

Experiment Number: 10119 - 01

**P18: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE (a) WITH
AVERAGE SEVERITY GRADES[b]**

Date Report Requested: 06/03/2014

Test Type: CHRONIC

Furan

Time Report Requested: 08:44:35

Route: GAVAGE

CAS Number: 110-00-9

First Dose M/F: 09/07/09 / NA

Species/Strain: RATS/F 344/NCTR

Lab: NCTR

36 Week

NTP Study Number: C10119

Lock Date: 06/02/2014

Cage Range: ALL

Date Range: ALL

Reasons For Removal: ALL

Removal Date Range: ALL

Treatment Groups:	Include 017 0 Vehicle 36 wk	Include 018 0.02 Furan 36 wk	Include 019 0.044 Furan 36wk
	Include 020 0.092 Furan 36wk	Include 021 0.2 Furan 36 wk	Include 022 0.44 Furan 36 wk
	Include 023 0.92 Furan 36 wk	Include 024 2 Furan 36 wk	

Study Gender: Male

TDMSE Version: 3.0.2.0_001

PWG Approval Date: NONE

Test Type: CHRONIC

Furan

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Route: GAVAGE

CAS Number: 110-00-9

First Dose M/F: 09/07/09 / NA

Species/Strain: RATS/F 344/NCTR

Lab: NCTR

FISCHER 344 RATS-NCTR RATS MALE	0 Vehicle 36 wk	0.02 Furan 36 wk	0.044 Furan 36wk	0.092 Furan 36wk	0.2 Furan 36 wk	0.44 Furan 36 wk
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Disposition Summary

Animals Initially In Study	20	20	20	20	20	20
Early Deaths						
Interval Sacrifice	20	20	20	20	20	20
Survivors						
Animals Examined Microscopically	20	20	20	20	20	20

ALIMENTARY SYSTEM

Esophagus	(20)	(20)	(20)	(20)	(20)	(20)
Intestine Large, Cecum	(20)	(20)	(20)	(20)	(20)	(20)
Intestine Large, Colon	(20)	(20)	(20)	(20)	(20)	(20)
Intestine Large, Rectum	(20)	(20)	(20)	(20)	(20)	(20)
Intestine Small, Duodenum	(20)	(20)	(20)	(20)	(20)	(20)
Intestine Small, Ileum	(20)	(20)	(20)	(20)	(20)	(20)
Intestine Small, Jejunum	(20)	(20)	(20)	(20)	(20)	(20)
Liver	(20)	(20)	(20)	(20)	(20)	(20)
Angiectasis				1 [1.0]	1 [3.0]	
Basophilic Focus	1			1		
Cholangiofibrosis						6 [1.0]
Congestion					1 [2.0]	
Deformity	1			1		
Granuloma	12 [1.2]	16 [1.1]	16 [1.1]	19 [1.2]	14 [1.1]	17 [1.2]
Hepatodiaphragmatic Nodule		1			1	1
Inflammation, Chronic Active		2 [1.0]			1 [4.0]	
Mixed Cell Focus					1	
Necrosis, Focal	1 [1.0]					
Pigmentation						
Tension Lipidosis	1 [4.0]			1 [2.0]	2 [3.0]	1 [2.0]
Vacuolization Cytoplasmic	11 [1.1]	11 [1.1]	14 [1.2]	14 [1.1]	6 [1.7]	13 [1.3]
Bile Duct, Biliary Tract, Hyperplasia	1 [1.0]	1 [1.0]		1 [1.0]		
Bile Duct, Subcapsular, Hyperplasia					1 [1.0]	12 [1.1]
Hepatocyte, Hypertrophy					1 [2.0]	
Hepatocyte, Necrosis		5 [1.2]	4 [1.0]	2 [1.0]	1 [4.0]	5 [1.0]
Oval Cell, Hyperplasia						

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

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

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Species/Strain: RATS/F 344/NCTR

Lab: NCTR

FISCHER 344 RATS-NCTR RATS MALE	0 Vehicle 36 wk	0.02 Furan 36 wk	0.044 Furan 36wk	0.092 Furan 36wk	0.2 Furan 36 wk	0.44 Furan 36 wk
Periportal, Cytoplasmic Alteration						
Subcapsular, Fibrosis					3 [1.3]	14 [1.1]
Subcapsular, Inflammation, Chronic					2 [1.0]	14 [1.1]
Subcapsular, Pigmentation					2 [1.0]	14 [1.1]
Mesentery	(1)	(0)	(0)	(3)	(0)	(1)
Thrombosis				1		
Fat, Necrosis	1 [4.0]			3 [3.0]		1 [3.0]
Pancreas	(20)	(20)	(20)	(20)	(20)	(20)
Infiltration Cellular, Lymphocyte	2 [1.0]	2 [1.0]	2 [1.0]	1 [1.0]	1 [2.0]	1 [1.0]
Acinus, Degeneration	1 [1.0]	2 [1.5]	2 [1.5]	1 [1.0]	2 [2.0]	3 [1.0]
Salivary Glands	(20)	(20)	(20)	(20)	(20)	(20)
Stomach, Forestomach	(20)	(20)	(20)	(20)	(20)	(20)
Epithelium, Degeneration				1 [1.0]		
Stomach, Glandular	(20)	(20)	(20)	(20)	(20)	(20)
CARDIOVASCULAR SYSTEM						
Blood Vessel	(20)	(20)	(20)	(20)	(20)	(20)
Heart	(20)	(20)	(20)	(20)	(20)	(20)
Cardiomyopathy	19 [1.4]	18 [1.3]	18 [1.4]	19 [1.4]	15 [1.2]	17 [1.4]
ENDOCRINE SYSTEM						
Adrenal Cortex	(20)	(20)	(20)	(20)	(20)	(20)
Accessory Adrenal Cortical Nodule					1	
Hypertrophy						
Adrenal Medulla	(20)	(20)	(20)	(20)	(20)	(20)
Islets, Pancreatic	(20)	(20)	(20)	(20)	(20)	(20)
Parathyroid Gland	(20)	(19)	(20)	(20)	(20)	(20)
Infiltration Cellular, Lymphocyte						
Pituitary Gland	(20)	(20)	(20)	(20)	(20)	(20)
Pars Distalis, Angiectasis		1 [2.0]		1 [4.0]	1 [2.0]	
Pars Distalis, Cyst	2	1			1	1
Pars Distalis, Hyperplasia	2 [2.0]	2 [3.0]	1 [2.0]	4 [2.3]	3 [2.3]	3 [1.7]
Rathke's Cleft, Cyst						1

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

b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)

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Furan

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Species/Strain: RATS/F 344/NCTR

Lab: NCTR

FISCHER 344 RATS-NCTR RATS MALE	0 Vehicle 36 wk	0.02 Furan 36 wk	0.044 Furan 36wk	0.092 Furan 36wk	0.2 Furan 36 wk	0.44 Furan 36 wk
Thyroid Gland	(20)	(20)	(20)	(20)	(20)	(20)
Infiltration Cellular, Lymphocyte						
Ultimobranchial Cyst		1				1
Follicle, Cyst		1				

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Epididymis	(20)	(20)	(20)	(20)	(20)	(20)
Hypospermia	1 [4.0]					1 [4.0]
Preputial Gland	(20)	(20)	(20)	(20)	(20)	(20)
Abscess					1 [4.0]	
Infiltration Cellular, Lymphocyte				2 [2.0]		
Inflammation, Suppurative	7 [2.9]	4 [3.5]	5 [3.2]	3 [2.0]	2 [3.5]	1 [2.0]
Inflammation, Chronic Active	10 [1.6]	11 [2.3]	10 [1.7]	13 [2.0]	12 [2.1]	16 [1.9]
Acinus, Hyperplasia		1 [4.0]		1 [2.0]		
Duct, Ectasia	8 [3.3]	4 [3.0]	4 [3.0]	2 [4.0]	1 [3.0]	1 [2.0]
Prostate	(20)	(20)	(20)	(20)	(20)	(20)
Infiltration Cellular, Lymphocyte			1 [1.0]			
Inflammation, Suppurative	4 [1.5]	3 [1.7]	8 [1.1]	4 [1.5]	3 [1.3]	6 [1.5]
Inflammation, Chronic Active				1 [1.0]	2 [1.5]	
Seminal Vesicle	(20)	(20)	(20)	(20)	(20)	(20)
Testes	(20)	(20)	(20)	(20)	(20)	(20)
Interstitial Cell, Hyperplasia	1 [1.0]	1 [2.0]		2 [1.0]		
Seminiferous Tubule, Degeneration	1 [4.0]					1 [4.0]

HEMATOPOIETIC SYSTEM

Bone Marrow	(20)	(20)	(20)	(20)	(20)	(20)
Myeloid Cell, Hyperplasia		1 [3.0]	1 [2.0]			
Lymph Node	(0)	(0)	(0)	(0)	(0)	(1)

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Pancreatic, Hyperplasia, Lymphoid						1 [3.0]
Lymph Node, Mandibular	(20)	(20)	(20)	(20)	(20)	(20)
Hyperplasia, Lymphoid			1 [3.0]			1 [2.0]
Infiltration Cellular, Plasma Cell			2 [2.5]		1 [3.0]	1 [3.0]
Sinus, Dilatation						
Lymph Node, Mesenteric	(20)	(20)	(20)	(20)	(20)	(20)
Hyperplasia, Lymphoid				1 [2.0]		1 [2.0]
Spleen	(20)	(20)	(20)	(20)	(20)	(20)
Accessory Spleen					1	
Fibrosis			1 [2.0]			
Pigmentation	1 [3.0]	1 [2.0]				1 [2.0]
Thymus	(20)	(20)	(20)	(20)	(20)	(20)
Atrophy	6 [2.5]	7 [2.4]	11 [2.4]	5 [3.0]	6 [2.5]	8 [2.8]
Hemorrhage			1 [2.0]			
INTEGUMENTARY SYSTEM						
Mammary Gland	(20)	(20)	(18)	(20)	(20)	(20)
Skin	(20)	(20)	(20)	(20)	(20)	(20)
Cyst Epithelial Inclusion		1				
Fibrosis	2 [3.5]		1 [3.0]			
MUSCULOSKELETAL SYSTEM						
Bone, Femur	(20)	(20)	(20)	(20)	(20)	(20)
NERVOUS SYSTEM						
Brain, Brain Stem	(20)	(20)	(20)	(20)	(20)	(20)
Brain, Cerebellum	(20)	(20)	(20)	(20)	(20)	(20)
Brain, Cerebrum	(20)	(20)	(20)	(20)	(20)	(20)

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FISCHER 344 RATS-NCTR RATS MALE	0 Vehicle 36 wk	0.02 Furan 36 wk	0.044 Furan 36wk	0.092 Furan 36wk	0.2 Furan 36 wk	0.44 Furan 36 wk
RESPIRATORY SYSTEM						
Lung	(20)	(20)	(20)	(20)	(20)	(20)
Congestion			1 [2.0]			
Infiltration Cellular, Histiocyte	2 [1.0]	3 [1.7]	2 [1.5]	1 [1.0]		1 [1.0]
Inflammation, Chronic			1 [2.0]		1 [2.0]	
Metaplasia, Osseous				1 [1.0]		1 [1.0]
Nose	(20)	(20)	(20)	(20)	(20)	(20)
Inflammation, Suppurative						
Inflammation, Chronic Active				1 [2.0]		
Epithelium, Hyperplasia						
Goblet Cell, Hyperplasia				1 [2.0]		
Trachea	(20)	(20)	(20)	(20)	(20)	(20)
SPECIAL SENSES SYSTEM						
Ear	(0)	(0)	(1)	(0)	(0)	(0)
Eye	(20)	(20)	(20)	(20)	(20)	(20)
Cataract						1 [2.0]
Degeneration	1 [3.0]					
Retina, Degeneration						1 [2.0]
Harderian Gland	(20)	(20)	(20)	(20)	(20)	(20)
Infiltration Cellular, Lymphocyte	4 [1.0]	1 [1.0]		2 [1.0]	1 [2.0]	
URINARY SYSTEM						
Kidney	(20)	(20)	(20)	(20)	(20)	(20)
Hydronephrosis	6 [1.7]	2 [1.5]	1 [2.0]	5 [1.6]	2 [1.5]	
Nephropathy	20 [1.2]	17 [1.3]	18 [1.3]	18 [1.4]	20 [1.2]	18 [1.3]
Urinary Bladder	(20)	(20)	(20)	(20)	(20)	(20)

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Lab: NCTR

FISCHER 344 RATS-NCTR RATS MALE

0.92 Furan 36 wk

2 Furan 36 wk

Disposition Summary

Animals Initially In Study	20	20
Early Deaths		
Interval Sacrifice	20	20
Survivors		
Animals Examined Microscopically	20	20

ALIMENTARY SYSTEM

Esophagus	(20)	(20)
Intestine Large, Cecum	(20)	(20)
Intestine Large, Colon	(20)	(20)
Intestine Large, Rectum	(20)	(20)
Intestine Small, Duodenum	(20)	(20)
Intestine Small, Ileum	(20)	(20)
Intestine Small, Jejunum	(20)	(20)
Liver	(20)	(20)
Angiectasis		
Basophilic Focus		
Cholangiofibrosis	17 [1.1]	19 [1.2]
Congestion		
Deformity		
Granuloma	19 [1.4]	20 [1.6]
Hepatodiaphragmatic Nodule		
Inflammation, Chronic Active		
Mixed Cell Focus	1	5
Necrosis, Focal		
Pigmentation		1 [4.0]
Tension Lipidosis		1 [2.0]
Vacuolization Cytoplasmic	16 [1.3]	17 [1.8]
Bile Duct, Biliary Tract, Hyperplasia	6 [1.3]	19 [1.8]
Bile Duct, Subcapsular, Hyperplasia	19 [1.2]	20 [1.8]
Hepatocyte, Hypertrophy	2 [1.5]	12 [1.8]
Hepatocyte, Necrosis	9 [1.6]	10 [1.4]
Oval Cell, Hyperplasia	1 [1.0]	16 [2.2]

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FISCHER 344 RATS-NCTR RATS MALE	0.92 Furan 36 wk	2 Furan 36 wk
Periportal, Cytoplasmic Alteration	7 [1.1]	19 [2.0]
Subcapsular, Fibrosis	20 [1.3]	20 [1.8]
Subcapsular, Inflammation, Chronic	20 [1.3]	20 [1.8]
Subcapsular, Pigmentation	20 [1.3]	20 [1.8]
Mesentery	(0)	(0)
Thrombosis		
Fat, Necrosis		
Pancreas	(20)	(20)
Infiltration Cellular, Lymphocyte		
Acinus, Degeneration	3 [1.3]	3 [2.3]
Salivary Glands	(20)	(20)
Stomach, Forestomach	(20)	(20)
Epithelium, Degeneration	1 [2.0]	
Stomach, Glandular	(20)	(20)

CARDIOVASCULAR SYSTEM

Blood Vessel	(20)	(20)
Heart	(20)	(20)
Cardiomyopathy	16 [1.1]	14 [1.3]

ENDOCRINE SYSTEM

Adrenal Cortex	(20)	(20)
Accessory Adrenal Cortical Nodule		
Hypertrophy		1 [1.0]
Adrenal Medulla	(20)	(20)
Islets, Pancreatic	(20)	(20)
Parathyroid Gland	(19)	(20)
Infiltration Cellular, Lymphocyte	1 [1.0]	
Pituitary Gland	(20)	(20)
Pars Distalis, Angiectasis		
Pars Distalis, Cyst	2	3
Pars Distalis, Hyperplasia	2 [2.0]	1 [2.0]
Rathke's Cleft, Cyst		

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FISCHER 344 RATS-NCTR RATS MALE

0.92 Furan 36 wk

2 Furan 36 wk

Thyroid Gland
Infiltration Cellular, Lymphocyte
Ultimobranhial Cyst
Follicle, Cyst

(20)
1 [2.0]
1

(20)

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Epididymis
Hypospermia
Preputial Gland
Abscess
Infiltration Cellular, Lymphocyte
Inflammation, Suppurative
Inflammation, Chronic Active
Acinus, Hyperplasia
Duct, Ectasia
Prostate
Infiltration Cellular, Lymphocyte
Inflammation, Suppurative
Inflammation, Chronic Active
Seminal Vesicle
Testes
Interstitial Cell, Hyperplasia
Seminiferous Tubule, Degeneration

(20)

(20)

1 [2.0]
4 [2.3]
12 [1.9]
1 [3.0]
2 [3.5]
(20)
1 [1.0]
3 [1.3]
(20)
(20)

(20)
2 [4.0]
(20)

1 [1.0]
1 [3.0]
14 [1.8]

1 [2.0]
(20)

1 [1.0]
5 [1.2]
(20)
(20)
1 [1.0]
3 [3.3]

HEMATOPOIETIC SYSTEM

Bone Marrow
Myeloid Cell, Hyperplasia
Lymph Node

(20)

(0)

(20)

(1)

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FISCHER 344 RATS-NCTR RATS MALE

0.92 Furan 36 wk

2 Furan 36 wk

Pancreatic, Hyperplasia, Lymphoid		1 [4.0]
Lymph Node, Mandibular	(20)	(20)
Hyperplasia, Lymphoid		2 [2.0]
Infiltration Cellular, Plasma Cell	1 [3.0]	1 [2.0]
Sinus, Dilatation	1 [2.0]	
Lymph Node, Mesenteric	(20)	(20)
Hyperplasia, Lymphoid	1 [2.0]	
Spleen	(20)	(20)
Accessory Spleen		
Fibrosis		
Pigmentation		
Thymus	(19)	(20)
Atrophy	4 [2.3]	5 [2.6]
Hemorrhage	1 [2.0]	

INTEGUMENTARY SYSTEM

Mammary Gland	(20)	(20)
Skin	(20)	(20)
Cyst Epithelial Inclusion		
Fibrosis		

MUSCULOSKELETAL SYSTEM

Bone, Femur	(20)	(20)
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NERVOUS SYSTEM

Brain, Brain Stem	(20)	(20)
Brain, Cerebellum	(20)	(20)
Brain, Cerebrum	(20)	(20)

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FISCHER 344 RATS-NCTR RATS MALE

0.92 Furan 36 wk

2 Furan 36 wk

RESPIRATORY SYSTEM

Lung	(20)	(20)
Congestion		
Infiltration Cellular, Histiocyte	2 [1.0]	4 [1.3]
Inflammation, Chronic		
Metaplasia, Osseous		
Nose	(20)	(20)
Inflammation, Suppurative	1 [1.0]	
Inflammation, Chronic Active		
Epithelium, Hyperplasia	1 [2.0]	
Goblet Cell, Hyperplasia		
Trachea	(20)	(20)

SPECIAL SENSES SYSTEM

Ear	(0)	(0)
Eye	(20)	(20)
Cataract		
Degeneration		
Retina, Degeneration		
Harderian Gland	(20)	(20)
Infiltration Cellular, Lymphocyte	2 [1.0]	3 [1.3]

URINARY SYSTEM

Kidney	(20)	(20)
Hydronephrosis	1 [1.0]	2 [2.0]
Nephropathy	18 [1.3]	20 [1.3]
Urinary Bladder	(20)	(20)

*** END OF REPORT ***

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b-Average severity grade(1-minimal;2-mild;3-moderate;4-marked)