

Experiment Number: 20614 - 01

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

Date Report Requested: 07/25/2018

Test Type: CHRONIC

Perfluorooctanoic Acid

Time Report Requested: 12:58:26

Route: DOSED FEED

CAS Number: 335-67-1

First Dose M/F: 10/27/08 / 10/28/08

Species/Strain: RATS/HSD

Lab: BAT

Final 1_Core Only

NTP Study Number: C20614

Lock Date: 01/10/2012

Cage Range: ALL

Date Range: ALL

Reasons For Removal: 25021 TSAC

25020 NATD

25019 MSAC

Removal Date Range: ALL

Treatment Groups: Include ALL

Study Gender: Both

TDMSE Version: 3.0.2.3_002

PWG Approval Date: 07/25/2018

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Harlan Sprague Dawley RATS FEMALE	0/0 ppm	0/300 ppm	150/300 ppm	0/1000 ppm	300/1000 ppm
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Disposition Summary

Animals Initially In Study	60	60	60	60	60
Early Deaths					
Moribund Sacrifice	15	16	11	20	17
Natural Death	12	6	7	7	10
Survivors					
Natural Death		2			1
Terminal Sacrifice	23	26	32	23	22
Animals Examined Microscopically	50	50	50	50	50

ALIMENTARY SYSTEM

Esophagus	(50)	(50)	(50)	(48)	(50)
Intestine Large, Cecum	(50)	(49)	(50)	(49)	(50)
Intestine Large, Colon	(50)	(49)	(50)	(49)	(50)
Parasite Metazoan	1	7	8	2	7
Intestine Large, Rectum	(50)	(49)	(50)	(49)	(50)
Inflammation, Focal		1 [2.0]			
Intestine Small, Duodenum	(50)	(50)	(50)	(49)	(50)
Intestine Small, Ileum	(50)	(49)	(50)	(49)	(50)
Intestine Small, Jejunum	(50)	(49)	(50)	(49)	(50)
Liver	(50)	(50)	(50)	(49)	(50)
Angiectasis	2 [1.0]	1 [1.0]		1 [1.0]	
Basophilic Focus	11	8	12	6	6
Cholangiofibrosis					1 [4.0]
Clear Cell Focus	11	9	8	8	5
Degeneration, Cystic	1 [1.0]		1 [1.0]	1 [1.0]	1 [1.0]
Eosinophilic Focus	8	1	12	6	2
Extramedullary Hematopoiesis	13 [1.0]	7 [1.0]	10 [1.2]	2 [1.5]	1 [1.0]
Fatty Change, Focal		1 [1.0]			
Hepatodiaphragmatic Nodule	2	1			1
Infiltration Cellular, Mixed Cell	1 [1.0]				
Inflammation, Focal	6 [1.0]	10 [1.0]	6 [1.2]	7 [1.1]	6 [1.0]
Mixed Cell Focus	1		1		
Necrosis		1 [1.0]	4 [1.3]	8 [1.5]	5 [2.4]

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Harlan Sprague Dawley RATS FEMALE	0/0 ppm	0/300 ppm	150/300 ppm	0/1000 ppm	300/1000 ppm
Pigment	3 [1.3]	5 [1.4]	10 [1.1]	43 [1.7]	40 [1.8]
Bile Duct, Cyst	9	6	5	2	5
Bile Duct, Hyperplasia	16 [1.3]	25 [1.2]	27 [1.1]	22 [1.2]	27 [1.3]
Centrilobular, Fatty Change, Microvesicular, Diffuse				1 [2.0]	
Centrilobular, Necrosis		4 [2.5]	2 [3.5]	3 [2.0]	3 [3.0]
Hepatocyte, Cytoplasmic Alteration		9 [1.4]	17 [1.1]	49 [2.3]	49 [2.2]
Hepatocyte, Hyperplasia				1 [2.0]	
Hepatocyte, Hypertrophy		11 [1.7]	16 [1.6]	48 [2.4]	49 [2.4]
Hepatocyte, Increased Mitoses	2 [1.0]	3 [1.0]	5 [1.6]	4 [1.5]	10 [1.3]
Hepatocyte, Single Cell Death		4 [1.0]	5 [1.0]	29 [1.3]	32 [1.2]
Kupffer Cell, Hyperplasia				1 [4.0]	
Oval Cell, Hyperplasia	1 [1.0]			2 [2.0]	3 [1.0]
Mesentery	(2)	(0)	(0)	(2)	(0)
Hemorrhage				2 [4.0]	
Oral Mucosa	(0)	(0)	(0)	(0)	(1)
Pancreas	(50)	(50)	(50)	(49)	(50)
Basophilic Focus			1		
Inflammation, Chronic Active			1 [1.0]		
Necrosis				1 [1.0]	
Acinus, Atrophy		3 [1.0]	4 [1.0]	2 [1.5]	1 [1.0]
Acinus, Hyperplasia		1 [2.0]		1 [2.0]	1 [4.0]
Duct, Inflammation, Granulomatous				1 [2.0]	
Salivary Glands	(49)	(50)	(50)	(48)	(50)
Stomach, Forestomach	(50)	(50)	(50)	(49)	(50)
Inflammation, Chronic Active			1 [2.0]		
Mineral				1 [1.0]	
Ulcer	2 [1.5]	2 [1.5]	1 [1.0]	9 [1.6]	11 [2.1]
Epithelium, Hyperplasia	4 [2.3]	5 [1.8]	3 [2.3]	22 [2.8]	21 [2.5]
Muscularis, Degeneration					1 [1.0]
Submucosa, Inflammation, Chronic Active	3 [2.3]	2 [2.5]	2 [2.0]	16 [2.6]	18 [2.5]
Stomach, Glandular	(50)	(50)	(50)	(49)	(50)
Inflammation					1 [1.0]
Epithelium, Necrosis				1 [1.0]	
Mucosa, Mineral		1 [2.0]		2 [1.5]	2 [1.0]
Submucosa, Inflammation, Chronic Active					2 [1.0]

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Submucosa, Mineral					1 [1.0]
CARDIOVASCULAR SYSTEM					
Blood Vessel	(50)	(50)	(50)	(49)	(50)
Inflammation		1 [1.0]	2 [2.5]	1 [2.0]	
Aorta, Mineral	1 [1.0]	1 [2.0]	2 [1.0]		1 [1.0]
Heart	(50)	(50)	(50)	(48)	(50)
Cardiomyopathy	8 [1.1]	5 [1.4]	13 [1.0]	4 [1.0]	4 [1.0]
Mineral		1 [2.0]	1 [1.0]		1 [1.0]
Necrosis, Acute			1 [1.0]		
Schwann Cell, Hyperplasia	1 [2.0]				
ENDOCRINE SYSTEM					
Adrenal Cortex	(50)	(50)	(50)	(49)	(50)
Atrophy			1 [4.0]		
Degeneration, Cystic	11 [1.7]	8 [1.5]	11 [1.9]	9 [1.2]	7 [1.0]
Hypertrophy	2 [2.0]	2 [1.0]	5 [1.2]		3 [2.7]
Hypertrophy, Focal					1 [2.0]
Necrosis		1 [1.0]			1 [1.0]
Vacuolization Cytoplasmic	1 [1.0]	1 [1.0]		5 [1.2]	4 [1.8]
Zona Fasciculata, Hyperplasia			2 [2.5]		
Adrenal Medulla	(50)	(50)	(50)	(49)	(50)
Hyperplasia	7 [1.9]	14 [1.6]	8 [2.3]	12 [1.8]	8 [1.6]
Islets, Pancreatic	(50)	(50)	(50)	(49)	(50)
Hyperplasia	3 [1.3]			1 [1.0]	1 [2.0]
Parathyroid Gland	(47)	(47)	(42)	(46)	(48)
Cytoplasmic Alteration					1 [1.0]
Hyperplasia, Focal	1 [1.0]				
Pituitary Gland	(50)	(50)	(50)	(49)	(50)
Angiectasis		1 [2.0]			
Cyst		1			
Necrosis					1 [3.0]
Pars Distalis, Hyperplasia	14 [2.0]	18 [1.9]	26 [2.3]	13 [1.7]	7 [1.9]

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Rathke's Cleft, Hyperplasia			1 [1.0]		
Thyroid Gland	(50)	(50)	(50)	(48)	(50)
C-cell, Hyperplasia	10 [2.1]	4 [2.0]	6 [2.3]	7 [2.1]	11 [2.2]
Follicular Cell, Hypertrophy	4 [2.3]	8 [2.1]	9 [1.6]	28 [2.0]	19 [1.7]

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Clitoral Gland	(50)	(49)	(50)	(48)	(50)
Hyperplasia, Squamous	1 [3.0]	1 [2.0]		1 [4.0]	
Inflammation	1 [2.0]				1 [3.0]
Duct, Cyst			1		
Duct, Metaplasia, Squamous	1 [3.0]				
Ovary	(50)	(49)	(50)	(49)	(50)
Atrophy	35 [1.6]	32 [1.7]	40 [1.8]	28 [2.0]	31 [1.8]
Cyst	16	20	16	16	23
Inflammation		1 [2.0]			
Oviduct	(0)	(1)	(0)	(0)	(0)
Uterus	(50)	(49)	(50)	(49)	(50)
Adenomyosis	1 [2.0]				
Dilation	2 [3.0]	3 [3.0]		3 [2.0]	3 [3.7]
Hemorrhage				1 [1.0]	
Inflammation		1 [4.0]			
Inflammation, Suppurative			3 [1.0]	4 [1.5]	1 [2.0]
Inflammation, Acute				1 [1.0]	1 [1.0]
Inflammation, Chronic Active	2 [1.5]				
Thrombus		1 [2.0]			
Cervix, Hypertrophy		1 [3.0]	1 [4.0]		
Cervix, Inflammation, Suppurative				1 [3.0]	
Cervix, Stromal Hyperplasia			1 [4.0]		
Endometrium, Hyperplasia		1 [1.0]			
Endometrium, Hyperplasia, Cystic	20 [1.7]	22 [1.6]	31 [1.6]	18 [1.2]	18 [1.7]

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Endometrium, Metaplasia, Squamous	18 [1.6]	17 [1.5]	21 [1.3]	10 [1.3]	11 [1.6]
Lymphatic, Angiectasis			1 [4.0]		
Vagina	(0)	(0)	(0)	(1)	(0)

HEMATOPOIETIC SYSTEM

Bone Marrow	(50)	(50)	(50)	(50)	(50)
Atrophy	1 [2.0]			4 [2.0]	1 [3.0]
Hyperplasia	21 [2.4]	20 [2.6]	22 [2.4]	29 [2.3]	28 [2.5]
Lymph Node	(1)	(3)	(0)	(3)	(1)
Mediastinal, Ectasia				1 [2.0]	
Mediastinal, Hyperplasia, Lymphoid				1 [2.0]	
Lymph Node, Mandibular	(48)	(49)	(49)	(45)	(48)
Atrophy			1 [3.0]	1 [2.0]	
Atrophy, Lymphoid	4 [1.5]	2 [1.0]	1 [2.0]	8 [2.0]	10 [2.1]
Hyperplasia, Lymphoid	1 [3.0]		1 [2.0]	1 [2.0]	
Infiltration Cellular, Plasma Cell		1 [2.0]	2 [2.0]	1 [3.0]	
Lymph Node, Mesenteric	(49)	(48)	(50)	(48)	(48)
Atrophy, Lymphoid	4 [1.0]	3 [1.3]	2 [1.0]	8 [1.3]	10 [1.0]
Hyperplasia, Lymphoid			1 [2.0]		
Spleen	(50)	(50)	(50)	(49)	(50)
Extramedullary Hematopoiesis	34 [1.6]	33 [2.0]	36 [1.9]	29 [1.8]	28 [1.9]
Infarct				1 [1.0]	
Pigment	30 [1.4]	21 [1.4]	30 [1.2]	25 [1.5]	31 [1.7]
Lymphoid Follicle, Atrophy	7 [1.7]	9 [1.6]	8 [1.6]	13 [2.3]	20 [2.2]
Lymphoid Follicle, Hyperplasia		2 [1.0]	2 [2.0]	1 [2.0]	
Thymus	(49)	(48)	(50)	(47)	(47)
Atrophy	42 [2.5]	46 [2.8]	45 [3.0]	46 [3.2]	46 [3.2]

INTEGUMENTARY SYSTEM

Mammary Gland	(50)	(50)	(50)	(48)	(50)
Galactocele			2 [2.0]		
Hyperplasia	13 [1.9]	15 [1.9]	13 [2.1]	19 [1.8]	15 [1.7]
Inflammation		1 [2.0]			

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Skin	(50)	(50)	(50)	(49)	(50)
Cyst Epithelial Inclusion			1		
Ulcer	1 [1.0]				
Epidermis, Sebaceous Gland, Hyperplasia	1 [2.0]				
Subcutaneous Tissue, Inflammation			1 [4.0]		
MUSCULOSKELETAL SYSTEM					
Bone	(50)	(50)	(50)	(50)	(50)
Skeletal Muscle	(0)	(1)	(1)	(2)	(0)
NERVOUS SYSTEM					
Brain	(50)	(50)	(50)	(49)	(50)
Gliosis, Diffuse	1 [4.0]				
Hemorrhage	2 [3.0]			1 [1.0]	
Necrosis	2 [3.0]		1 [4.0]		
Peripheral Nerve	(0)	(0)	(0)	(1)	(0)
Degeneration				1 [3.0]	
Spinal Cord	(1)	(0)	(0)	(0)	(0)
RESPIRATORY SYSTEM					
Lung	(50)	(50)	(50)	(48)	(50)
Cyst				1	
Foreign Body				1	
Inflammation, Granulomatous, Multifocal	1 [2.0]	1 [1.0]	1 [1.0]	3 [2.0]	5 [1.0]
Inflammation, Chronic Active	2 [1.0]	2 [1.0]	7 [1.1]	7 [1.1]	7 [1.1]
Alveolus, Infiltration Cellular, Histiocyte	36 [1.6]	33 [1.9]	31 [2.5]	40 [2.0]	42 [2.2]
Nose	(50)	(50)	(50)	(50)	(50)
Foreign Body					1
Inflammation	3 [1.3]	1 [2.0]	1 [1.0]		3 [1.0]
Olfactory Epithelium, Metaplasia	1 [2.0]				
Respiratory Epithelium, Hyperplasia	1 [2.0]				

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Respiratory Epithelium, Metaplasia, Squamous Trachea	1 [1.0] (50)	(50)	(50)	(48)	(50)
SPECIAL SENSES SYSTEM					
Eye	(50)	(50)	(50)	(50)	(50)
Choroid, Inflammation			1 [1.0]		
Retina, Degeneration	1 [3.0]	5 [2.6]		1 [1.0]	2 [2.5]
Harderian Gland	(50)	(50)	(50)	(49)	(50)
Hyperplasia	1 [2.0]				
Zymbal's Gland	(0)	(0)	(0)	(0)	(1)
URINARY SYSTEM					
Kidney	(50)	(50)	(50)	(49)	(50)
Accumulation, Hyaline Droplet	3 [1.0]	1 [1.0]		1 [2.0]	
Calculus Micro Observation Only	11 [1.2]	14 [1.1]	12 [1.0]	19 [1.3]	16 [1.4]
Hemorrhage				1 [4.0]	
Infarct		2 [1.0]		5 [1.0]	6 [1.7]
Inflammation, Chronic Active				1 [3.0]	
Nephropathy, Chronic Progressive	37 [1.3]	38 [1.2]	35 [1.4]	37 [1.4]	46 [1.5]
Thrombus				1 [1.0]	1 [1.0]
Cortex, Cyst		2	2		
Epithelium, Renal Tubule, Cytoplasmic Alteration		1 [2.0]			
Papilla, Necrosis				12 [2.3]	22 [2.1]
Papilla, Urothelium, Hyperplasia	4 [1.0]	21 [1.0]	8 [1.0]	40 [1.9]	45 [1.8]
Pelvis, Dilation				2 [2.5]	1 [2.0]
Pelvis, Hemorrhage					1 [1.0]
Pelvis, Inflammation, Suppurative					1 [4.0]
Pelvis, Inflammation, Chronic	1 [1.0]			4 [2.3]	2 [3.0]
Renal Tubule, Dilation		1 [3.0]			1 [3.0]
Renal Tubule, Hyperplasia, Atypical			1 [2.0]	1 [1.0]	
Renal Tubule, Inflammation, Suppurative					1 [3.0]
Renal Tubule, Mineral	5 [1.2]	6 [1.3]	8 [1.0]	16 [1.0]	8 [1.5]

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Renal Tubule, Necrosis					1 [3.0]
Urinary Bladder	(50)	(49)	(50)	(48)	(50)
Inflammation				4 [2.5]	1 [2.0]
Metaplasia, Squamous					1 [3.0]

*** END OF REPORT ***

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