

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

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
Test Compound: Citral
CAS Number: 5392-40-5

Date Report Requested: 10/23/2014
Time Report Requested: 05:13:34
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

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	1
	1	2	3	4	5	6	7	8	9	0

*TOTALS

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Hepatodiaphragmatic Nodule	X										1
Inflammation, Chronic	1	1			1	1	1	1	1	1	8 1.0
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10
Mineralization			1								1 1.0

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10
Cardiomyopathy	1	2	1		1	1	1	1	1		8 1.1

Endocrine System

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

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Species/Strain: Rat/F 344/N

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First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
UNTREAT CONTROL

	DAY ON TEST										*TOTALS
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	3	3	3	3	3	3	3	3	3	3	
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	M	+	+	+	+	+	+	+	+	9
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10
General Body System											
NONE											
Genital System											
Epididymis	+	+	+	+	+	+	+	+	+	+	10
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10
Inflammation								1	1		2 1.0
Prostate	+	+	+	+	+	+	+	+	+	+	10
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	10
Testes	+	+	+	+	+	+	+	+	+	+	10
Hematopoietic System											
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Spleen	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	10

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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X ..Lesion present

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Lab: BAT

F 344/N Rat Male
UNTREAT CONTROL

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	1	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

Integumentary System

Mammary Gland	+	+	+	+	+	+	+	+	M	+	9
Skin	+	+	+	+	+	+	+	+	+	+	10

Musculoskeletal System

Bone	+	+	+	+	+	+	+	+	+	+	10
------	---	---	---	---	---	---	---	---	---	---	----

Nervous System

Brain	+	+	+	+	+	+	+	+	+	+	10
-------	---	---	---	---	---	---	---	---	---	---	----

Respiratory System

Lung	+	+	+	+	+	+	+	+	+	+	10
Alveolus, Infiltration Cellular, Histiocyte				1				1			2 1.0
Nose	+	+	+	+	+	+	+	+	+	+	10
Inflammation	1	1	1	1	1		1	1	1	1	9 1.0
Trachea	+	+	+	+	+	+	+	+	+	+	10
Inflammation							1	1	1		3 1.0

Special Senses System

NONE

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	10
Mineralization			1		1	1	1			1	6 1.0

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Lab: BAT

F 344/N Rat Male
UNTREAT CONTROL

DAY ON TEST	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0		
	9	9	9	9	9	9	9	9	9	9		
	3	3	3	3	3	3	3	3	3	3		
ANIMAL ID	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	1		
	1	2	3	4	5	6	7	8	9	0		
	*TOTALS											
Renal Tubule, Regeneration		1	1	1	1	1		1	1	1		8 1.0
Urinary Bladder		+	+	+	+	+	+	+	+	+		10

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X ..Lesion present

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Lab: BAT

F 344/N Rat Male VEHICLE CONTROL	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	*TOTALS
		0	0	0	0	0	0	0	0	0	0	
		9	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
	ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		1	1	1	1	1	1	1	1	1	2	
		1	2	3	4	5	6	7	8	9	0	

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Parasite Metazoan					X	X					2
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Hepatodiaphragmatic Nodule								X			1
Inflammation, Chronic	1	1	1	1	1		1	1			7 1.0
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10
Artery, Mineralization		1									1 1.0

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10
Cardiomyopathy	1	1	1	1		1	1		1	1	8 1.0

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

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Time Report Requested: 05:13:34

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
VEHICLE CONTROL

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	2
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Endocrine System

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	M	+	M	+	+	+	+	+	M	+	7
Pituitary Gland	+	+	+	+	+	+	+	M	+	+	9
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10

General Body System

NONE

Genital System

Epididymis	+	+	+	+	+	+	+	+	+	+	10
Inflammation										1	1 1.0
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10
Inflammation			1	1					1	1	4 1.0
Prostate	+	+	+	+	+	+	+	+	+	+	10
Inflammation					1		2				2 1.5
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	10
Testes	+	+	+	+	+	+	+	+	+	+	10

Hematopoietic System

Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

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BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

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Species/Strain: Rat/F 344/N

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First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male VEHICLE CONTROL	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	*TOTALS
	ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		9	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		1	1	1	1	1	1	1	1	1	2	
		1	2	3	4	5	6	7	8	9	0	
Lymph Node, Mandibular		+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric		+	+	+	+	+	+	+	+	+	+	10
Spleen		+	+	+	+	+	+	+	+	+	+	10
Thymus		+	+	+	+	+	+	+	+	+	+	10
Integumentary System												
Mammary Gland		+	+	+	+	M	+	M	+	+	+	8
Skin		+	+	+	+	+	+	+	+	+	+	10
Musculoskeletal System												
Bone		+	+	+	+	+	+	+	+	+	+	10
Nervous System												
Brain		+	+	+	+	+	+	+	+	+	+	10
Respiratory System												
Lung		+	+	+	+	+	+	+	+	+	+	10
Alveolus, Infiltration Cellular, Histiocyte				1				1	1			3 1.0
Inflammation, Chronic				1						1		2 1.0
Nose		+	+	+	+	+	+	+	+	+	+	10
Inflammation		1		1	1			1	1	1	1	7 1.0
Trachea		+	+	+	+	+	+	+	+	+	+	10
Inflammation		1			1							2 1.0
Special Senses System												

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

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Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:34

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male VEHICLE CONTROL	DAY ON TEST	0	0	0	0	0	0	0	0	0	0	*TOTALS
		0	0	0	0	0	0	0	0	0	0	
		9	9	9	9	9	9	9	9	9	9	
		3	3	3	3	3	3	3	3	3	3	
	ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		0	0	0	0	0	0	0	0	0	0	
		1	1	1	1	1	1	1	1	1	2	
		1	2	3	4	5	6	7	8	9	0	

NONE

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	10
Developmental Malformation						X					1
Mineralization	1		1	1	1		1				5 1.0
Renal Tubule, Regeneration	1	1	1	1	1	1	1	1	1	1	10 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10
Inflammation	1										1 1.0

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

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Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
3900 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	2	2	2	2	2	2	2	2	2	3	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

NONE

Respiratory System

NONE

Special Senses System

NONE

Urinary System

Kidney + + + + + + + + + + 10

Nephropathy 1 1 1 3 1.0

Renal Tubule, Casts Granular 1 1 3 1.0

Renal Tubule, Regeneration 1 1 1 1 1 1 7 1.0

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

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CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
7800 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	3	3	3	3	3	3	3	3	3	4
	1	2	3	4	5	6	7	8	9	0

*TOTALS

Alimentary System

NONE

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

NONE

Hematopoietic System

Bone Marrow + + + + + + + + + + 10

Integumentary System

NONE

Musculoskeletal System

NONE

Nervous System

NONE

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

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First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
7800 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	3	3	3	3	3	3	3	3	3	4
	1	2	3	4	5	6	7	8	9	0

*TOTALS

Respiratory System

NONE

Special Senses System

NONE

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	10	
Nephropathy	1	1	1	1	1	1	1	1	1	1	10	1.0
Renal Tubule, Casts Granular	1	1	1	1	1	1	1	1	2	2	10	1.2

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
15600 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	5	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10	
Parasite Metazoan					X							1
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10	
Liver	+	+	+	+	+	+	+	+	+	+	10	
Inflammation, Chronic		1	1	1			1			1	5	1.0
Pancreas	+	+	+	+	+	+	+	+	+	+	10	
Atrophy	1										1	1.0
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10	
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10	

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10	
Heart	+	+	+	+	+	+	+	+	+	+	10	
Cardiomyopathy	1	1	1	1		1		1	1	1	8	1.0

Endocrine System

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
15600 PPM

	DAY ON TEST										
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	*TOTALS
	3	3	3	3	3	3	3	3	3	3	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	5	
	1	2	3	4	5	6	7	8	9	0	
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	M	+	+	+	+	9
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10
General Body System											
NONE											
Genital System											
Epididymis	+	+	+	+	+	+	+	+	+	+	10
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10
Hyperplasia					3						1 3.0
Inflammation				1						1	2 1.0
Prostate	+	+	+	+	+	+	+	+	+	+	10
Inflammation						1	1				2 1.0
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	10
Testes	+	+	+	+	+	+	+	+	+	+	10
Hematopoietic System											
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Atrophy			1	1		1	1		1	1	7 1.0
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
15600 PPM

	DAY ON TEST										
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	3	3	3	3	3	3	3	3	3	3	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	5	
	1	2	3	4	5	6	7	8	9	0	*TOTALS
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Spleen	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	10
Integumentary System											
Mammary Gland	+	+	+	+	+	+	+	+	+	+	10
Skin	+	+	+	+	+	+	+	+	+	+	10
Musculoskeletal System											
Bone	+	+	+	+	+	+	+	+	+	+	10
Nervous System											
Brain	+	+	+	+	+	+	+	+	+	+	10
Respiratory System											
Lung	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic										1	1 1.0
Nose	+	+	+	+	+	+	+	+	+	+	10
Inflammation			1	1							2 1.0
Trachea	+	+	+	+	+	+	+	+	+	+	10
Special Senses System											
NONE											
Urinary System											

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
15600 PPM

	DAY ON TEST										
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	5	
	1	2	3	4	5	6	7	8	9	0	*TOTALS
Kidney	+	+	+	+	+	+	+	+	+	+	10
Mineralization	1	1		1	1		1	1			6 1.0
Nephropathy	1	1	1		1	1	1	1	1		8 1.0
Renal Tubule, Casts Granular	1	2	2	1	1	2	2	1	2	1	10 1.5
Renal Tubule, Regeneration			1	1			1		1	1	5 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
31300 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	5	5	5	5	5	5	5	5	5	6	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic			1					1			2 1.0
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Epithelium, Hyperplasia				1						3	2 2.0
Hyperkeratosis				1						1	2 1.0
Inflammation, Chronic Active										1	1 1.0
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10
Cardiomyopathy						1					1 1.0

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
31300 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	5	5	5	5	5	5	5	5	5	6	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

Endocrine System

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10

General Body System

NONE

Genital System

Epididymis	+	+	+	+	+	+	+	+	+	+	10
Preputial Gland	+	+	+	+	+	+	+	+	+	+	10
Prostate	+	+	+	+	+	+	+	+	+	+	10
Inflammation			2								1 2.0
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	10
Testes	+	+	+	+	+	+	+	+	+	+	10
Aspermia	4	4	4	4	4	4	4	4	4	4	10 4.0

Hematopoietic System

Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Atrophy	1	1	1	3	2	3	3	2	1	2	10 1.9
Hemorrhage	2	2	1	2	2	2	3	2	2	1	10 1.9

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
31300 PPM

	DAY ON TEST											
	0	0	0	0	0	0	0	0	0	0		
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	*TOTALS	
	1	2	3	4	5	6	7	8	9	0		
Hemorrhage	2	2	1	2	2	2	3	2	2	1	10	1.9
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10	
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10	
Spleen	+	+	+	+	+	+	+	+	+	+	10	
Thymus	+	+	+	+	+	+	+	+	+	+	10	
Atrophy				3		4	4	1		2	5	2.8
Integumentary System												
Mammary Gland	+	+	+	+	M	M	+	+	+	+	8	
Skin	+	+	+	+	+	+	+	+	+	+	10	
Musculoskeletal System												
Bone	+	+	+	+	+	+	+	+	+	+	10	
Nervous System												
Brain	+	+	+	+	+	+	+	+	+	+	10	
Respiratory System												
Lung	+	+	+	+	+	+	+	+	+	+	10	
Nose	+	+	+	+	+	+	+	+	+	+	10	
Trachea	+	+	+	+	+	+	+	+	+	+	10	
Inflammation				1							1	1.0
Special Senses System												
NONE												

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Male
31300 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	5	5	5	5	5	5	5	5	5	6	
	1	2	3	4	5	6	7	8	9	0	*TOTALS

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	10
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

END OF MALE DATA

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
UNTREAT CONTROL

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	6	6	6	6	6	6	6	6	6	7
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic	1	2	1	1	1	1		2	1	1	9 1.2
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10
Cardiomyopathy		1			1	1					3 1.0

Endocrine System

Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:35

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female UNTREAT CONTROL	DAY ON TEST										*TOTALS
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	3	3	3	3	3	3	3	3	3	3	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	6	6	6	6	6	6	6	6	6	7	
	1	2	3	4	5	6	7	8	9	0	
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10
General Body System											
NONE											
Genital System											
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	10
Inflammation	1								1		2 1.0
Ovary	+	+	+	+	+	+	+	+	+	+	10
Cyst				1				2			2 1.5
Uterus	+	+	+	+	+	+	+	+	+	+	10
Hematopoietic System											
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Spleen	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	10
Integumentary System											
Mammary Gland	+	+	+	+	+	+	+	+	+	+	10
Skin	+	+	+	+	+	+	+	+	+	+	10

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female UNTREAT CONTROL	DAY ON TEST										*TOTALS
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	6	6	6	6	6	6	6	6	6	7	
	1	2	3	4	5	6	7	8	9	0	
Skin	+	+	+	+	+	+	+	+	+	+	10
Musculoskeletal System											
Bone	+	+	+	+	+	+	+	+	+	+	10
Nervous System											
Brain	+	+	+	+	+	+	+	+	+	+	10
Respiratory System											
Lung	+	+	+	+	+	+	+	+	+	+	10
Alveolus, Infiltration Cellular, Histiocyte				1							1 1.0
Inflammation, Chronic						1	1				2 1.0
Nose	+	+	+	+	+	+	+	+	+	+	10
Inflammation				1	1		1	1			4 1.0
Trachea	+	+	+	+	+	+	+	+	+	+	10
Inflammation			1	1			1	1		1	5 1.0
Special Senses System											
NONE											
Urinary System											
Kidney	+	+	+	+	+	+	+	+	+	+	10
Mineralization					1	1	1		1	1	5 1.0
Renal Tubule, Regeneration	1			1					1		3 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
VEHICLE CONTROL

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	7	7	7	7	7	7	7	7	8	8
	1	2	3	4	5	6	7	8	9	0

*TOTALS

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Hepatodiaphragmatic Nodule									X		1
Inflammation, Chronic	1	1	1	1	1		1	1	1	1	9 1.0
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10
Mineralization	2										1 2.0

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10
Cardiomyopathy				1				1	1		3 1.0

Endocrine System

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
VEHICLE CONTROL

	DAY ON TEST										
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	*TOTALS
	3	3	3	3	3	3	3	3	3	3	
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	M	+	+	+	M	8
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10
General Body System											
NONE											
Genital System											
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	10
Inflammation				1		1	1		1	1	5 1.0
Ovary	+	+	+	+	+	+	+	+	+	+	10
Uterus	+	+	+	+	+	+	+	+	+	+	10
Hematopoietic System											
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Spleen	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	10
Integumentary System											
Mammary Gland	+	+	+	+	+	+	+	+	+	+	10

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female VEHICLE CONTROL	DAY ON TEST										*TOTALS
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	7	7	7	7	7	7	7	7	7	8	
	1	2	3	4	5	6	7	8	9	0	
Mammary Gland	+	+	+	+	+	+	+	+	+	+	10
Skin	+	+	+	+	+	+	+	+	+	+	10
Musculoskeletal System											
Bone	+	+	+	+	+	+	+	+	+	+	10
Nervous System											
Brain	+	+	+	+	+	+	+	+	+	+	10
Respiratory System											
Lung	+	+	+	+	+	+	+	+	+	+	10
Alveolus, Infiltration Cellular, Histiocyte			1								1 1.0
Inflammation, Chronic				1			1		1	1	4 1.0
Nose	+	+	+	+	+	+	+	+	+	+	10
Inflammation				1		1				1	3 1.0
Trachea	+	+	+	+	+	+	+	+	+	+	10
Inflammation			1						1	1	3 1.0
Special Senses System											
NONE											
Urinary System											
Kidney	+	+	+	+	+	+	+	+	+	+	10
Mineralization	1	1	1	1	1	1	1	1		1	9 1.0
Renal Tubule, Regeneration			1		1						2 1.0

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
VEHICLE CONTROL

DAY ON TEST	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	9	9	9	9	9	9	9	9	9	9	
	3	3	3	3	3	3	3	3	3	3	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	0	0	0	0	0	0	0	0	0	0	
	7	7	7	7	7	7	7	7	8	8	
	1	2	3	4	5	6	7	8	9	0	
	*TOTALS										
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10
Inflammation							1				1 1.0

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
3900 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	8	8	8	8	8	8	8	8	8	9
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Liver + 1

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

NONE

Hematopoietic System

NONE

Integumentary System

NONE

Musculoskeletal System

NONE

Nervous System

NONE

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
3900 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	8	8	8	8	8	8	8	8	8	9
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Respiratory System

NONE

Special Senses System

NONE

Urinary System

NONE

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
7800 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	1
	9	9	9	9	9	9	9	9	9	0
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Intestine Large, Colon

+ 1

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

NONE

Hematopoietic System

Bone Marrow + + + + + + + + + + 10

Integumentary System

NONE

Musculoskeletal System

NONE

Nervous System

NONE

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
7800 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	1
	9	9	9	9	9	9	9	9	9	0
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Respiratory System

NONE

Special Senses System

NONE

Urinary System

NONE

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
15600 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	0	0	0	0	0	0	0	0	0	1
	1	2	3	4	5	6	7	8	9	0

*TOTALS

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Parasite Metazoan			X	X	X						3
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic	1		1	1	1			1			5 1.0
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Atrophy							1				1 1.0
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10
Cardiomyopathy			1			1	1	1			4 1.0

Endocrine System

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

**F 344/N Rat Female
15600 PPM**

	DAY ON TEST										
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	3	3	3	3	3	3	3	3	3	3	*TOTALS
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	10
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10
General Body System											
NONE											
Genital System											
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	10
Inflammation	1	1		1	1	1	1	1			7 1.0
Ovary	+	+	+	+	+	+	+	+	+	+	10
Uterus	+	+	+	+	+	+	+	+	+	+	10
Hematopoietic System											
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Atrophy		1	1	1	1	1	1	1	1		8 1.0
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Spleen	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	10
Integumentary System											

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
15600 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
	3	3	3	3	3	3	3	3	3	3
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	0	0	0	0	0	0	0	0	0	1
	1	2	3	4	5	6	7	8	9	0

*TOTALS

Integumentary System

Mammary Gland	+	+	+	+	+	+	+	+	+	+	10
Skin	+	+	+	+	+	+	+	+	+	+	10

Musculoskeletal System

Bone	+	+	+	+	+	+	+	+	+	+	10
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Nervous System

Brain	+	+	+	+	+	+	+	+	+	+	10
-------	---	---	---	---	---	---	---	---	---	---	----

Respiratory System

Lung	+	+	+	+	+	+	+	+	+	+	10
Inflammation, Chronic										1	1 1.0
Nose	+	+	+	+	+	+	+	+	+	+	10
Inflammation					1				1		2 1.0
Trachea	+	+	+	+	+	+	+	+	+	+	10
Inflammation			1				1	1			3 1.0

Special Senses System

NONE

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	10
Mineralization			1			1		1	1		4 1.0

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

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

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

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

Date Report Requested: 10/23/2014
 Time Report Requested: 05:13:36
 First Dose M/F: NA / NA
 Lab: BAT

**F 344/N Rat Female
 15600 PPM**

	DAY ON TEST											
	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0		
	9	9	9	9	9	9	9	9	9	9		
	3	3	3	3	3	3	3	3	3	3		
ANIMAL ID	0	0	0	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0	0		
	1	1	1	1	1	1	1	1	1	1		
	0	0	0	0	0	0	0	0	0	1		
	1	2	3	4	5	6	7	8	9	0	*TOTALS	
Renal Tubule, Regeneration	1										1	1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10	
Inflammation	1										1	1.0

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + ..Tissue examined microscopically
 X ..Lesion present
 I ..Insufficient tissue

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1-4 ..Lesion qualified as:
 1) Minimal 3) Moderate
 2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
31300 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	2
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Alimentary System

Esophagus	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	10
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	10
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	10
Liver	+	+	+	+	+	+	+	+	+	+	10
Hepatodiaphragmatic Nodule									X		1
Inflammation, Chronic	1				1						2 1.0
Pancreas	+	+	+	+	+	+	+	+	+	+	10
Salivary Glands	+	+	+	+	+	+	+	+	+	+	10
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	10
Epithelium, Hyperplasia					2			1	1	1	4 1.3
Hyperkeratosis					2			1	1	2	4 1.5
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	10

Cardiovascular System

Blood Vessel	+	+	+	+	+	+	+	+	+	+	10
Heart	+	+	+	+	+	+	+	+	+	+	10

Endocrine System

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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 56348-01

Test Type: 90-DAY

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: Citral

CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
31300 PPM

	DAY ON TEST										
	0	0	0	0	0	0	0	0	0	0	
ANIMAL ID	0	0	0	0	0	0	0	0	0	0	
	1	1	1	1	1	1	1	1	1	1	
	0	0	0	0	0	0	0	0	0	0	*TOTALS
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	10
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	10
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	10
Parathyroid Gland	M	+	+	+	+	+	+	+	M	+	8
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	10
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	10
General Body System											
NONE											
Genital System											
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	10
Ovary	+	+	+	+	+	+	+	+	+	+	10
Uterus	+	+	+	+	+	+	+	+	+	+	10
Hematopoietic System											
Bone Marrow	+	+	+	+	+	+	+	+	+	+	10
Atrophy			3		1	1				1	4 1.5
Hemorrhage		1	3	1	3	3	1	2	3	2	9 2.1
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	10
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	10
Spleen	+	+	+	+	+	+	+	+	+	+	10
Thymus	+	+	+	+	+	+	+	+	+	+	10
Atrophy			4			3			2	2	4 2.8

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CAS Number: 5392-40-5

Date Report Requested: 10/23/2014

Time Report Requested: 05:13:36

First Dose M/F: NA / NA

Lab: BAT

F 344/N Rat Female
31300 PPM

DAY ON TEST	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	9	9	9	9	9	9	9	9	9	9
ANIMAL ID	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	2
	1	2	3	4	5	6	7	8	9	0
	*TOTALS									

Integumentary System

Mammary Gland	+	+	+	+	+	+	M	M	+	+	8
Skin	+	+	+	+	+	+	+	+	+	+	10
Inflammation										1	1 1.0

Musculoskeletal System

Bone	+	+	+	+	+	+	+	+	+	+	10
------	---	---	---	---	---	---	---	---	---	---	----

Nervous System

Brain	+	+	+	+	+	+	+	+	+	+	10
-------	---	---	---	---	---	---	---	---	---	---	----

Respiratory System

Lung	+	+	+	+	+	+	+	+	+	+	10
Nose	+	+	+	+	+	+	+	+	+	+	10
Inflammation										1	1 1.0
Trachea	+	+	+	+	+	+	+	+	+	+	10

Special Senses System

NONE

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	10
Mineralization	1				1		1		1		4 1.0
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	10

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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Date Report Requested: 10/23/2014

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**** END OF REPORT ****

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