

**Experiment Number:** 56348-01  
**Test Type:** 90-DAY  
**Species/Strain:** Rat/F 344/N

**P02: INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (a)**

**Test Compound:** Citral  
**CAS Number:** 5392-40-5

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 05:11:23  
**First Dose M/F:** NA / NA  
**Lab:** BAT

**C Number:** C56348A  
**Lock Date:** 01/02/1996  
**Cage Range:** All  
**Date Range:** All  
**Reasons For Removal:** All  
**Removal Date Range:** All  
**Treatment Groups:** All  
**Study Gender:** Both  
**PWG Approval Date:** NONE

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First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat MALE	UNTREAT CONTROL	VEHICLE CONTROL	3900 PPM	7800 PPM	15600 PPM	31300 PPM
<b>Disposition Summary</b>						
Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Moribund Sacrifice						10
Survivors						
Terminal Sacrifice	10	10	10	10	10	
Animals Examined Microscopically	10	10	10	10	10	10
<b>ALIMENTARY SYSTEM</b>						
Esophagus	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Large, Cecum	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Large, Colon	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Large, Rectum	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Small, Duodenum	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Small, Ileum	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Small, Jejunum	(10)	(10)	(0)	(0)	(10)	(10)
Liver	(10)	(10)	(1)	(0)	(10)	(10)
Pancreas	(10)	(10)	(0)	(0)	(10)	(10)
Salivary Glands	(10)	(10)	(0)	(0)	(10)	(10)
Stomach, Forestomach	(10)	(10)	(0)	(0)	(10)	(10)
Stomach, Glandular	(10)	(10)	(0)	(0)	(10)	(10)
<b>CARDIOVASCULAR SYSTEM</b>						
Blood Vessel	(10)	(10)	(0)	(0)	(10)	(10)
Heart	(10)	(10)	(0)	(0)	(10)	(10)
<b>ENDOCRINE SYSTEM</b>						
Adrenal Cortex	(10)	(10)	(0)	(0)	(10)	(10)
Adrenal Medulla	(10)	(10)	(0)	(0)	(10)	(10)

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

b - Primary tumors: all tumors except metastatic tumors

\* Number of animals with any tissue examined microscopically

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CAS Number: 5392-40-5

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Lab: BAT

F 344/N Rat MALE	UNTREAT CONTROL	VEHICLE CONTROL	3900 PPM	7800 PPM	15600 PPM	31300 PPM
Islets, Pancreatic	(10)	(10)	(0)	(0)	(10)	(10)
Parathyroid Gland	(10)	(7)	(0)	(0)	(9)	(10)
Pituitary Gland	(9)	(9)	(0)	(0)	(10)	(10)
Thyroid Gland	(10)	(10)	(0)	(0)	(10)	(10)
GENERAL BODY SYSTEM						
None						
GENITAL SYSTEM						
Epididymis	(10)	(10)	(0)	(0)	(10)	(10)
Preputial Gland	(10)	(10)	(0)	(0)	(10)	(10)
Prostate	(10)	(10)	(0)	(0)	(10)	(10)
Seminal Vesicle	(10)	(10)	(0)	(0)	(10)	(10)
Testes	(10)	(10)	(0)	(0)	(10)	(10)
HEMATOPOIETIC SYSTEM						
Bone Marrow	(10)	(10)	(0)	(10)	(10)	(10)
Lymph Node, Mandibular	(10)	(10)	(0)	(0)	(10)	(10)
Lymph Node, Mesenteric	(10)	(10)	(0)	(0)	(10)	(10)
Spleen	(10)	(10)	(0)	(0)	(10)	(10)
Thymus	(10)	(10)	(0)	(0)	(10)	(10)
INTEGUMENTARY SYSTEM						
Mammary Gland	(9)	(8)	(0)	(0)	(10)	(8)
Skin	(10)	(10)	(0)	(0)	(10)	(10)
MUSCULOSKELETAL SYSTEM						
Bone	(10)	(10)	(0)	(0)	(10)	(10)
NERVOUS SYSTEM						
Brain	(10)	(10)	(0)	(0)	(10)	(10)

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

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\* Number of animals with any tissue examined microscopically

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F 344/N Rat MALE	UNTREAT CONTROL	VEHICLE CONTROL	3900 PPM	7800 PPM	15600 PPM	31300 PPM
<hr/>						
RESPIRATORY SYSTEM						
Lung	(10)	(10)	(0)	(0)	(10)	(10)
Nose	(10)	(10)	(0)	(0)	(10)	(10)
Trachea	(10)	(10)	(0)	(0)	(10)	(10)
<hr/>						
SPECIAL SENSES SYSTEM						
None						
<hr/>						
URINARY SYSTEM						
Kidney	(10)	(10)	(10)	(10)	(10)	(10)
Urinary Bladder	(10)	(10)	(0)	(0)	(10)	(10)

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F 344/N Rat MALE

UNTREAT  
CONTROL

VEHICLE CONTROL

3900 PPM

7800 PPM

15600 PPM

31300 PPM

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**Tumor Summary for MALE**

**Total Animals with Primary Neoplasms (b)**

**Total Primary Neoplasms**

**Total Animals with Benign Neoplasms**

**Total Benign Neoplasms**

**Total Animals with Malignant Neoplasms**

**Total Malignant Neoplasms**

**Total Animals with Metastatic Neoplasms**

**Total Metastatic Neoplasms**

**Total Animals with Malignant Neoplasms**

**Uncertain Primary Site**

**Total Animals with Neoplasms Uncertain -**

**Benign or Malignant**

**Total Uncertain Neoplasms**

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\*\*\*END OF MALE DATA\*\*\*

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

b - Primary tumors: all tumors except metastatic tumors

\* Number of animals with any tissue examined microscopically

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First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat FEMALE	UNTREAT CONTROL	VEHICLE CONTROL	3900 PPM	7800 PPM	15600 PPM	31300 PPM
<b>Disposition Summary</b>						
Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Moribund Sacrifice						10
Survivors						
Terminal Sacrifice	10	10	10	10	10	
Animals Examined Microscopically	10	10	1	10	10	10
<b>ALIMENTARY SYSTEM</b>						
Esophagus	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Large, Cecum	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Large, Colon	(10)	(10)	(0)	(1)	(10)	(10)
Leiomyosarcoma				1 (100%)		
Intestine Large, Rectum	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Small, Duodenum	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Small, Ileum	(10)	(10)	(0)	(0)	(10)	(10)
Intestine Small, Jejunum	(10)	(10)	(0)	(0)	(10)	(10)
Liver	(10)	(10)	(1)	(0)	(10)	(10)
Pancreas	(10)	(10)	(0)	(0)	(10)	(10)
Salivary Glands	(10)	(10)	(0)	(0)	(10)	(10)
Stomach, Forestomach	(10)	(10)	(0)	(0)	(10)	(10)
Stomach, Glandular	(10)	(10)	(0)	(0)	(10)	(10)
<b>CARDIOVASCULAR SYSTEM</b>						
Blood Vessel	(10)	(10)	(0)	(0)	(10)	(10)
Heart	(10)	(10)	(0)	(0)	(10)	(10)
<b>ENDOCRINE SYSTEM</b>						
Adrenal Cortex	(10)	(10)	(0)	(0)	(10)	(10)

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F 344/N Rat FEMALE	UNTREAT CONTROL	VEHICLE CONTROL	3900 PPM	7800 PPM	15600 PPM	31300 PPM
Adrenal Medulla	(10)	(10)	(0)	(0)	(10)	(10)
Islets, Pancreatic	(10)	(10)	(0)	(0)	(10)	(10)
Parathyroid Gland	(10)	(8)	(0)	(0)	(10)	(8)
Pituitary Gland	(10)	(10)	(0)	(0)	(10)	(10)
Thyroid Gland	(10)	(10)	(0)	(0)	(10)	(10)
GENERAL BODY SYSTEM						
None						
GENITAL SYSTEM						
Clitoral Gland	(10)	(10)	(0)	(0)	(10)	(10)
Ovary	(10)	(10)	(0)	(0)	(10)	(10)
Uterus	(10)	(10)	(0)	(0)	(10)	(10)
HEMATOPOIETIC SYSTEM						
Bone Marrow	(10)	(10)	(0)	(10)	(10)	(10)
Lymph Node, Mandibular	(10)	(10)	(0)	(0)	(10)	(10)
Lymph Node, Mesenteric	(10)	(10)	(0)	(0)	(10)	(10)
Spleen	(10)	(10)	(0)	(0)	(10)	(10)
Thymus	(10)	(10)	(0)	(0)	(10)	(10)
INTEGUMENTARY SYSTEM						
Mammary Gland	(10)	(10)	(0)	(0)	(10)	(8)
Skin	(10)	(10)	(0)	(0)	(10)	(10)
MUSCULOSKELETAL SYSTEM						
Bone	(10)	(10)	(0)	(0)	(10)	(10)
NERVOUS SYSTEM						
Brain	(10)	(10)	(0)	(0)	(10)	(10)

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

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RESPIRATORY SYSTEM						
Lung	(10)	(10)	(0)	(0)	(10)	(10)
Nose	(10)	(10)	(0)	(0)	(10)	(10)
Trachea	(10)	(10)	(0)	(0)	(10)	(10)
<hr/>						
SPECIAL SENSES SYSTEM						
None						
<hr/>						
URINARY SYSTEM						
Kidney	(10)	(10)	(0)	(0)	(10)	(10)
Urinary Bladder	(10)	(10)	(0)	(0)	(10)	(10)

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F 344/N Rat FEMALE	UNTREAT CONTROL	VEHICLE CONTROL	3900 PPM	7800 PPM	15600 PPM	31300 PPM
<hr/> <b>Tumor Summary for FEMALE</b>						
Total Animals with Primary Neoplasms (b)				1		
Total Primary Neoplasms				1		
Total Animals with Benign Neoplasms						
Total Benign Neoplasms						
Total Animals with Malignant Neoplasms				1		
Total Malignant Neoplasms				1		
Total Animals with Metastatic Neoplasms						
Total Metastatic Neoplasms						
Total Animals with Malignant Neoplasms Uncertain Primary Site						
Total Animals with Neoplasms Uncertain - Benign or Malignant						
Total Uncertain Neoplasms						

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\*\* END OF REPORT \*\*

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

b - Primary tumors: all tumors except metastatic tumors

\* Number of animals with any tissue examined microscopically