal or Sq. Cell Carcinoma, Carcinoma, Basosq. Tumor (M or B), Basal Cell Adenoma, Adenoma, Papilloma, Sq Papilloma, Keratoacanthoma, Trichoepithelioma							
		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>							
Fibroma							
		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>							
Fibroma, Fibrosarcoma, Sarcoma, Myxoma, Myxosarcoma, or Fibrous Histiocytoma							
		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>							
Fibrosarcoma							
		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>							
Fibrosarcoma, Sarcoma, Myxosarcoma, or Fibrous Histiocytoma							
		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>							
Fibrous Histiocytoma							
		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>Hamartoma</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>Keratoacanthoma</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%
.....							
<b>#Skin:</b>							
<b>Lipoma</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>Neurofibrosarcoma or Schwannoma (malignant or NOS)</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>Neurofibrosarcoma, Neurofibroma, or Schwannoma (benign, malignant or NOS)</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>Schwannoma 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%

\*: 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>							
<b>Overall Incidence</b>	Total	4/49 (8%)	Mean 8.16%	SD 0%	Total	8/50 (16%)	Mean 16% SD 0%
.....							
<b>*Thyroid Gland: C-Cell: Carcinoma</b>							
<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>							
<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>							
<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>							
<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>							
<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%)
.....								
<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%)
.....								
<b>#Uterus:</b>								
<b>Deciduoma NOS</b>								
						0/50	(0%)	
<b>Overall Incidence</b>						Total	0/50	(0%)
.....								
<b>#Uterus:</b>								
<b>Fibrous Histiocytoma</b>								
						0/50	(0%)	
<b>Overall Incidence</b>						Total	0/50	(0%)
.....								
<b>#Uterus:</b>								
<b>Hemangiosarcoma</b>								
						1/50	(2%)	
<b>Overall Incidence</b>						Total	1/50	(2%)
.....								
<b>#Uterus:</b>								
<b>Leiomyoma</b>								
						1/50	(2%)	
<b>Overall Incidence</b>						Total	1/50	(2%)
.....								

\*: 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%

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