

**Experiment Number:** 99930-93  
**Test Type:** SPECIAL STUDY  
**Route:** DOSED FEED  
**Species/Strain:** Rat/CD

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

**Test Compound:** Endocrine disruptor (Genistein)  
**CAS Number:** 446-72-0

**Date Report Requested:** 10/17/2014  
**Time Report Requested:** 12:48:55  
**First Dose M/F:** NA / NA  
**Lab:** NCTR

<b>C Number:</b>	MG96005
<b>Lock Date:</b>	Not Entered.
<b>Cage Range:</b>	All
<b>Date Range:</b>	All
<b>Reasons For Removal:</b>	All
<b>Removal Date Range:</b>	All
<b>Treatment Groups:</b>	All
<b>Study Gender:</b>	Both
<b>PWG Approval Date</b>	NONE

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CD Rat MALE	F3 0PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
<b>Disposition Summary</b>				
Animals Initially In Study	52	50	50	50
Early Deaths				
Moribund	8		11	4
Natural Death	11	7	5	8
Survivors				
Moribund		1		
Natural Death			1	2
Terminal Sacrifice	33	42	33	36
Animals Examined Microscopically	52	50	49	49
<b>ALIMENTARY SYSTEM</b>				
Esophagus	(49)	(49)	(48)	(49)
Dilatation		1 [2.0]		
Hyperkeratosis	2 [3.0]	1 [2.0]		1 [2.0]
Intestine Large, Cecum	(41)	(43)	(46)	(45)
Autolysis				1 [3.0]
Hyperplasia, Lymphoid	1 [2.0]			
Inflammation, Suppurative				1 [4.0]
Lymphatic, Ectasia				1 [4.0]
Polyarteritis		1 [3.0]		
Intestine Large, Colon	(41)	(43)	(46)	(45)
Hyperplasia, Lymphoid	1 [3.0]			
Polyarteritis		1 [3.0]		
Intestine Large, Rectum	(38)	(42)	(38)	(38)
Polyarteritis		1 [4.0]		
Intestine Small, Duodenum	(41)	(43)	(46)	(43)
Cyst				1
Intestine Small, Ileum	(40)	(42)	(45)	(43)

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Hyperplasia, Lymphoid	1 [2.0]				
Intestine Small, Jejunum	(40)		(43)	(45)	(41)
Liver	(49)		(47)	(47)	(48)
Angiectasis	6 [1.5]		4 [2.3]	2 [1.0]	2 [2.0]
Autolysis	4 [3.0]		2 [2.0]	1 [1.0]	1 [3.0]
Basophilic Focus			4	3	1
Basophilic Focus, Multiple					1
Bile Duct, Dilatation					1 [4.0]
Bile Duct, Hyperplasia	14 [1.1]		10 [1.2]	10 [1.3]	22 [1.2]
Biliar Tract, Cyst					1
Biliar Tract, Fibrosis	8 [1.1]		2 [1.0]	6 [1.0]	10 [1.1]
Capsule, Hemorrhage	1 [3.0]				
Capsule, Hyperplasia					1 [1.0]
Clear Cell Focus				2	
Congestion					1 [3.0]
Cyst				1	
Degeneration, Cystic	4 [1.8]		6 [1.5]	5 [1.8]	6 [1.8]
Developmental Malformation	1			1	
Eosinophilic Focus	3		2	2	
Eosinophilic Focus, Multiple	1		2	2	1
Fatty Change				1 [4.0]	
Fibrosis					1 [4.0]
Hematopoietic Cell Proliferation	2 [1.0]		1 [1.0]	2 [1.0]	
Hemorrhage	1 [2.0]			1 [1.0]	
Hepatodiaphragmatic Nodule	1		2	1	
Infiltration Cellular, Lymphocyte	7 [1.1]		2 [1.5]		5 [1.0]
Inflammation, Chronic Active	8 [1.3]		10 [1.0]	5 [1.0]	9 [1.4]
Inflammation, Suppurative	1 [1.0]				
Mixed Cell Focus				1	

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CD Rat MALE	F3	0PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Necrosis	4	[1.5]		3	[1.0] 5 [1.4]
Tension Lipidosis			2	[2.5] 1 [3.0]	4 [2.5]
Vacuolization Cytoplasmic	5	[1.6]	1	[1.0] 7 [1.9]	1 [3.0]
Mesentery	(0)		(1)		(0)
Fat, Necrosis			1	[4.0]	
Pancreas	(45)		(47)		(48)
Acinar Cell, Degeneration	37	[2.2]	38	[2.1] 38 [2.5]	35 [2.2]
Autolysis	3	[3.3]	1	[3.0]	2 [2.5]
Infiltration Cellular, Lymphocyte	1	[1.0]			2 [1.5]
Inflammation, Chronic Active					1 [2.0]
Pigmentation	1	[1.0]			
Polyarteritis			1	[4.0]	
Salivary Glands	(49)		(47)		(48)
Acinar Cell, Degeneration	2	[2.5]			1 [2.0]
Autolysis	1	[4.0]			
Hyperplasia			1	[2.0]	
Hypertrophy					1 [4.0]
Infiltration Cellular, Lymphocyte	1	[3.0]			
Mineralization	2	[3.0]	1	[2.0]	
Stomach, Forestomach	(44)		(45)		(48)
Infiltration Cellular, Lymphocyte	1	[3.0]			
Inflammation, Suppurative	1	[3.0]			
Keratin Cyst					1
Mucosa, Ulcer	1	[2.0]			
Submucosa, Edema	1	[4.0]			
Stomach, Glandular	(41)		(43)		(46)
Tongue	(0)		(0)		(1)
<b>CARDIOVASCULAR SYSTEM</b>					
Blood Vessel	(51)		(50)		(49)

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CD Rat MALE	F3 0PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Heart	(51)	(48)	(49)	(47)
Atrium, Dilatation	1 [4.0]			
Autolysis	1 [2.0]	1 [2.0]		
Cardiomyopathy	27 [1.3]	31 [1.5]	37 [1.6]	22 [1.2]
Congestion		1 [4.0]		
Endocardium, Hyperplasia		1 [1.0]		
Metaplasia, Osseous		1 [2.0]		
Mineralization	2 [2.0]	1 [1.0]	1 [1.0]	
Pericardium, Hyperplasia				1 [1.0]
Pericardium, Inflammation, Chronic Active	1 [1.0]			
<b>ENDOCRINE SYSTEM</b>				
Adrenal Cortex	(48)	(47)	(47)	(47)
Accessory Adrenal Cortical Nodule	2	4	1	2
Angiectasis	1 [2.0]		1 [2.0]	4 [2.5]
Autolysis	1 [3.0]		1 [3.0]	
Bilateral, Hyperplasia	1 [1.0]		1 [1.0]	
Capsule, Fibrosis	1 [2.0]			
Cyst	1		1	
Degeneration, Cystic	3 [2.3]	7 [2.3]	5 [2.0]	4 [2.5]
Hyperplasia	4 [1.8]	2 [1.5]	5 [2.0]	3 [1.7]
Hypertrophy	4 [1.5]	5 [2.4]	8 [1.6]	2 [2.5]
Pigmentation				1 [2.0]
Vacuolization Cytoplasmic	28 [1.4]	26 [1.7]	34 [1.5]	25 [1.4]
Adrenal Medulla	(48)	(46)	(47)	(45)
Bilateral, Hyperplasia	2 [2.5]		1 [3.0]	1 [2.0]
Degeneration, Cystic		1 [2.0]	1 [3.0]	
Hyperplasia	9 [1.9]	9 [2.0]	10 [1.7]	6 [1.7]
Hypertrophy	1 [2.0]			
Islets, Pancreatic	(45)	(49)	(48)	(48)

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Autolysis			1 [3.0]		
Hyperplasia	23 [1.2]		23 [1.4]	22 [1.4]	27 [1.5]
Parathyroid Gland	(41)		(46)	(48)	(43)
Bilateral, Hyperplasia	1 [2.0]		3 [2.0]	4 [2.0]	2 [2.0]
Hyperplasia	3 [1.7]		3 [2.0]	7 [1.6]	6 [1.7]
Pituitary Gland	(49)		(46)	(48)	(48)
Autolysis	1 [4.0]				
Pars Distalis, Cyst	3		5	5	6
Pars Distalis, Cyst, Multiple	2				1
Pars Distalis, Hyperplasia	19 [1.7]		16 [2.4]	13 [2.2]	12 [1.6]
Pars Intermed, Cyst	1				
Pars Intermed, Dysplasia	1 [2.0]				
Pars Nervosa, Infiltration Cellular, Lymphocyte				1 [2.0]	
Thyroid Gland	(44)		(46)	(46)	(45)
Autolysis	2 [4.0]				
C Cell, Hyperplasia	9 [1.2]		5 [1.4]	3 [1.0]	7 [1.6]
Cyst, Squamous	6		4	2	4
Follicular Cel, Hyperplasia				1 [4.0]	
Infiltration Cellular, Lymphocyte	1 [2.0]			1 [1.0]	
<b>GENERAL BODY SYSTEM</b>					
Tissue NOS	(0)		(1)	(0)	(2)
<b>GENITAL SYSTEM</b>					
Coagulating Gland	(44)		(43)	(47)	(45)
Atrophy	3 [2.3]		1 [2.0]		6 [2.3]
Autolysis	2 [4.0]				
Degeneration				1 [2.0]	
Developmental Malformation	1		2	2	1
Fibrosis				1 [4.0]	

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Inflammation, Chronic				1 [2.0]	
Inflammation, Suppurative	1 [3.0]				
Epididymis	(49)		(48)	(49)	(47)
Atrophy			2 [2.0]		1 [3.0]
Autolysis	1 [3.0]		1 [4.0]		
Degeneration	4 [2.3]		5 [2.0]	6 [2.2]	4 [2.3]
Hyperplasia					1 [2.0]
Hypospermia	4 [4.0]		10 [3.8]	10 [3.6]	5 [3.4]
Infiltration Cellular, Lymphocyte	5 [1.2]		6 [1.2]	6 [1.0]	3 [1.0]
Inflammation	1 [2.0]				
Preputial Gland	(48)		(48)	(47)	(47)
Abscess	1 [4.0]			2 [4.0]	
Atrophy	1 [2.0]				
Autolysis	4 [2.5]		1 [4.0]		2 [3.0]
Duct, Dilatation	4 [3.0]		7 [3.1]	7 [3.6]	9 [3.3]
Infiltration Cellular, Lymphocyte	19 [1.5]		20 [1.3]	15 [1.8]	9 [1.6]
Inflammation, Chronic Active			1 [2.0]		
Inflammation, Suppurative	17 [2.9]		16 [2.1]	18 [2.8]	26 [3.1]
Parenchym Cell, Degeneration	16 [1.8]		17 [1.5]	13 [2.0]	16 [2.1]
Prostate	(6)		(8)	(6)	(4)
Prostate, Dorsal Lobe	(51)		(47)	(47)	(48)
Atrophy					1 [2.0]
Autolysis	5 [3.2]		2 [3.5]		2 [2.5]
Cyst	3		1		
Degeneration	1 [2.0]				3 [1.7]
Hyperplasia	2 [4.0]				
Infiltration Cellular, Lymphocyte	3 [1.3]			2 [1.0]	2 [1.0]
Inflammation, Suppurative	35 [2.0]		38 [1.8]	35 [2.1]	34 [1.6]
Polyarteritis			1 [2.0]		

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Prostate, Ventral Lobe	(48)	(46)	(48)	(47)
Atrophy				1 [2.0]
Autolysis	3 [4.0]	1 [4.0]	1 [2.0]	
Degeneration	10 [1.9]	4 [2.0]	7 [2.3]	11 [2.3]
Hyperplasia	7 [2.0]	5 [2.2]	6 [3.0]	11 [1.7]
Infiltration Cellular, Lymphocyte	8 [1.1]	6 [1.2]	14 [1.1]	8 [1.3]
Infiltration Cellular, Plasma Cell	1 [3.0]			
Inflammation, Chronic			1 [2.0]	1 [4.0]
Inflammation, Suppurative	5 [2.4]	4 [1.5]	9 [1.4]	7 [1.3]
Mineralization				1 [2.0]
Rete Testes	(47)	(48)	(46)	(41)
Dilatation	2 [1.0]	7 [2.3]	5 [2.2]	4 [1.8]
Fibrosis		2 [2.5]	2 [2.5]	
Seminal Vesicle	(43)	(43)	(47)	(45)
Atrophy	4 [2.8]	3 [2.3]	5 [2.2]	8 [2.4]
Autolysis	2 [4.0]		1 [4.0]	
Degeneration	2 [2.0]		1 [2.0]	
Dilatation	1 [3.0]		2 [3.5]	1 [2.0]
Hyperplasia			3 [3.7]	
Inflammation, Chronic Active			1 [2.0]	
Inflammation, Suppurative	2 [3.0]		1 [2.0]	1 [1.0]
Testes	(50)	(50)	(48)	(49)
Artery, Mineralization				1 [2.0]
Autolysis	3 [4.0]	2 [3.5]		2 [2.5]
Edema			1 [3.0]	
Fibrosis			1 [3.0]	
Hemorrhage				1 [3.0]
Inflammation, Granulomatous	1 [3.0]			
Inflammation, Suppurative			1 [4.0]	

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Interstit Cell, Hyperplasia	1 [3.0]			
Polyarteritis	2 [2.5]	3 [2.7]	1 [2.0]	1 [2.0]
Seminif Tub, Degeneration	23 [1.9]	26 [2.6]	30 [2.5]	31 [1.8]
<b>HEMATOPOIETIC SYSTEM</b>				
Bone Marrow	(48)	(48)	(48)	(46)
Autolysis	2 [4.0]	1 [2.0]		1 [4.0]
Depletion Cellular				1 [4.0]
Erythroid Cell, Hyperplasia	2 [2.0]	1 [2.0]	5 [3.2]	3 [2.3]
Hypocellularity			1 [3.0]	2 [3.0]
Myeloid Cell, Hyperplasia	6 [2.8]	3 [2.3]	7 [2.7]	4 [2.8]
Lymph Node	(13)	(9)	(18)	(12)
Axillary, Hyperplasia, Lymphoid	1 [4.0]			
Axillary, Infiltration Cellular, Plasma Cell	1 [4.0]			
Inguinal, Autolysis	1 [4.0]			
Inguinal, Degeneration, Cystic			1 [4.0]	
Inguinal, Infiltration Cellular, Plasma Cell			1 [4.0]	
Lumbar, Congestion	1 [3.0]			
Lumbar, Degeneration, Cystic	4 [3.5]	5 [3.2]	11 [3.6]	5 [3.4]
Lumbar, Hyperplasia, Lymphoid	2 [3.0]	2 [3.0]	4 [3.0]	3 [2.7]
Lumbar, Infiltration Cellular, Plasma Cell	7 [3.9]	6 [3.8]	13 [3.4]	5 [3.6]
Lumbar, Pigmentation			1 [2.0]	
Mediastinal, Congestion	1 [3.0]			
Mediastinal, Degeneration, Cystic		1 [4.0]		
Mediastinal, Hemorrhage				1 [2.0]
Mediastinal, Infiltration Cellular, Plasma Cell	1 [2.0]			
Mediastinal, Pigmentation				1 [2.0]
Pancreatic, Hemorrhage			1 [2.0]	
Pancreatic, Hyperplasia, Lymphoid			1 [2.0]	
Popliteal, Degeneration, Cystic		1 [2.0]		

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Popliteal, Hyperplasia, Lymphoid	1	[3.0]	1	[4.0]		
Popliteal, Infiltration Cellular, Plasma Cell			1	[4.0]		
Renal, Congestion	1	[3.0]				
Renal, Degeneration, Cystic	3	[3.3]	4	[3.5]	3 [2.7]	3 [3.3]
Renal, Hemorrhage			1	[3.0]		
Renal, Hyperplasia, Lymphoid			2	[2.0]	1 [2.0]	
Renal, Infiltration Cellular, Plasma Cell	2	[3.5]	3	[3.7]	1 [3.0]	3 [3.7]
Renal, Inflammation, Suppurative			1	[2.0]		
Renal, Necrosis			1	[2.0]		
Renal, Pigmentation	1	[2.0]				
Lymph Node, Mandibular	(48)		(48)		(48)	(48)
Autolysis	1	[4.0]	1	[3.0]		2 [3.5]
Degeneration, Cystic	5	[2.2]	7	[2.1]	9 [2.8]	7 [2.6]
Depletion Lymphoid						1 [4.0]
Hyperplasia, Lymphoid	22	[2.3]	14	[2.4]	17 [2.4]	21 [2.3]
Infiltration Cellular, Plasma Cell	31	[2.9]	29	[2.8]	26 [2.7]	36 [2.8]
Inflammation, Chronic Active					1 [2.0]	
Lymph Node, Mesenteric	(45)		(46)		(47)	(47)
Autolysis			1	[2.0]		1 [3.0]
Congestion	1	[3.0]				
Degeneration, Cystic	2	[4.0]				
Hemorrhage					1 [3.0]	
Hyperplasia, Lymphoid	9	[1.8]	6	[1.8]	5 [2.0]	10 [1.9]
Infiltration Cellular, Mast Cell	2	[2.0]				2 [2.0]
Infiltration Cellular, Plasma Cell	6	[2.7]	1	[3.0]	2 [2.0]	3 [2.7]
Inflammation, Chronic Active					1 [4.0]	
Inflammation, Granulomatous	16	[1.7]	21	[1.5]	16 [1.6]	25 [1.7]
Spleen	(50)		(49)		(48)	(47)
Autolysis	5	[3.0]	4	[2.8]		2 [3.5]

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 AVERAGE SEVERITY GRADES[b]**  
**Test Compound:** Endocrine disruptor (Genistein)  
**CAS Number:** 446-72-0

**Date Report Requested:** 10/17/2014  
**Time Report Requested:** 12:48:56  
**First Dose M/F:** NA / NA  
**Lab:** NCTR

CD Rat MALE	F3	0PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Capsule, Cyst, Multiple				1	
Capsule, Degeneration, Cystic			1 [2.0]		
Capsule, Fibrosis	1 [2.0]		1 [2.0]		1 [2.0]
Congestion			1 [4.0]		
Depletion Lymphoid	1 [4.0]			1 [3.0]	2 [3.5]
Hematopoietic Cell Proliferation	9 [2.2]		7 [1.3]	13 [2.6]	9 [2.0]
Hematopoietic Cell Proliferation Granulocytic	1 [4.0]				
Hyperplasia, Lymphoid	2 [2.0]		1 [2.0]	1 [2.0]	3 [1.7]
Hyperplasia, Stromal			2 [2.0]	1 [2.0]	2 [1.5]
Necrosis					1 [4.0]
Pigmentation	29 [2.5]		27 [2.3]	22 [1.8]	17 [2.1]
Red Pulp, Hyperplasia			1 [4.0]		
Thymus	(46)	(45)	(41)	(41)	(44)
Atrophy	41 [3.9]		43 [3.9]	41 [3.8]	41 [3.9]
Autolysis			1 [4.0]		1 [3.0]
Depletion Lymphoid					1 [4.0]
Epithel Cell, Hyperplasia	1 [4.0]		1 [2.0]	1 [2.0]	
Hemorrhage	1 [4.0]				
Hyperplasia, Lymphoid	1 [4.0]				
Polyarteritis					1 [3.0]
<b>INTEGUMENTARY SYSTEM</b>					
Mammary Gland	(39)	(43)	(41)	(41)	(41)
Alveolus, Hyperplasia	4 [1.5]		5 [1.2]	6 [1.3]	6 [2.0]
Degeneration	16 [3.1]		24 [3.1]	10 [3.0]	12 [3.2]
Duct, Dilatation			1 [3.0]		1 [3.0]
Fibrosis			1 [4.0]		
Infiltration Cellular, Lymphocyte	1 [1.0]				
Lactation	2 [2.0]		1 [2.0]	4 [1.5]	4 [2.0]

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)

Experiment Number: 99930-93  
 Test Type: SPECIAL STUDY  
 Route: DOSED FEED  
 Species/Strain: Rat/CD

**P18: INCIDENCE RATES OF NON-NEOPLASTIC LESIONS BY ANATOMIC SITE (a) WITH  
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CD Rat MALE	F3 0PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Skin	(49)	(50)	(48)	(49)
Angiectasis				1 [4.0]
Cyst Epithelial Inclusion	2	1	3	1
Epidermis, Hyperplasia	6 [1.7]	2 [3.0]	2 [2.5]	2 [2.5]
Hyperkeratosis	6 [2.2]	2 [3.5]	2 [2.0]	2 [2.0]
Inflammation, Chronic				3 [2.0]
Inflammation, Chronic Active	3 [2.0]	1 [2.0]	5 [3.0]	3 [2.0]
Inflammation, Granulomatous			1 [4.0]	
Inflammation, Suppurative	21 [3.8]	22 [3.8]	24 [3.8]	21 [3.9]
Lymphatic, Ectasia			1 [3.0]	
Necrosis	2 [2.5]		2 [2.0]	1 [2.0]
<b>MUSCULOSKELETAL SYSTEM</b>				
Bone	(0)	(0)	(0)	(1)
Bone, Cranium	(2)	(0)	(0)	(0)
Hemorrhage	1 [4.0]			
Hyperostosis	1 [3.0]			
Bone, Femur	(50)	(50)	(48)	(49)
Skeletal Muscle	(1)	(0)	(0)	(1)
<b>NERVOUS SYSTEM</b>				
Brain, Brain Stem	(46)	(46)	(48)	(47)
Autolysis		1 [2.0]		1 [4.0]
Compression	6 [2.3]	1 [2.0]	3 [1.3]	4 [1.5]
Hemorrhage	1 [2.0]		1 [3.0]	
Brain, Cerebellum	(46)	(46)	(48)	(46)
Autolysis		1 [2.0]		
Hydrocephalus	2 [2.0]			
Brain, Cerebrum	(45)	(46)	(48)	(46)
Autolysis		1 [2.0]		

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**Test Type:** SPECIAL STUDY  
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CD Rat MALE	F3	0PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Developmental Malformation	1				
Gliosis			1 [2.0]	1 [4.0]	
Hemorrhage	1 [2.0]				
Hydrocephalus	3 [2.0]				1 [2.0]
Infiltration Cellular, Lymphocyte			1 [2.0]		
Vacuolization Cytoplasmic				1 [1.0]	
<b>RESPIRATORY SYSTEM</b>					
Lung	(48)		(47)	(47)	(46)
Alveolar Epith, Hyperplasia	4 [2.0]		3 [2.0]		1 [3.0]
Artery, Mineralization	3 [1.3]		5 [1.0]	12 [1.2]	6 [1.2]
Autolysis	4 [3.0]		1 [2.0]		1 [2.0]
Congestion			1 [3.0]		1 [3.0]
Hemorrhage					1 [4.0]
Infiltration Cellular, Histiocyte	14 [1.5]		12 [1.6]	12 [1.4]	17 [1.6]
Infiltration Cellular, Lymphocyte			1 [1.0]	2 [2.0]	
Inflammation, Chronic	1 [3.0]		1 [2.0]		1 [2.0]
Mediastinum, Bacterium	1 [4.0]				
Mediastinum, Foreign Body	1				
Mediastinum, Hemorrhage	1 [4.0]				
Mediastinum, Inflammation, Suppurative	1 [4.0]				
Mediastinum, Necrosis	1 [4.0]				
Metaplasia, Osseous	3 [1.0]		5 [1.0]	5 [1.0]	2 [1.0]
Thrombosis	1 [2.0]				
Nose	(46)		(45)	(49)	(45)
Autolysis	1 [3.0]				
Foreign Body					1
Goblet Cell, Hyperplasia	1 [2.0]				
Goblet Cell, Metaplasia				1 [2.0]	
Hyperkeratosis	2 [3.0]				1 [2.0]

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**Route:** DOSED FEED  
**Species/Strain:** Rat/CD

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**CAS Number:** 446-72-0

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**Lab:** NCTR

CD Rat MALE	F3	0PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Inflammation, Chronic	1	[1.0]			2 [1.5]
Inflammation, Chronic Active	2	[1.5]		2 [2.0]	
Inflammation, Suppurative	7	[2.9]	2 [1.5]	3 [3.0]	3 [2.7]
Metaplasia, Squamous				1 [3.0]	
Respirat Epith, Hyperplasia				1 [2.0]	
Upper Molar, Inflammation, Chronic Active				1 [4.0]	
Upper Molar, Necrosis				1 [3.0]	
Trachea	(45)		(44)	(48)	(44)
<b>SPECIAL SENSES SYSTEM</b>					
Eye	(37)		(43)	(38)	(39)
Autolysis			1 [4.0]		1 [4.0]
Bilateral, Retina, Atrophy	12	[2.3]	11 [1.6]	5 [2.0]	12 [1.7]
Cornea, Hyperplasia			2 [2.5]	1 [2.0]	
Hemorrhage				1 [4.0]	
Inflammation, Suppurative				1 [4.0]	1 [4.0]
Retina, Atrophy			2 [2.0]		2 [2.0]
Harderian Gland	(38)		(43)	(38)	(39)
Autolysis			1 [3.0]		
Degeneration			1 [1.0]		3 [1.7]
Epithelium, Hyperplasia			1 [2.0]		
Hyperplasia			2 [2.0]		
Infiltration Cellular, Lymphocyte	6	[1.2]	2 [1.5]	2 [1.0]	7 [1.0]
Inflammation, Suppurative					1 [4.0]
Pigmentation					1 [4.0]
Lacrimal Gland	(0)		(2)	(2)	(1)
Ectopic Harderian			2	2	1
Zymbal's Gland	(0)		(0)	(1)	(0)

**URINARY SYSTEM**

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Experiment Number: 99930-93

Test Type: SPECIAL STUDY

Route: DOSED FEED

Species/Strain: Rat/CD

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Lab: NCTR

CD Rat MALE	F3	0PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Kidney	(46)		(49)	(47)	(47)
Accumulation, Hyaline Droplet	2 [2.5]				
Autolysis	3 [2.7]		5 [3.6]	1 [2.0]	2 [3.5]
Capsule, Fatty Change			3	2	
Capsule, Fibrosis	1 [1.0]				
Cortex, Cyst	23		31	22	21
Hyperplasia, Tubular				2 [2.0]	1 [2.0]
Infiltration Cellular, Lymphocyte	1 [1.0]		1 [1.0]	1 [1.0]	2 [1.0]
Medulla, Cyst			1		
Nephropathy, Chronic	39 [1.9]		46 [1.8]	43 [1.8]	39 [1.5]
Pelvis, Dilatation	2 [2.0]		1 [3.0]		
Pelvis, Hyperplasia	3 [2.0]		1 [2.0]	4 [1.5]	5 [1.4]
Pelvis, Inflammation, Suppurative	1 [4.0]				
Pelvis, Mineralization			1 [2.0]	1 [2.0]	2 [1.5]
Polycystic Kidney	1 [4.0]			1 [4.0]	
Renal Tubule, Inflammation, Suppurative			1 [2.0]		
Urethra	(0)		(2)	(2)	(1)
Urinary Bladder	(45)		(43)	(47)	(46)
Dilatation	2 [4.0]				3 [4.0]
Hemorrhage	1 [2.0]				1 [1.0]
Inflammation, Suppurative	1 [1.0]				
Transit Epithe, Hyperplasia	1 [2.0]				
Transit Epithe, Hypertrophy					1 [2.0]

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

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CD Rat FEMALE	F3 0 PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
<b>Disposition Summary</b>				
Animals Initially In Study	53	50	50	50
Early Deaths				
Moribund	15	13	16	17
Natural Death	5	5	5	7
Survivors				
Moribund		1		
Natural Death		1		1
Terminal Sacrifice	33	30	29	25
Animals Examined Microscopically	53	50	50	50

ALIMENTARY SYSTEM

Esophagus	(53)	(50)	(50)	(48)
Intestine Large, Cecum	(52)	(50)	(50)	(49)
Intestine Large, Colon	(53)	(50)	(50)	(49)
Intestine Large, Rectum	(42)	(40)	(40)	(37)
Intestine Small, Duodenum	(52)	(50)	(50)	(49)
Intestine Small, Ileum	(51)	(48)	(47)	(48)
Intestine Small, Jejunum	(51)	(49)	(49)	(48)
Liver	(53)	(50)	(50)	(49)
Angiectasis	2 [1.0]	2 [1.5]	1 [1.0]	3 [2.0]
Atypical Cells				1 [3.0]
Basophilic Focus	5	7	6	5
Bile Duct, Hyperplasia	16 [1.4]	18 [1.2]	14 [1.6]	16 [1.3]
Biliar Tract, Fibrosis	2 [1.5]	7 [1.9]	4 [1.8]	
Clear Cell Focus	1			1
Congestion				2 [2.5]
Cyst	1		3	1
Degeneration, Cystic	1 [1.0]	3 [1.3]		1 [3.0]

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Test Type: SPECIAL STUDY

Route: DOSED FEED

Species/Strain: Rat/CD

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Lab: NCTR

CD Rat FEMALE	F3	0 PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Developmental Malformation			1	1	1
Eosinophilic Focus				1	4
Hematopoietic Cell Proliferation	1 [1.0]		3 [1.3]	4 [1.3]	3 [1.0]
Hemorrhage				1 [1.0]	
Hepatodiaphragmatic Nodule	1		1	1	3
Infiltration Cellular, Lymphocyte	4 [1.3]		2 [1.0]	4 [1.5]	3 [1.0]
Inflammation, Chronic Active	4 [1.8]		3 [1.3]	3 [1.7]	5 [1.4]
Mixed Cell Focus				1	
Necrosis	2 [1.0]		1 [1.0]		2 [2.0]
Oval Cell, Hyperplasia					1 [3.0]
Pigmentation				1 [2.0]	
Vacuolization Cytoplasmic	7 [1.7]		5 [1.6]	9 [1.7]	4 [2.3]
Vacuolization Cytoplasmic, Focal	4			1	
Mesentery	(0)		(1)	(1)	(0)
Fat, Necrosis				1 [2.0]	
Polyarteritis			1 [2.0]		
Oral Mucosa	(1)		(0)	(1)	(1)
Keratin Cyst				1	
Pancreas	(52)		(50)	(50)	(49)
Acinar Cell, Degeneration	25 [1.5]		23 [1.8]	19 [1.5]	18 [1.6]
Polyarteritis	1 [3.0]				1 [1.0]
Salivary Glands	(53)		(49)	(50)	(49)
Atrophy				1 [3.0]	2 [2.5]
Stomach	(0)		(1)	(0)	(0)
Dilatation			1		
Stomach, Forestomach	(52)		(49)	(49)	(49)
Hyperplasia	1 [2.0]		3 [1.3]	1 [3.0]	1 [1.0]
Inflammation	2 [1.0]		1 [2.0]		
Keratin Cyst			1		

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Ulcer				3 [3.3]	
Stomach, Glandular	(53)		(50)	(50)	(49)
Erosion	1 [2.0]				1 [2.0]
Mineralization	1 [2.0]			1 [2.0]	
CARDIOVASCULAR SYSTEM					
Blood Vessel	(53)		(50)	(50)	(49)
Mineralization	1 [2.0]			2 [1.5]	1 [2.0]
Heart	(53)		(50)	(50)	(49)
Atrium Lft, Thrombosis	1				1
Atrium Rgt, Dilatation					1 [2.0]
Cardiomyopathy	38 [1.1]		32 [1.2]	25 [1.3]	26 [1.1]
Mineralization				2 [2.0]	
ENDOCRINE SYSTEM					
Adrenal Cortex	(53)		(50)	(50)	(49)
Accessory Adrenal Cortical Nodule	1		1		
Angiectasis	2 [1.0]			1 [2.0]	
Atrophy			1 [4.0]		1 [3.0]
Degeneration, Cystic	48 [1.9]		48 [1.9]	45 [1.8]	47 [2.2]
Hematopoietic Cell Proliferation				1 [1.0]	
Hyperplasia	14 [1.3]		14 [1.4]	13 [1.5]	16 [1.4]
Hypertrophy	21 [2.2]		21 [2.0]	22 [2.3]	23 [2.0]
Vacuolization Cytoplasmic	6 [2.2]				2 [3.5]
Adrenal Medulla	(53)		(46)	(50)	(48)
Hyperplasia, Focal	10 [1.7]		1 [2.0]	7 [1.6]	7 [1.9]
Islets, Pancreatic	(52)		(50)	(50)	(49)
Hyperplasia	3 [1.3]		3 [1.7]	3 [1.0]	1 [1.0]
Parathyroid Gland	(53)		(41)	(47)	(46)
Hyperplasia, Diffuse	1 [2.0]			1 [3.0]	

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CD Rat FEMALE	F3	0 PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Hyperplasia, Focal	1	[1.0]		2	[1.5]
Pituitary Gland	(53)		(50)	(50)	(50)
Cyst	1			2	
Infiltration Cellular, Histiocyte					1 [1.0]
Pars Distalis, Hyperplasia	7	[2.0]	3 [2.3]	4 [2.0]	6 [2.3]
Thyroid Gland	(53)		(50)	(50)	(49)
C Cell, Hyperplasia	2	[1.0]			3 [1.7]
Cyst, Squamous	10	[1.3]	8 [1.3]	7 [1.1]	5 [1.6]

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Clitoral Gland	(49)		(47)	(49)	(48)
Duct, Dilatation	9	[2.4]	5 [2.4]	8 [2.3]	8 [2.1]
Hyperplasia			1 [2.0]	2 [1.0]	3 [1.3]
Inflammation	24	[1.7]	18 [1.7]	29 [1.5]	32 [1.8]
Parenchym Cell, Degeneration	4	[2.0]	1 [2.0]	1 [2.0]	8 [2.1]
Vacuolization Cytoplasmic					1 [3.0]
Ovary	(53)		(50)	(49)	(49)
Atrophy	28	[2.3]	35 [2.4]	32 [2.0]	39 [2.4]
Cyst	9		15	16	16
Hyperplasia, Stromal	21	[1.9]	30 [2.0]	27 [1.5]	24 [1.7]
Oviduct	(53)		(49)	(49)	(49)
Atrophy				1 [2.0]	
Cyst			1		
Hyperplasia, Stromal				1 [1.0]	
Uterus	(53)		(50)	(50)	(49)
Adenomyosis			2 [2.5]	1 [2.0]	2 [1.5]
Angiectasis	1	[3.0]			

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First Dose M/F: NA / NA

Lab: NCTR

CD Rat FEMALE	F3	0 PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Hemorrhage				1 [2.0]	
Hyperplasia, Cystic	16 [1.4]		24 [1.9]	24 [2.0]	24 [1.8]
Hyperplasia, Focal	3 [2.7]				
Metaplasia	1 [2.0]		6 [1.7]	5 [1.4]	6 [1.7]
Vagina	(52)		(49)	(49)	(48)
Inflammation	9 [1.9]		4 [1.3]	5 [1.6]	7 [1.7]
HEMATOPOIETIC SYSTEM					
Bone Marrow	(53)		(50)	(50)	(49)
Hypocellularity				1 [3.0]	4 [2.3]
Myeloid Cell, Hyperplasia			1 [2.0]	1 [2.0]	1 [3.0]
Lymph Node	(18)		(9)	(8)	(12)
Lumbar, Degeneration, Cystic	9 [2.3]		5 [2.6]	4 [2.5]	4 [2.3]
Lumbar, Hyperplasia, Lymphoid	1 [2.0]				
Lumbar, Infiltration Cellular, Plasma Cell	11 [2.0]		7 [2.0]	6 [2.0]	10 [2.1]
Mediastinal, Hemorrhage					1 [2.0]
Mediastinal, Infiltration Cellular, Plasma Cell	1 [3.0]				2 [2.0]
Pancreatic, Hemorrhage			1 [2.0]		2 [2.0]
Popliteal, Degeneration, Cystic	1 [2.0]				
Popliteal, Infiltration Cellular, Plasma Cell	1 [4.0]				1 [3.0]
Renal, Degeneration, Cystic			1 [2.0]	1 [2.0]	
Renal, Hyperplasia, Lymphoid	1 [2.0]				
Renal, Infiltration Cellular, Plasma Cell	1 [2.0]		1 [2.0]	1 [2.0]	1 [1.0]
Lymph Node, Mandibular	(53)		(49)	(50)	(49)
Cyst			1 [2.0]		
Degeneration, Cystic	2 [2.0]				3 [1.3]
Hemorrhage	1 [1.0]			1 [1.0]	
Infiltration Cellular, Plasma Cell	43 [1.7]		40 [1.7]	42 [1.6]	42 [1.9]
Lymph Node, Mesenteric	(53)		(50)	(50)	(49)
Degeneration, Cystic				1 [3.0]	1 [2.0]

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)

Experiment Number: 99930-93

Test Type: SPECIAL STUDY

Route: DOSED FEED

Species/Strain: Rat/CD

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

Test Compound: Endocrine disruptor (Genistein)

CAS Number: 446-72-0

Date Report Requested: 10/17/2014

Time Report Requested: 12:48:57

First Dose M/F: NA / NA

Lab: NCTR

CD Rat FEMALE	F3 0 PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Hemorrhage	1 [2.0]	1 [1.0]		1 [3.0]
Infiltration Cellular, Plasma Cell	1 [2.0]			1 [2.0]
Inflammation, Granulomatous	48 [1.7]	47 [1.9]	45 [1.9]	44 [1.9]
Spleen	(53)	(50)	(50)	(49)
Hematopoietic Cell Proliferation	17 [1.7]	8 [2.1]	7 [1.9]	10 [1.6]
Lymphocyte, Atrophy	3 [2.3]		2 [2.5]	3 [2.3]
Pigmentation	21 [1.8]	32 [1.6]	32 [1.8]	30 [1.9]
Red Pulp, Atrophy				1 [2.0]
Thymus	(48)	(45)	(46)	(47)
Atrophy	12 [2.0]	7 [2.0]	10 [2.2]	9 [2.4]
Cyst	18 [1.9]	15 [1.9]	13 [1.7]	17 [1.8]
Ectopic Thyroid			1	
Epithel Cell, Hyperplasia	2 [2.0]	4 [2.3]		2 [2.0]
Hemorrhage		1 [2.0]		2 [2.5]
<b>INTEGUMENTARY SYSTEM</b>				
Mammary Gland	(53)	(49)	(50)	(50)
Alveolus, Degeneration	3 [3.0]	1 [2.0]	1 [2.0]	5 [1.8]
Alveolus, Hyperplasia	19 [1.4]	14 [1.4]	18 [1.5]	17 [1.5]
Atypical Focus	6	7	4	5
Galactocele	1 [2.0]	6 [2.0]	1 [3.0]	3 [3.0]
Hyperplasia	1 [3.0]			1 [2.0]
Lactation	32 [1.6]	38 [1.5]	43 [1.7]	33 [1.5]
Skin	(53)	(50)	(50)	(50)
Angiectasis	1 [2.0]			
Cyst Epithelial Inclusion			1	1
Foot, Inflammation, Chronic	39 [2.7]	36 [2.7]	37 [2.5]	35 [2.5]
<b>MUSCULOSKELETAL SYSTEM</b>				
Bone	(0)	(0)	(1)	(0)

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Experiment Number: 99930-93

Test Type: SPECIAL STUDY

Route: DOSED FEED

Species/Strain: Rat/CD

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

Test Compound: Endocrine disruptor (Genistein)

CAS Number: 446-72-0

Date Report Requested: 10/17/2014

Time Report Requested: 12:48:57

First Dose M/F: NA / NA

Lab: NCTR

CD Rat FEMALE	F3 0 PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Bone, Femur	(53)	(50)	(50)	(49)
Fibrous Osteodystrophy			1	
Bone, Joint	(1)	(0)	(0)	(0)
Inflammation	1 [3.0]			
Skeletal Muscle	(1)	(0)	(0)	(0)
Cyst	1			
<b>NERVOUS SYSTEM</b>				
Brain, Brain Stem	(53)	(50)	(50)	(49)
Compression	23 [1.7]	26 [1.8]	28 [1.9]	29 [1.9]
Brain, Cerebellum	(53)	(50)	(50)	(49)
Brain, Cerebrum	(53)	(50)	(50)	(49)
Hydrocephalus	1 [2.0]		1 [1.0]	3 [1.7]
<b>RESPIRATORY SYSTEM</b>				
Lung	(53)	(50)	(50)	(49)
Alveolar Epith, Hyperplasia		1 [2.0]	1 [2.0]	
Atelectasis		1 [2.0]		
Hemorrhage			1 [2.0]	
Infiltration Cellular, Histiocyte	16 [1.7]	10 [1.1]	13 [1.3]	14 [1.4]
Inflammation	1 [1.0]	3 [2.0]	3 [1.7]	1 [3.0]
Mineralization	1 [2.0]			
Polyarteritis	1 [2.0]			
Nose	(53)	(50)	(50)	(49)
Inflammation	3 [1.7]	2 [1.5]	3 [2.3]	3 [2.0]
Keratin Cyst			1	
Nasolacrim Dct, Inflammation	4 [2.3]	2 [1.5]	1 [1.0]	3 [1.7]
Upper Molar, Inflammation	2	6		1
Trachea	(53)	(50)	(50)	(49)

**SPECIAL SENSES SYSTEM**

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)

Experiment Number: 99930-93

Test Type: SPECIAL STUDY

Route: DOSED FEED

Species/Strain: Rat/CD

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

Test Compound: Endocrine disruptor (Genistein)

CAS Number: 446-72-0

Date Report Requested: 10/17/2014

Time Report Requested: 12:48:57

First Dose M/F: NA / NA

Lab: NCTR

CD Rat FEMALE	F3 0 PPM	F3 5PPM TO CTL	F3 100PPM TO CTL	F3 500PPM TO CTL
Eye	(43)	(41)	(40)	(38)
Bilateral, Lens, Cataract	1 [2.0]			1 [1.0]
Bilateral, Retina, Degeneration	5 [2.6]	9 [2.6]	6 [2.8]	3 [2.3]
Lens, Cataract				1 [2.0]
Retina, Degeneration	6 [2.2]	4 [2.0]	1 [3.0]	5 [2.2]
Harderian Gland	(43)	(40)	(40)	(38)
Epithelium, Degeneration	16 [1.3]	17 [1.5]	10 [1.4]	21 [1.2]
Hypertrophy	3 [1.0]	5 [1.4]	5 [1.0]	2 [1.5]
Inflammation	1 [2.0]			
Lacrimal Gland	(0)	(1)	(0)	(0)
Metaplasia		1 [1.0]		
<b>URINARY SYSTEM</b>				
Kidney	(53)	(50)	(50)	(49)
Accumulation, Hyaline Droplet	1 [4.0]			
Cyst	19	17	19	12
Epithelium, Pelvis, Hyperplasia				1 [2.0]
Hydronephrosis		1 [2.0]	1 [3.0]	1 [4.0]
Infarct			1 [1.0]	1 [1.0]
Inflammation	2 [1.0]	1 [1.0]		5 [1.2]
Nephropathy	19 [1.6]	14 [1.4]	21 [1.4]	18 [1.6]
Pelvis, Mineralization	17 [1.4]	19 [1.4]	28 [1.6]	24 [1.1]
Renal Tubule, Mineralization	43 [1.7]	33 [1.5]	43 [1.7]	27 [1.8]
Urinary Bladder	(53)	(47)	(48)	(47)
Hyperplasia	2 [3.0]			1 [3.0]
Inflammation				1 [2.0]

**\*\* END OF REPORT \*\***

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