

Experiment Number: 92004-01
Test Type: CHRONIC
Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
Test Compound: NTP 91/92 diet study
CAS Number: DIET9192

Date Report Requested: 10/20/2014
Time Report Requested: 18:28:17
First Dose M/F: NA / NA
Lab: NIEHS

C Number: C92004
Lock Date: Not Entered.
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

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F 344/N Rat Male
07M

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		
	7	6	7	7	7	7	7	4	7	6	7	7	6	7	7	5	5	7	7	6	6	7	7	7	5	7	7	6	7	6	
	2	5	0	2	0	2	0	2	2	1	2	0	2	2	2	2	8	9	2	2	5	0	2	0	0	7	2	2	2	0	2
	7	3	1	7	1	8	1	1	8	7	6	1	5	6	2	6	3	0	6	6	3	0	8	1	1	5	6	7	8	1	5
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	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	0	0	0	0	0	0	0	0	0	0	0	0	
	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1

Alimentary System

Liver	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Angiectasis	1																																		
Basophilic Focus	1		1																																
Bile Duct, Fibrosis																																			
Bile Duct, Hyperplasia				2	1	3		2	1																										
Centrilobular, Degeneration																																			
Centrilobular, Fatty Change				2				3																											
Clear Cell Focus																																			
Congestion																																			
Degeneration, Cystic				1	2		4																												
Eosinophilic Focus																																			
Fatty Change																																			
Hyperplasia																																			
Infiltration Cellular, Lymphocyte																																			
Necrosis																																			
Necrosis, Focal																																			
Periportal, Fatty Change																																			
Mesentery																																			
Artery, Inflammation, Chronic																																			
Fat, Necrosis																																			
Pancreas	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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

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F 344/N Rat Male 07M

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		
	7	6	7	7	7	7	7	4	7	6	7	7	6	7	7	5	5	7	7	6	6	7	7	7	5	7	7	6	7	6	
	2	5	0	2	0	2	0	2	2	1	2	0	2	2	2	8	9	2	2	5	0	2	0	0	7	2	2	2	0	2	
	7	3	1	7	1	8	1	1	8	7	6	1	5	6	2	6	3	0	6	6	3	0	8	1	1	5	6	7	8	1	5
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	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	0	0	0	0	0	0	0	0	0	0	0	0	
	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	9	9
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	

Acinus, Degeneration			1	1			3	1	1				2	1	1	1		1	1	1		1	2	1	1	1		2		3
Acinus, Hyperplasia																			2											
Artery, Polyarteritis				4																										
Atrophy																	1													
Stomach, Forestomach																														
Inflammation, Chronic																														
Ulcer																														
Stomach, Glandular																														
Tongue																														
Cardiovascular System																														
Heart																														
Cardiomyopathy																														
Fibrosis																														
Mineralization																														
Necrosis																														
Thrombosis																														
Endocrine System																														
Adrenal Cortex																														
Congestion																														
Hyperplasia																														
Hyperplasia, Focal																														
Hypertrophy																														

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F 344/N Rat Male 07M	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				
		7	6	7	7	7	7	4	7	6	7	7	6	7	7	7	5	5	7	7	6	6	7	7	7	5	7	7	6	7	6		
		2	5	0	2	0	2	0	2	2	1	2	0	2	2	2	2	2	8	9	2	2	5	0	2	0	7	2	2	2	0	2	
		7	3	1	7	1	8	1	1	8	7	6	1	5	6	2	6	3	0	6	6	3	0	8	1	1	5	6	7	8	1	5	
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	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	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	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8		
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1		
Infiltration Cellular, Lymphocyte																																	
Necrosis									2																		1						
Vacuolization Cytoplasmic, Diffuse									1																							1	
Vacuolization Cytoplasmic, Focal																																	2
Adrenal Medulla		+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia												3			1						2		3					1		1		1	
Hyperplasia, Focal															1																		
Infiltration Cellular, Lymphocyte								1																									
Thrombosis																																	
Islets, Pancreatic		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																																	
Parathyroid Gland		+	+	+	+	+	M	+	M	I		+	+	+	+	+	M	M	+	M	M	+	M	+	M	+	+	+	+	+	+		
Hyperplasia																																	
Pituitary Gland		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	
Pars Distalis, Angiectasis																																	
Pars Distalis, Cyst																																	
Pars Distalis, Hyperplasia																																	
Thyroid Gland		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C Cell, Hyperplasia																																	
Follicle, Cyst																																	

General Body System

Peritoneum

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Time Report Requested: 18:28:18

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male
07M

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	0	0
	7	6	7	7	7	7	4	7	6	7	7	6	7	7	5	5	7	7	6	6	7	7	7	5	7	7	6	7	6	7	6	
	2	5	0	2	0	2	0	2	2	1	2	0	2	2	2	2	8	9	2	2	5	0	2	0	0	7	2	2	2	0	2	
	7	3	1	7	1	8	1	1	8	7	6	1	5	6	2	6	3	0	6	6	3	0	8	1	1	5	6	7	8	1	5	
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	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	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	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	9	9
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	

Genital System

Penis																																
Preputial Gland																																
Inflammation, Chronic																																
Seminal Vesicle																																
Atrophy																																
Testes																																
Atrophy																																
Bilateral, Interstit Cell, Hyperplasia																																
Bilateral, Seminif Tub, Degeneration																																
Interstit Cell, Hyperplasia																																
Interstit Cell, Inflammation, Acute																																
Interstit Cell, Seminif Tub, Degeneration																																

Hematopoietic System

Lymph Node																															
Lymph Node, Mandibular																															
Lymph Node, Mesenteric																															
Hemorrhage																															
Hyperplasia, Lymphoid																															
Spleen																															
Fibrosis																															
Hematopoietic Cell Proliferation																															

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First Dose M/F: NA / NA
Lab: NIEHS

F 344/N Rat Male
07M

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		
	7	6	7	7	7	7	7	4	7	6	7	7	6	7	7	5	5	7	7	6	6	7	7	7	5	7	7	6	7	6	
	2	5	0	2	0	2	0	2	2	1	2	0	2	2	2	2	8	9	2	2	5	0	2	0	0	7	2	2	2	0	2
	7	3	1	7	1	8	1	1	8	7	6	1	5	6	2	6	3	0	6	6	3	0	8	1	1	5	6	7	8	1	5

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	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	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	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	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	9	9	9	
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1		

Inflammation, Acute
Necrosis
Pigmentation, Hemosiderin
Thymus
Atrophy

Integumentary System

Mammary Gland
Skin
Hair Follicle, Atrophy

Musculoskeletal System

NONE

Nervous System

Brain
Hemorrhage
Brain, Cerebellum

Respiratory System

Lung
Alveolus, Infiltration Cellular, Histiocyte
Artery, Mineralization
Congestion
Hemorrhage

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CAS Number: DIET9192

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Lab: NIEHS

F 344/N Rat Male
07M

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	0	0	0	0	0	0
	7	6	7	7	7	7	7	4	7	6	7	7	6	7	7	7	5	5	7	7	6	6	7	7	7	5	7	7	6	7	6	7	6	7	6	
	2	5	0	2	0	2	0	2	2	1	2	0	2	2	2	2	8	9	2	2	5	0	2	0	0	7	2	2	2	2	0	2	0	2	0	
	7	3	1	7	1	8	1	1	8	7	6	1	5	6	2	6	3	0	6	6	3	0	8	1	1	5	6	7	8	1	5	6	7	8	1	
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	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	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	6	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4		

Hyperplasia, Adenomatous										3										3									
Inflammation, Chronic					1					2					1					1					2				
Pigmentation, Hematoidin																													
Thrombosis															1														

Special Senses System

NONE

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Congestion																																		
Cyst																									1									
Hydronephrosis				1																														
Hyperplasia, Tubular															2																			
Inflammation, Chronic																																		
Mineralization								2																										
Necrosis									3																									
Nephropathy	3	3	1	1	3	3	4	1	3	3	2	4	2	4	2	1	1	3	3	4	2	4	3	2	2	4	2	3	4	2	3	4	2	
Pigmentation									4					1					2					2					3	1	2	2		
Renal Tubule, Hyperplasia															2																			
Urinary Bladder	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+
Hemorrhage																																		
Infiltration Cellular, Lymphocyte					1					1											1	1	1											1

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Lab: NIEHS

Table with columns for DAY ON TEST (0-9), ANIMAL ID (0-23), and lesion data for F 344/N Rat Male 07M. Includes a grid of numbers representing animal IDs and a row of '+' signs indicating tissue examination status.

Alimentary System

Detailed lesion data table for the Alimentary System, listing conditions like Liver, Mesentery, and Pancreas with counts and symbols (+, M, A) for each animal.

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F 344/N Rat Male
07M

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	
	7	7	7	7	7	6	7	7	7	4	6	7	5	7	5	7	6	6	4	7	6	5	7	7	7	7	6	7	7
	0	2	2	0	0	2	1	2	2	5	3	0	7	2	4	2	0	0	8	2	2	8	2	2	2	2	5	2	2
	1	8	8	9	1	4	2	7	7	0	9	1	5	6	1	1	4	9	5	5	4	3	8	8	9	9	1	9	9
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	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	1	1	1	1	1	1	1	1	1	1	1
	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2
	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0

Acinus, Degeneration				1	2					1	2	2	1		2					1		1	1	2							
Acinus, Hyperplasia					1																					1		2			
Artery, Polyarteritis																															
Atrophy																			1												
Stomach, Forestomach			+																			+	+								
Inflammation, Chronic																							4								
Ulcer			4																					3							
Stomach, Glandular																															
Tongue				+																											
Cardiovascular System																															
Heart	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy																													1		1
Fibrosis			1							2	1				2				1		1					1		2			
Mineralization																															
Necrosis			3																												
Thrombosis					4						2					3															
Endocrine System																															
Adrenal Cortex	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Congestion																							1								
Hyperplasia				2																					1						
Hyperplasia, Focal												1																			
Hypertrophy																														1	

* ..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: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:20

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 07M	DAY ON TEST	07	07	07	07	07	06	07	07	07	04	06	07	05	07	05	07	06	06	04	07	06	05	07	07	07	07	06	07	07
		02	02	00	00	02	01	02	02	05	03	00	07	02	04	02	00	08	02	02	02	02	05	02	02	09	09	01	09	09
	ANIMAL ID	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	00	00	00	00	00	00	00	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	01	
	09	09	09	09	09	09	09	00	00	00	00	00	00	00	00	00	00	00	00	01	01	01	01	01	01	01	01	01	01	
	02	03	04	05	06	07	08	09	00	01	02	03	04	05	06	07	08	09	00	01	02	03	04	05	06	07	08	09	00	

Inflammation, Acute

Necrosis

Pigmentation, Hemosiderin

1

Thymus M + I + + M M + + + M + + M + + M M M + M + + + M M + +

Atrophy 2 2 3 2 2 2 2 2 3 2 2 3 2

Integumentary System

Mammary Gland

+

Skin

+ + + + + +

Hair Follicle, Atrophy

3

Musculoskeletal System

NONE

Nervous System

Brain

+

Hemorrhage

4

Brain, Cerebellum

+

Respiratory System

Lung + + + + + M +

Alveolus, Infiltration Cellular, Histiocyte 1

Artery, Mineralization 1

Congestion 2

Hemorrhage 1

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

+ ..Tissue examined microscopically

M ..Missing tissue

1-4 ..Lesion qualified as:

X ..Lesion present

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1) Minimal 3) Moderate

I ..Insufficient tissue

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2) Mild 4) Marked

Experiment Number: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:20

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 07M	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			
	ANIMAL ID	7	7	7	7	7	6	7	7	7	4	6	7	5	7	5	7	6	6	4	7	6	5	7	7	7	7	6	7	7
		0	2	2	0	0	2	1	2	2	5	3	0	7	2	4	2	0	0	8	2	2	8	2	2	2	2	5	2	2
		1	8	8	9	1	4	2	7	7	0	9	1	5	6	1	1	4	9	5	5	4	3	8	8	9	9	1	9	9
		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	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	1	1	1	1	1	1	1	1	1	1	1	1
		9	9	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2
		2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0

Hyperplasia, Adenomatous												1	4																	
Inflammation, Chronic				2					1	1								3											1	
Pigmentation, Hematoidin															2															
Thrombosis																														
Special Senses System																														
NONE																														
Urinary System																														
Kidney		+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Congestion																						2								
Cyst																							1							
Hydronephrosis														1																
Hyperplasia, Tubular																														
Inflammation, Chronic																														2
Mineralization																														
Necrosis																														
Nephropathy		2	4	2	2	2	1		3	2	2	2	3	2	2		1	2	2			3	3	4	3	3	3	1	2	3
Pigmentation		4					1					2				2		2	2			3					3			
Renal Tubule, Hyperplasia																														
Urinary Bladder		+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hemorrhage																														2
Infiltration Cellular, Lymphocyte		1												1									1	1						1

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:20

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male
07M

ANIMAL ID

*TOTALS

Alimentary System

Liver	57		
Angiectasis	4	1.5	
Basophilic Focus	10	1.1	
Bile Duct, Fibrosis	1	1.0	
Bile Duct, Hyperplasia	29	2.3	
Centrilobular, Degeneration	11	1.5	
Centrilobular, Fatty Change	11	2.5	
Clear Cell Focus	1	1.0	
Congestion	1	1.0	
Degeneration, Cystic	24	1.7	
Eosinophilic Focus	9	1.2	
Fatty Change	1	3.0	
Hyperplasia	1	2.0	
Infiltration Cellular, Lymphocyte	1	1.0	
Necrosis	3	2.7	
Necrosis, Focal	1	1.0	
Periportal, Fatty Change	2	3.0	
Mesentery	8		
Artery, Inflammation, Chronic	1	4.0	
Fat, Necrosis	5	2.8	
Pancreas	56		
Acinus, Degeneration	30	1.4	

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M ..Missing tissue

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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:21

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male
07M

	ANIMAL ID		
<u>*TOTALS</u>			
Acinus, Hyperplasia		4	1.5
Artery, Polyarteritis		1	4.0
Atrophy		2	1.0
Stomach, Forestomach	4		
Inflammation, Chronic		1	4.0
Ulcer		2	3.5
Stomach, Glandular	1		
Tongue	1		
Cardiovascular System			
Heart		57	
Cardiomyopathy		3	1.0
Fibrosis		12	1.3
Mineralization		1	2.0
Necrosis		1	3.0
Thrombosis		3	3.0
Endocrine System			
Adrenal Cortex		56	
Congestion		1	1.0
Hyperplasia		6	1.3
Hyperplasia, Focal		1	1.0
Hypertrophy		1	1.0
Infiltration Cellular, Lymphocyte		1	1.0
Necrosis		2	1.5

* ..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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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:21

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male

07M

ANIMAL ID

***TOTALS**

Vacuolization Cytoplasmic, Diffuse	5	1.0
Vacuolization Cytoplasmic, Focal	4	1.5
Adrenal Medulla	56	
Hyperplasia	14	1.7
Hyperplasia, Focal	1	1.0
Infiltration Cellular, Lymphocyte	1	1.0
Thrombosis	1	3.0
Islets, Pancreatic	56	
Hyperplasia	2	3.0
Parathyroid Gland	36	
Hyperplasia	6	2.3
Pituitary Gland	55	
Pars Distalis, Angiectasis	5	1.4
Pars Distalis, Cyst	7	1.4
Pars Distalis, Hyperplasia	9	1.8
Thyroid Gland	51	
C Cell, Hyperplasia	14	1.2
Follicle, Cyst	2	1.0

General Body System

Peritoneum 1

Genital System

Penis 1

Preputial Gland 5

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:21

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male

07M

ANIMAL ID

*TOTALS

Inflammation, Chronic	1	3.0
Seminal Vesicle	2	
Atrophy	2	2.0
Testes	56	
Atrophy	1	3.0
Bilateral, Interstit Cell, Hyperplasia	3	1.0
Bilateral, Seminif Tub, Degeneration	1	4.0
Interstit Cell, Hyperplasia	7	1.7
Interstit Cell, Inflammation, Acute	1	2.0
Interstit Cell, Seminif Tub, Degeneration	1	1.0

Hematopoietic System

Lymph Node	1	
Lymph Node, Mandibular	2	
Lymph Node, Mesenteric	56	
Hemorrhage	1	1.0
Hyperplasia, Lymphoid	1	2.0
Spleen	57	
Fibrosis	4	1.8
Hematopoietic Cell Proliferation	3	1.0
Inflammation, Acute	1	2.0
Necrosis	1	2.0
Pigmentation, Hemosiderin	2	1.0
Thymus	30	

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+ ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:21

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

**F 344/N Rat Male
07M**

	ANIMAL ID		
		*TOTALS	
Atrophy		27	2.0
Integumentary System			
Mammary Gland		5	
Skin		10	
Hair Follicle, Atrophy		1	3.0
Musculoskeletal System			
NONE			
Nervous System			
Brain		1	
Hemorrhage		1	4.0
Brain, Cerebellum		1	
Respiratory System			
Lung		57	
Alveolus, Infiltration Cellular, Histiocyte		7	1.0
Artery, Mineralization		46	1.0
Congestion		4	1.8
Hemorrhage		3	1.3
Hyperplasia, Adenomatous		4	2.8
Inflammation, Chronic		10	1.5
Pigmentation, Hematoidin		1	2.0
Thrombosis		1	1.0

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+ ..Tissue examined microscopically

X ..Lesion present

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A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 92004-01
Test Type: CHRONIC
Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
Test Compound: NTP 91/92 diet study
CAS Number: DIET9192

Date Report Requested: 10/20/2014
Time Report Requested: 18:28:21
First Dose M/F: NA / NA
Lab: NIEHS

DAY ON TEST

F 344/N Rat Male
07M

ANIMAL ID

*TOTALS

Special Senses System

NONE

Urinary System

Kidney	57		
Congestion	1	2.0	
Cyst	2	1.0	
Hydronephrosis	2	1.0	
Hyperplasia, Tubular	2	1.5	
Inflammation, Chronic	1	2.0	
Mineralization	1	2.0	
Necrosis	1	3.0	
Nephropathy	55	2.5	
Pigmentation	17	2.2	
Renal Tubule, Hyperplasia	1	2.0	
Urinary Bladder	55		
Hemorrhage	1	2.0	
Infiltration Cellular, Lymphocyte	11	1.0	

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+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:21

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male
91M

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	0	0
	7	7	7	7	7	7	7	5	7	7	7	7	7	7	7	5	3	6	7	6	7	7	7	7	7	7	6	7	7	7		
	0	2	2	2	2	2	2	7	2	0	2	2	2	0	2	4	6	2	2	3	2	2	0	2	2	2	0	2	0	1		
	1	0	7	2	7	7	7	5	7	1	8	7	2	8	8	5	5	9	9	6	6	6	1	6	6	8	8	3	8	9	6	
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	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	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2		
	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0		
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0		

Alimentary System

Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Basophilic Focus								1			1				1		1			1			1			1					
Bile Duct, Hyperplasia		2	1	3	2	2	2	1		2	1	4	1		3		2	1	1	1	1	2	1		1		2	2	3	1	
Centrilobular, Degeneration				2						2																					1
Centrilobular, Fatty Change		3		2									2	2								3									1
Clear Cell Focus																				1											
Cyst										3																					
Degeneration																	2														
Degeneration, Cystic													1									1						3		1	
Eosinophilic Focus	1					1			1		1				1					1		2		2	1						
Hemorrhage																															
Hyperplasia																														2	
Hyperplasia, Focal						3																									
Inflammation, Chronic				1					1				1						1	1	1					2					
Necrosis		2															1														
Oval Cell, Hyperplasia																															
Periportal, Fatty Change								4																							
Mesentery																	+														+
Fat, Necrosis																															2
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Acinus, Degeneration				1	1	1	1		1		1	1		1				2	1	1	1		1			1	1		1	1	

* ..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: 92004-01
Test Type: CHRONIC
Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
Test Compound: NTP 91/92 diet study
CAS Number: DIET9192

Date Report Requested: 10/20/2014
Time Report Requested: 18:28:22
First Dose M/F: NA / NA
Lab: NIEHS

F 344/N Rat Male 91M	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
		7	7	7	7	7	7	7	5	7	7	7	7	7	7	5	3	6	7	6	7	7	7	7	7	7	6	7	7	7	7
		0	2	2	2	2	2	2	7	2	0	2	2	2	0	2	4	6	2	2	3	2	2	2	2	2	0	2	2	0	1
	ANIMAL ID	1	0	7	2	7	7	7	5	7	1	8	7	8	8	8	5	5	9	9	9	6	6	6	6	8	8	3	8	9	6

Acinus, Hyperplasia																																
Polyarteritis																																
Cardiovascular System																																
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy					1	1	1																									
Congestion																																
Fibrosis											1			1																		
Inflammation, Chronic																																
Thrombosis					3											2								3								
Endocrine System																																
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia	1			1						1		1							1							1		1				
Hypertrophy																																
Vacuolization Cytoplasmic, Diffuse															3		2															2
Vacuolization Cytoplasmic, Focal										1													1									
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis					4																											
Hyperplasia	1			2				2		2		1									2				3				1			
Thrombosis					1										3																	
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																																
Parathyroid Gland	+	+	+	+	+	M	+	+	+	+	+	M	M	+	+	M	M	+	+	+	+	M	+	+	M	M	+	+	M	M	+	

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ ..Tissue examined microscopically
X ..Lesion present
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A ..Autolysis precludes evaluation
BLANK ..Not examined microscopically
1-4 ..Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:22

First Dose M/F: NA / NA

Lab: NIEHS

**F 344/N Rat Male
91M**

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		
ANIMAL ID	7	7	7	7	7	7	7	5	7	7	7	7	7	7	5	3	6	7	6	7	7	7	7	7	7	6	7	7	7		
	1	0	7	2	7	7	7	5	7	1	8	7	8	8	5	5	9	9	9	9	6	6	1	6	6	8	8	3	8	9	6
Pituitary Gland	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
Pars Distalis, Angiectasis	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
Pars Distalis, Cyst	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2
Pars Distalis, Hyperplasia	1	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	1	1	
Thyroid Gland	8	8	3	4	5	6	7	8	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0
C Cell, Hyperplasia	1	2	3	4	5	6	7	8	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0

Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+				
Pars Distalis, Angiectasis																																			
Pars Distalis, Cyst																																			
Pars Distalis, Hyperplasia								1				1					1						1										1		
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+			
C Cell, Hyperplasia							1																	1											
General Body System																																			
NONE																																			
Genital System																																			
Preputial Gland																																			
Inflammation, Chronic																																			
Seminal Vesicle																																			
Atrophy																																			
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Bilateral, Interstit Cell, Hyperplasia																																			
Bilateral, Seminif Tub, Degeneration																																			
Interstit Cell, Hyperplasia																																			
Hematopoietic System																																			
Lymph Node																																			
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Hemorrhage																																			

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:22

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 91M	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			
ANIMAL ID	7	7	7	7	7	7	7	7	5	7	7	7	7	7	7	5	3	6	7	6	7	7	7	7	7	7	6	7	7			
	0	2	2	2	2	2	2	7	2	0	2	2	2	0	2	4	6	2	2	3	2	2	0	2	2	2	2	0	2	0		
	1	0	7	2	7	7	7	5	7	1	8	7	8	8	8	5	5	9	9	9	6	6	6	1	6	6	8	8	3	8	9	6
	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	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	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	
	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	0	0	0	0	0	0	0	0	0	0	0	0	
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	
Alveolus, Infiltration Cellular, Histiocyte																																
Artery, Mineralization	1		1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Congestion																																
Hemorrhage																																
Hyperplasia, Adenomatous																																
Inflammation, Chronic																																
Thrombosis																																
Special Senses System																																
Zymbal's Gland																																
Urinary System																																
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																																
Mineralization																																
Nephropathy	2		1	1	1	1	2	3	1	1																						
Pigmentation	2																															
Renal Tubule, Degeneration																																
Vacuolization Cytoplasmic																																
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Lymphocyte																																

* ..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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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

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Experiment Number: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:22

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 91M	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		
	ANIMAL ID	4	6	5	7	7	7	7	7	7	7	7	7	5	7	6	7	7	5	7	7	7	3	5	7	7	7	6	7	7
		8	4	6	2	0	0	2	2	0	2	2	5	2	3	2	0	2	2	2	2	3	6	1	2	0	2	1	2	2
		2	6	2	7	1	1	6	6	1	7	7	7	7	8	8	1	3	8	8	7	7	1	2	7	1	9	5	9	9
		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	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	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
		1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4
		2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0

Alimentary System

Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Basophilic Focus			2	1			3	1			1		1	1				1			1		X						1
Bile Duct, Hyperplasia		3	1		2	2	1	1	2	2	2	1	1	2	1		2	1	1		1	1	1	1		2		1	
Centrilobular, Degeneration		2					4						1													2			
Centrilobular, Fatty Change							2									3													
Clear Cell Focus			1					1												1							1	1	
Cyst																													
Degeneration																													
Degeneration, Cystic				1	1										1							1							
Eosinophilic Focus								1	1					1	1				1		1	1				1			
Hemorrhage							2																						
Hyperplasia																													
Hyperplasia, Focal																													
Inflammation, Chronic								2							1													2	
Necrosis																1							3						
Oval Cell, Hyperplasia										1																			
Periportal, Fatty Change															1														
Mesentery																													
Fat, Necrosis																													
Pancreas	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Degeneration						1	1				1	1					2			1	2			1			1		2

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

+ ..Tissue examined microscopically

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Experiment Number: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:23

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 91M	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		
	4	6	5	7	7	7	7	7	7	7	7	5	7	6	7	7	5	7	7	7	3	5	7	7	7	7	6	7	7		
	8	4	6	2	0	0	2	2	0	2	2	5	2	3	2	0	0	2	2	2	3	6	1	2	0	2	1	2	2		
	2	6	2	7	1	1	6	6	1	7	7	7	7	8	8	1	3	8	8	7	7	1	2	7	1	9	5	9	9		
	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	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	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	4		
	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0		
Acinus, Hyperplasia				1																	3		3								
Polyarteritis																															
Cardiovascular System																															
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy			1				1									2															
Congestion																															
Fibrosis							2													2		2									
Inflammation, Chronic	4																														
Thrombosis																															
Endocrine System																															
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																															
Hypertrophy																															
Vacuolization Cytoplasmic, Diffuse							2								2																
Vacuolization Cytoplasmic, Focal			2	1	1																										
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis																															
Hyperplasia							1			2																					
Thrombosis																															
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																															
Parathyroid Gland	M	+	M	+	+	+	M			+	+	+	M	+	+	+	+	+	M	+	+	+	+	+	+	M	M	+	M	+	

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ ..Tissue examined microscopically M ..Missing tissue 1-4 ..Lesion qualified as:
X ..Lesion present A ..Autolysis precludes evaluation 1) Minimal 3) Moderate
I ..Insufficient tissue BLANK ..Not examined microscopically 2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:23

First Dose M/F: NA / NA

Lab: NIEHS

		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	
F 344/N Rat Male 91M	ANIMAL ID	4	6	5	7	7	7	7	7	7	7	5	7	6	7	7	5	7	7	7	3	5	7	7	7	7	6	7	7	7		
		8	4	6	2	0	0	2	2	0	2	2	5	2	3	2	0	0	2	2	2	3	6	1	2	0	2	1	2	2	2	
		2	6	2	7	1	1	6	6	1	7	7	7	7	8	8	1	3	8	8	7	7	1	2	7	1	9	5	9	9	9	
Pituitary Gland		A	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Pars Distalis, Angiectasis																																1
Pars Distalis, Cyst			2																1				2									
Pars Distalis, Hyperplasia			2	1				2	2					1																		
Thyroid Gland		+	+	+	+	+	+	M	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
C Cell, Hyperplasia								1		1			1									1			1							
General Body System																																
NONE																																
Genital System																																
Preputial Gland							+										M															
Inflammation, Chronic																																
Seminal Vesicle														+																		
Atrophy														2																		
Testes		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Bilateral, Interstit Cell, Hyperplasia													2					2			1											
Bilateral, Seminif Tub, Degeneration																																
Interstit Cell, Hyperplasia					2		2		2							1																
Hematopoietic System																																
Lymph Node																																
Lymph Node, Mesenteric		A	+	+	+	+	+	M	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Hemorrhage																																

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

+ ..Tissue examined microscopically

X ..Lesion present

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1-4 ..Lesion qualified as:

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Experiment Number: 92004-01
 Test Type: CHRONIC
 Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Test Compound: NTP 91/92 diet study
 CAS Number: DIET9192

Date Report Requested: 10/20/2014
 Time Report Requested: 18:28:23
 First Dose M/F: NA / NA
 Lab: NIEHS

**F 344/N Rat Male
 91M**

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
	4	6	5	7	7	7	7	7	7	7	7	5	7	6	7	7	5	7	7	7	3	5	7	7	7	6	7	7
	8	4	6	2	0	0	2	2	0	2	2	5	2	3	2	0	2	2	2	3	6	1	2	0	2	1	2	2
	2	6	2	7	1	1	6	6	1	7	7	7	7	8	8	1	3	8	8	7	7	1	2	7	1	9	5	9
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	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	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4
	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9

Spleen	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Fibrosis		3				2			4																			2		
Hematopoietic Cell Proliferation																						1								
Pigmentation, Hemosiderin																														
Thymus		+	+	+	+	M	+	M	+	+	+	+	M	M	M	+	+	M	+	+	+	M	+	+	+	+	+	M	+	
Atrophy		2	2	2	2				2		2	2				2			1	2	2		2	2	2	1	2	2		2
Integumentary System																														
Mammary Gland																														
Skin									+						+	+			+						+	+				
Hyperkeratosis															1															
Musculoskeletal System																														
NONE																														
Nervous System																														
Brain																														
Hemorrhage																														
Mineralization																														
Brain, Cerebrum																													+	
Hemorrhage																													4	
Respiratory System																														
Lung		+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Alveolus, Infiltration Cellular, Histiocyte																													1	

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
 + ..Tissue examined microscopically M ..Missing tissue 1-4 ..Lesion qualified as:
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Experiment Number: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:23

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 91M	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
ANIMAL ID	4	6	5	7	7	7	7	7	7	7	7	5	7	6	7	7	5	7	7	7	3	5	7	7	7	7	6	7	7
	8	4	6	2	0	0	2	2	0	2	2	5	2	3	2	0	0	2	2	2	3	6	1	2	0	2	1	2	2
	2	6	2	7	1	1	6	6	1	7	7	7	7	8	8	1	3	8	8	7	7	1	2	7	1	9	5	9	9
Alveolus, Infiltration Cellular, Histiocyte	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
Artery, Mineralization	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
Congestion	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Hemorrhage	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	4	0
Hyperplasia, Adenomatous	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0
Inflammation, Chronic																													
Thrombosis																													
Special Senses System																													
Zymbal's Gland																													
Urinary System																													
Kidney																													
Cyst																													
Mineralization																													
Nephropathy																													
Pigmentation																													
Renal Tubule, Degeneration																													
Vacuolization Cytoplasmic																													
Urinary Bladder																													
Infiltration Cellular, Lymphocyte																													

* ..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: 92004-01
 Test Type: CHRONIC
 Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Test Compound: NTP 91/92 diet study
 CAS Number: DIET9192

Date Report Requested: 10/20/2014
 Time Report Requested: 18:28:23
 First Dose M/F: NA / NA
 Lab: NIEHS

DAY ON TEST

F 344/N Rat Male
 91M

ANIMAL ID

*TOTALS

Alimentary System

Liver	60		
Basophilic Focus	18	1.2	
Bile Duct, Hyperplasia	46	1.6	
Centrilobular, Degeneration	7	2.0	
Centrilobular, Fatty Change	8	2.3	
Clear Cell Focus	6	1.0	
Cyst	1	3.0	
Degeneration	1	2.0	
Degeneration, Cystic	8	1.3	
Eosinophilic Focus	17	1.1	
Hemorrhage	1	2.0	
Hyperplasia	1	2.0	
Hyperplasia, Focal	1	3.0	
Inflammation, Chronic	10	1.3	
Necrosis	4	1.8	
Oval Cell, Hyperplasia	1	1.0	
Periportal, Fatty Change	2	2.5	
Mesentery	4		
Fat, Necrosis	3	2.3	
Pancreas	59		
Acinus, Degeneration	28	1.1	
Acinus, Hyperplasia	4	2.0	

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:23

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male

91M

ANIMAL ID

*TOTALS

Polyarteritis	1	2.0
Cardiovascular System		
Heart	60	
Cardiomyopathy	6	1.2
Congestion	1	2.0
Fibrosis	5	1.6
Inflammation, Chronic	1	4.0
Thrombosis	4	2.5
Endocrine System		
Adrenal Cortex	60	
Hyperplasia	9	1.0
Hypertrophy	1	1.0
Vacuolization Cytoplasmic, Diffuse	6	2.0
Vacuolization Cytoplasmic, Focal	8	1.1
Adrenal Medulla	60	
Angiectasis	1	4.0
Hyperplasia	11	1.7
Thrombosis	2	2.0
Islets, Pancreatic	59	
Hyperplasia	3	1.7
Parathyroid Gland	41	
Pituitary Gland	58	
Pars Distalis, Angiectasis	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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:24

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male

91M

ANIMAL ID

*TOTALS

Pars Distalis, Cyst	4	1.5
Pars Distalis, Hyperplasia	10	1.3
Thyroid Gland	58	
C Cell, Hyperplasia	7	1.0
General Body System		
NONE		
Genital System		
Preputial Gland	3	
Inflammation, Chronic	1	1.0
Seminal Vesicle	3	
Atrophy	3	2.0
Testes	60	
Bilateral, Interstit Cell, Hyperplasia	5	1.4
Bilateral, Seminif Tub, Degeneration	1	2.0
Interstit Cell, Hyperplasia	6	1.7
Hematopoietic System		
Lymph Node	1	
Lymph Node, Mesenteric	57	
Hemorrhage	1	2.0
Spleen	59	
Fibrosis	9	2.0
Hematopoietic Cell Proliferation	2	1.5

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+ ..Tissue examined microscopically

X ..Lesion present

I ..Insufficient tissue

M ..Missing tissue

A ..Autolysis precludes evaluation

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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:24

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male

91M

ANIMAL ID

*TOTALS

Pigmentation, Hemosiderin	1	2.0
Thymus	46	
Atrophy	40	2.0
Integumentary System		
Mammary Gland	1	
Skin	9	
Hyperkeratosis	1	1.0
Musculoskeletal System		
NONE		
Nervous System		
Brain	1	
Hemorrhage	1	3.0
Mineralization	1	1.0
Brain, Cerebrum	1	
Hemorrhage	1	4.0
Respiratory System		
Lung	59	
Alveolus, Infiltration Cellular, Histiocyte	3	1.0
Artery, Mineralization	50	1.0
Congestion	1	2.0
Hemorrhage	3	1.7
Hyperplasia, Adenomatous	8	2.6

* ..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: 92004-01
 Test Type: CHRONIC
 Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Test Compound: NTP 91/92 diet study
 CAS Number: DIET9192

Date Report Requested: 10/20/2014
 Time Report Requested: 18:28:24
 First Dose M/F: NA / NA
 Lab: NIEHS

DAY ON TEST

F 344/N Rat Male
 91M

ANIMAL ID	*TOTALS	
Inflammation, Chronic	9	1.2
Thrombosis	1	2.0
Special Senses System		
Zymbal's Gland	1	
Urinary System		
Kidney	60	
Cyst	2	2.5
Mineralization	1	2.0
Nephropathy	46	1.6
Pigmentation	8	1.5
Renal Tubule, Degeneration	2	2.0
Vacuolization Cytoplasmic	1	2.0
Urinary Bladder	59	
Infiltration Cellular, Lymphocyte	13	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: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:24

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 92M	DAY ON TEST																												
	0 5 4 0	0 7 2 8	0 7 2 8	0 7 2 8	0 6 2 5	0 5 9 5	0 3 7 9	0 4 6 4	0 5 9 7	0 4 2 8	0 7 2 8	0 7 2 5	0 6 2 8	0 7 2 0	0 7 2 7	0 7 2 6	0 7 2 7	0 7 2 7	0 7 2 7	0 7 2 7	0 7 2 7	0 7 2 7	0 7 2 7	0 7 2 7	0 7 2 7	0 7 2 7	0 7 2 7	0 7 2 7	
ANIMAL ID	0 0 3 0 1	0 0 3 0 2	0 0 3 0 3	0 0 3 0 4	0 0 3 0 5	0 0 3 0 6	0 0 3 0 7	0 0 3 0 8	0 0 3 0 9	0 0 3 0 0	0 0 3 0 1	0 0 3 0 2	0 0 3 0 3	0 0 3 0 4	0 0 3 0 5	0 0 3 0 6	0 0 3 0 7	0 0 3 0 8	0 0 3 0 9	0 0 3 0 0	0 0 3 0 1	0 0 3 0 2	0 0 3 0 3	0 0 3 0 4	0 0 3 0 5	0 0 3 0 6	0 0 3 0 7	0 0 3 0 8	0 0 3 0 9

Alimentary System

Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Angiectasis																														
Basophilic Focus				1	1						1	1		1							1							2		
Bile Duct, Hyperplasia		2	1	1	1	2					2	1	4	1	1		2	3	1			3	1	1	1	2	1		1	3
Centrilobular, Degeneration					1								2														2			
Centrilobular, Fatty Change							2	2		3						2						4	2							
Clear Cell Focus																		1								1				
Congestion																														
Degeneration																														
Degeneration, Cystic																														
Eosinophilic Focus			1	1	1								1	1								1				1				1
Hepatodiaphragmatic Nodule													2																	
Hyperplasia																														
Inflammation, Chronic																													1	
Necrosis								2																						
Periportal, Fatty Change																														
Mesentery																														
Fat, Necrosis																														
Thrombosis																														
Pancreas	+	+	+	+	+	+	A	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Acinus, Degeneration	1		1		1				1		4			1						1	1		1					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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:24

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 92M	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		
	5	7	7	7	6	5	3	4	5	4	7	7	6	7	5	7	7	7	7	7	7	5	7	5	7	7	5	7	6	6	
	4	2	2	2	2	9	7	6	5	9	2	2	2	2	9	2	2	2	2	2	0	8	2	8	2	2	2	2	5	4	
	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	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	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1
Acinus, Hyperplasia																															
Hyperplasia												3																			
Inflammation, Chronic																															
Polyarteritis												1					1														
Salivary Glands																															
Cardiovascular System																															
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy									2																1						
Fibrosis															2		1														
Thrombosis																							3								
Endocrine System																															
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																															2
Hyperplasia				2										2			2							2							
Hyperplasia, Focal																															
Hypertrophy																															
Metaplasia, Osseous																															
Vacuolization Cytoplasmic, Diffuse									2		1											2	1								
Vacuolization Cytoplasmic, Focal																															
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia				1													1	2		2							1			1	
Islets, Pancreatic	+	+	+	+	+	+	A	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:25

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 92M

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

Hyperplasia	1																															
Parathyroid Gland Hyperplasia	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	M	M	+	+	+	+	+	+	+	+	+	M	+	+	+		
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Pars Distalis, Angiectasis																																
Pars Distalis, Cyst	1																															
Pars Distalis, Hyperplasia	4				1				1				1				1				1				1				2			
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
C Cell, Hyperplasia	2																															
Fibrosis																																
Inflammation, Chronic																																
General Body System																																
Peritoneum	+																															
Genital System																																
Preputial Gland	+																															
Seminal Vesicle																	+												+			
Atrophy																	2												2			
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Bilateral, Hyperplasia	1																															
Bilateral, Interstit Cell, Hyperplasia	1																															
Bilateral, Seminif Tub, Degeneration	4																															
Interstit Cell, Hyperplasia				1				1	2				2	2												2						

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ ..Tissue examined microscopically M ..Missing tissue 1-4 ..Lesion qualified as:
X ..Lesion present A ..Autolysis precludes evaluation 1) Minimal 3) Moderate
I ..Insufficient tissue BLANK ..Not examined microscopically 2) Mild 4) Marked

Experiment Number: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:25

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 92M	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	0	0	0	
		5	7	7	7	6	5	3	4	5	4	7	7	6	7	5	7	7	7	7	7	7	7	7	7	5	7	5	7	7	7	5	7	6	6
		4	2	2	2	2	9	7	6	5	9	2	2	2	2	9	2	2	2	2	2	0	8	2	8	2	2	2	2	2	2	2	5	4	4
		0	8	8	8	5	5	9	9	4	7	8	8	5	8	0	7	6	7	7	7	1	3	8	9	8	7	7	7	5	7	0	6	6	
	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	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	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	
		1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	1	1	

Nervous System

Brain, Cerebellum
Hemorrhage +
3

Respiratory System

Lung +
 Alveolar Epith, Hyperplasia 2
 Alveolus, Infiltration Cellular, Histiocyte 1 1 2
 Artery, Mineralization 1
 Congestion
 Fibrosis 1
 Hyperplasia 2
 Hyperplasia, Adenomatous 3 2 2
 Inflammation, Chronic 1 1 1

Special Senses System

Zymbal's Gland

Urinary System

Kidney +
 Cyst
 Hydronephrosis
 Infiltration Cellular, Lymphocyte 1
 Nephropathy 2 3 1 1 1 1 1 1 1 2 2 2 1 1 1 1 1 1 3 2 1 2 1 1 1 2 1 3 1 1

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

+ ..Tissue examined microscopically

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M ..Missing tissue

A ..Autolysis precludes evaluation

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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:25

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 92M	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	0	0	0	0	
		5	7	7	7	6	5	3	4	5	4	7	7	6	7	5	7	7	7	7	7	7	5	7	5	7	7	7	5	7	7	6	6	6		
		4	2	2	2	2	9	7	6	5	9	2	2	2	2	9	2	2	2	2	2	0	8	2	8	2	2	2	2	2	2	5	7	6	6	
		0	8	8	8	5	5	9	9	4	7	8	8	5	8	0	7	6	7	7	7	7	1	3	8	9	8	7	7	5	7	0	6	6		
	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	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	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
		0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	
		1	2	3	4	5	6	7	8	9	0	1	1	2	3	4	5	6	7	8	9	0	1	2	2	3	4	5	6	7	8	9	0	1		
	Pigmentation	2						1						1						3			1			1			3							
	Urinary Bladder	+	+	+	+	M	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
	Hyperplasia																																			
	Infiltration Cellular, Lymphocyte			1					1			1	1						1				1							1	1	1				
	Inflammation, Acute																																			

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:26

First Dose M/F: NA / NA

Lab: NIEHS

		DAY ON TEST																																		
F 344/N Rat Male 92M	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
		7	7	7	7	7	7	7	7	7	5	7	5	7	5	6	6	7	7	5	7	7	7	7	7	7	7	7	7	7	7	6	7	5		
		2	2	2	0	2	2	2	0	2	0	2	8	2	0	1	4	2	2	8	0	0	2	2	2	2	0	3	2	8						
		7	7	7	1	6	6	6	1	6	5	0	9	9	5	1	2	6	5	9	1	1	7	7	7	9	1	6	9	0						

Alimentary System

Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Angiectasis																																					1		
Basophilic Focus	1					1	1	1		1										2				1	1	2			1										
Bile Duct, Hyperplasia				2	1	1	1	2				1	2									4	3		2			4	2	1	2								
Centrilobular, Degeneration					2																2		2																
Centrilobular, Fatty Change																						2		2															
Clear Cell Focus																																					1		
Congestion											2																												
Degeneration																																							
Degeneration, Cystic							1	1	1			1							3				1					1	1	1									
Eosinophilic Focus		1	2		2		2		2					1				1									1	1											
Hepatodiaphragmatic Nodule																																							
Hyperplasia																2																							
Inflammation, Chronic												1																											
Necrosis												1								4	2																		
Periportal, Fatty Change				1								3																										1	
Mesentery							+		+	+										+																			
Fat, Necrosis							3		4	3																													
Thrombosis																																							
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Degeneration	1						1		1																														1

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:26

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 92M	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
	7	7	7	7	7	7	7	7	7	5	7	5	7	5	6	6	7	7	5	7	7	7	7	7	7	6	7	5	
	2	2	2	0	2	2	2	0	2	0	2	8	2	0	1	4	2	2	2	8	0	0	2	2	2	0	3	2	8
	7	7	7	1	6	6	6	1	6	5	0	9	9	5	1	2	6	5	9	1	1	7	7	7	9	1	6	9	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	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	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	6	
	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	

Acinus, Hyperplasia	2																											
Hyperplasia																												
Inflammation, Chronic	1																											
Polyarteritis																												
Salivary Glands	+																											
Cardiovascular System																												
Heart	+ +																											
Cardiomyopathy	1																											
Fibrosis	1																											
Thrombosis	2																											
Endocrine System																												
Adrenal Cortex	+ +																											
Atrophy																												
Hyperplasia	1																											
Hyperplasia, Focal	1																											
Hypertrophy	2																											
Metaplasia, Osseous	3																											
Vacuolization Cytoplasmic, Diffuse	1																											
Vacuolization Cytoplasmic, Focal	1																											
Adrenal Medulla	+ +																											
Hyperplasia	1																											
Islets, Pancreatic	+ +																											

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:27

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male 92M	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	0	0	0	0	0	0	0	0
		7	7	7	7	7	7	7	7	7	5	7	5	7	5	6	6	7	7	5	7	7	7	7	7	7	6	7	5										
		2	2	2	0	2	2	2	0	2	0	2	8	2	0	1	4	2	2	8	0	0	2	2	2	0	3	2	8										
		7	7	7	1	6	6	6	1	6	5	0	9	9	5	1	2	6	5	9	1	1	7	7	7	9	1	6	9	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	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	0	0	0	0	0	0	0	
	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	
	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0										

Nervous System

Brain, Cerebellum
Hemorrhage

Respiratory System

Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Alveolar Epith, Hyperplasia																																							
Alveolus, Infiltration Cellular, Histiocyte																																							
Artery, Mineralization	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Congestion																																							
Fibrosis																																							
Hyperplasia																																							
Hyperplasia, Adenomatous																																							
Inflammation, Chronic	1																																						

Special Senses System

Zymbal's Gland

Urinary System

Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cyst																																							
Hydronephrosis																																							
Infiltration Cellular, Lymphocyte																																							
Nephropathy	1	1	2	1	2	2	2	1	2	3	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: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:27

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Male
92M

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

Pigmentation

1 1 1

Urinary Bladder

+ + + + + + + + + + + + M + + + + + M + + + + +

Hyperplasia

2

Infiltration Cellular, Lymphocyte

1 1 1 1 1 1

Inflammation, Acute

2

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

+ ..Tissue examined microscopically

M ..Missing tissue

1-4 ..Lesion qualified as:

X ..Lesion present

A ..Autolysis precludes evaluation

1) Minimal 3) Moderate

I ..Insufficient tissue

BLANK ..Not examined microscopically

2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:27

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male
92M

ANIMAL ID

*TOTALS

Alimentary System

| | | | |
|-----------------------------|----|-----|--|
| Liver | 56 | | |
| Angiectasis | 1 | 1.0 | |
| Basophilic Focus | 17 | 1.2 | |
| Bile Duct, Hyperplasia | 35 | 1.8 | |
| Centrilobular, Degeneration | 6 | 1.8 | |
| Centrilobular, Fatty Change | 8 | 2.4 | |
| Clear Cell Focus | 3 | 1.0 | |
| Congestion | 1 | 2.0 | |
| Degeneration | 1 | 1.0 | |
| Degeneration, Cystic | 14 | 1.1 | |
| Eosinophilic Focus | 20 | 1.3 | |
| Hepatodiaphragmatic Nodule | 1 | 2.0 | |
| Hyperplasia | 1 | 2.0 | |
| Inflammation, Chronic | 2 | 1.0 | |
| Necrosis | 6 | 2.2 | |
| Periportal, Fatty Change | 3 | 1.7 | |
| Mesentery | 5 | | |
| Fat, Necrosis | 4 | 3.3 | |
| Thrombosis | 1 | 4.0 | |
| Pancreas | 52 | | |
| Acinus, Degeneration | 22 | 1.2 | |
| Acinus, Hyperplasia | 1 | 2.0 | |

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:27

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male

92M

| | ANIMAL ID | | |
|------------------------------------|-----------|----------------|-----|
| | | *TOTALS | |
| Hyperplasia | | 1 | 3.0 |
| Inflammation, Chronic | | 1 | 1.0 |
| Polyarteritis | | 2 | 1.0 |
| Salivary Glands | 1 | | |
| Cardiovascular System | | | |
| Heart | | 56 | |
| Cardiomyopathy | | 4 | 1.3 |
| Fibrosis | | 5 | 1.4 |
| Thrombosis | | 1 | 3.0 |
| Endocrine System | | | |
| Adrenal Cortex | | 56 | |
| Atrophy | | 1 | 2.0 |
| Hyperplasia | | 8 | 1.5 |
| Hyperplasia, Focal | | 1 | 2.0 |
| Hypertrophy | | 1 | 2.0 |
| Metaplasia, Osseous | | 1 | 3.0 |
| Vacuolization Cytoplasmic, Diffuse | | 5 | 1.4 |
| Vacuolization Cytoplasmic, Focal | | 1 | 1.0 |
| Adrenal Medulla | | 56 | |
| Hyperplasia | | 7 | 1.3 |
| Islets, Pancreatic | | 52 | |
| Hyperplasia | | 3 | 1.0 |
| Parathyroid Gland | | 40 | |

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:27

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male

92M

ANIMAL ID

***TOTALS**

| | | |
|----------------------------|----|-----|
| Hyperplasia | 1 | 1.0 |
| Pituitary Gland | 56 | |
| Pars Distalis, Angiectasis | 1 | 2.0 |
| Pars Distalis, Cyst | 4 | 1.3 |
| Pars Distalis, Hyperplasia | 10 | 1.5 |
| Thyroid Gland | 56 | |
| C Cell, Hyperplasia | 7 | 1.3 |
| Fibrosis | 1 | 1.0 |
| Inflammation, Chronic | 1 | 2.0 |

General Body System

Peritoneum 2

Genital System

| | | |
|--|----|-----|
| Preputial Gland | 3 | |
| Seminal Vesicle | 5 | |
| Atrophy | 5 | 2.0 |
| Testes | 56 | |
| Bilateral, Hyperplasia | 1 | 1.0 |
| Bilateral, Interstit Cell, Hyperplasia | 2 | 1.0 |
| Bilateral, Seminif Tub, Degeneration | 2 | 4.0 |
| Interstit Cell, Hyperplasia | 8 | 1.8 |

Hematopoietic System

Lymph Node 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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:27

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male
92M

| | ANIMAL ID | *TOTALS | |
|----------------------------------|-----------|---------|-----|
| Lymph Node, Mandibular | | 1 | |
| Lymph Node, Mesenteric | | 54 | |
| Hemorrhage | | 1 | 1.0 |
| Hyperplasia, Lymphoid | | 1 | 2.0 |
| Spleen | | 56 | |
| Fibrosis | | 6 | 2.3 |
| Hematopoietic Cell Proliferation | | 4 | 1.3 |
| Hyperplasia, Lymphoid | | 1 | 3.0 |
| Inflammation, Acute | | 1 | 1.0 |
| Pigmentation, Hemosiderin | | 1 | 1.0 |
| Thymus | | 38 | |
| Atrophy | | 32 | 2.0 |
| Hemorrhage | | 1 | 2.0 |
| Integumentary System | | | |
| Mammary Gland | | 3 | |
| Skin | | 3 | |
| Musculoskeletal System | | | |
| Bone | | 1 | |
| Nervous System | | | |
| Brain, Cerebellum | | 1 | |
| Hemorrhage | | 1 | 3.0 |
| Respiratory 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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:27

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Male

92M

ANIMAL ID

***TOTALS**

| | | | |
|---|----|-----|--|
| Lung | 56 | | |
| Alveolar Epith, Hyperplasia | 1 | 2.0 | |
| Alveolus, Infiltration Cellular, Histiocyte | 3 | 1.3 | |
| Artery, Mineralization | 52 | 1.0 | |
| Congestion | 1 | 2.0 | |
| Fibrosis | 1 | 1.0 | |
| Hyperplasia | 1 | 2.0 | |
| Hyperplasia, Adenomatous | 5 | 2.6 | |
| Inflammation, Chronic | 5 | 1.4 | |
| Special Senses System | | | |
| Zymbal's Gland | 1 | | |
| Urinary System | | | |
| Kidney | 56 | | |
| Cyst | 1 | 2.0 | |
| Hydronephrosis | 1 | 1.0 | |
| Infiltration Cellular, Lymphocyte | 1 | 1.0 | |
| Nephropathy | 51 | 1.6 | |
| Pigmentation | 10 | 1.5 | |
| Urinary Bladder | 52 | | |
| Hyperplasia | 1 | 2.0 | |
| Infiltration Cellular, Lymphocyte | 18 | 1.0 | |
| Inflammation, Acute | 1 | 2.0 | |

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:27

First Dose M/F: NA / NA

Lab: NIEHS

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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:28

First Dose M/F: NA / NA

Lab: NIEHS

| F 344/N Rat Female
07F | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 |
| 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 |
| Mesentery | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fat, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pancreas | + | + | A | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Acinus, Degeneration | | | | 2 | | | 1 | | | 2 | 1 | 1 | | 1 | | | | | 1 | | 1 | 1 | 1 | | | 2 | 1 | 1 |
| Inflammation, Acute | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| Cardiovascular System | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heart | + | + | + | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Cardiomyopathy | | | | | | | | | | | | | 3 | 1 | | | | | | | | | | | | | | |
| Fibrosis | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| Thrombosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Valve, Inflammation, Chronic | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | |
| Endocrine System | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Cortex | + | + | + | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Congestion | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | |
| Hyperplasia | 1 | | | | | | | | | | | | | | | | | | | | 1 | | | | | 1 | | 1 |
| Hypertrophy | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Vacuolization Cytoplasmic, Diffuse | | | | | | 3 | | | | | | | | | | | | | 1 | | | | | | | | | |
| Vacuolization Cytoplasmic, Focal | | | | | | | | | | | | | 1 | 1 | | | | | | | | | | | | 1 | | |
| Adrenal Medulla | + | + | + | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hyperplasia | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Islets, Pancreatic | + | + | A | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* ..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: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:28

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

| F 344/N Rat Female
07F | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|--|
| | 07 | 07 | 03 | 07 | 07 | 06 | 07 | 05 | 07 | 07 | 07 | 07 | 04 | 07 | 05 | 07 | 05 | 06 | 07 | 07 | 07 | 07 | 07 | 05 | 07 | 07 | 07 | 06 | 05 | | |
| ANIMAL ID | 08 | 08 | 03 | 01 | 08 | 06 | 08 | 09 | 06 | 08 | 06 | 06 | 05 | 06 | 04 | 08 | 09 | 07 | 08 | 08 | 09 | 09 | 01 | 01 | 03 | 02 | 00 | 02 | 00 | | |
| Parathyroid Gland | M | M | M | + | + | | + | | + | + | M | + | M | + | + | + | + | + | + | + | M | + | M | + | + | M | + | + | M | M | |
| Pituitary Gland | + | + | + | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | |
| Pars Distalis, Angiectasis | | | | | 3 | | | | | | | | | | 2 | | | | | 1 | | | | | 1 | | | | | | |
| Pars Distalis, Cyst | | | | 1 | | 1 | | | | | | | | 1 | | | | | | | | | 1 | | 1 | | | | | | |
| Pars Distalis, Hyperplasia | | | | | 2 | 1 | | | | | | | | | | | | | | 2 | | | | | 2 | | | | | | |
| Pars Distalis, Pigmentation, Hemosiderin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thyroid Gland | + | + | M | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| C Cell, Hyperplasia | | | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | 1 | |
| Ultimobranchial Cyst | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | |
| General Body System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Genital System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Clitoral Gland | | | | | | + | | | | | | + | | | | | | | | | | | | | | | | | + | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ovary | + | + | + | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Congestion | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | |
| Cyst | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | 2 | | | |
| Uterus | + | + | + | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | |
| Bilateral, Dilatation | 2 | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | |
| Dilatation | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| Serosa, Cyst | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* ..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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Time Report Requested: 18:28:28

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

**F 344/N Rat Female
07F**

| 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 | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | 7 | 3 | 7 | 7 | 6 | 7 | 5 | 7 | 7 | 7 | 7 | 4 | 7 | 5 | 7 | 5 | 6 | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 6 | 5 | | |
| | 2 | 2 | 7 | 0 | 2 | 5 | 2 | 8 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 7 | 1 | 2 | 2 | 2 | 2 | 2 | 0 | 3 | 2 | 0 | 2 | 6 | 9 | |
| | 8 | 8 | 3 | 1 | 8 | 6 | 8 | 9 | 6 | 8 | 6 | 6 | 5 | 6 | 4 | 8 | 9 | 7 | 8 | 8 | 9 | 9 | 1 | 1 | 6 | 1 | 9 | 5 | 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 | |
| | 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 | 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 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 |

Hematopoietic System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--|---|---|---|---|---|--|---|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Lymph Node, Mesenteric | | + | + | + | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Amyloid Deposition | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia, Lymphoid | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Acute | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spleen | | + | + | + | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| Fibrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hematopoietic Cell Proliferation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pigmentation, Hemosiderin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thymus | | + | M | M | + | + | | M | | M | + | + | M | + | + | + | + | M | + | + | M | + | + | M | M | + | M | M | + | + | + | + | |
| Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Integumentary System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Mammary Gland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Acute | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Subcut Tiss, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Musculoskeletal System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Bone | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Nervous 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

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Experiment Number: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:29

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| F 344/N Rat Female
07F | DAY ON TEST | 078 | 078 | 073 | 077 | 077 | 076 | 077 | 075 | 077 | 077 | 077 | 074 | 077 | 075 | 076 | 077 | 077 | 077 | 077 | 077 | 075 | 077 | 077 | 077 | 076 | 075 | 076 | 075 |
| | ANIMAL ID | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |
| | | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 | 000 |
| | | 123 | 456 | 789 | 012 | 345 | 678 | 901 | 234 | 567 | 890 | 123 | 456 | 789 | 012 | 345 | 678 | 901 | 234 | 567 | 890 | 123 | 456 | 789 | 012 | 345 | 678 | 901 | 234 |

Nervous System

NONE

Respiratory System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Alveolus, Infiltration Cellular, Histiocyte | | | | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | | 1 | 1 |
| Artery, Mineralization | | 1 | 1 | 1 | 1 | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | | 1 | 1 | | 1 | | | 1 |
| Congestion | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | |
| Hyperplasia, Adenomatous | 4 | | | | | | | | | | | | | | | | | | | 2 | | | | | | | | |
| Infiltration Cellular, Histiocyte | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic | | | | | | | | | | | | 2 | | | | | | | | | | | | | | 1 | | |

Special Senses System

Zymbal's Gland

Urinary System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | |
| Hemorrhage | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | |
| Mineralization | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nephropathy | 1 | | | | | | | | | | 1 | 1 | | 2 | | 1 | 1 | | 1 | 2 | | | | | | 2 | | 1 |
| Pigmentation | | | | | | | | | | | 1 | 1 | 1 | 1 | | | | | 1 | 1 | | | | | 1 | | | |
| Renal Tubule, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* ..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

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Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:29

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Female
07F

| DAY ON TEST | 07 | 07 | 03 | 07 | 07 | 06 | 07 | 05 | 07 | 07 | 07 | 07 | 04 | 07 | 05 | 07 | 05 | 06 | 07 | 07 | 07 | 07 | 07 | 05 | 07 | 07 | 07 | 06 | 05 | | |
|-----------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
| ANIMAL ID | 08 | 08 | 03 | 01 | 08 | 06 | 08 | 09 | 06 | 08 | 06 | 06 | 05 | 06 | 04 | 08 | 09 | 07 | 08 | 08 | 09 | 09 | 09 | 01 | 01 | 06 | 01 | 09 | 05 | 00 | |
| Urinary Bladder | + | + | A | + | + | | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Fibrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infiltration Cellular, Lymphocyte | 1 | | | 1 | | | 1 | | | | | | | 1 | | | | | | 1 | | | | | | | | | 1 | | |

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

+ ..Tissue examined microscopically

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Time Report Requested: 18:28:29

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Female
07F

| 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 | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | 5 | 7 | 6 | 7 | 5 | 7 | 7 | 6 | 5 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 5 | 7 | 5 | 5 | 3 | 7 | 5 | 7 | 6 | 7 | 7 | |
| | 1 | 4 | 2 | 3 | 2 | 4 | 2 | 2 | 6 | 3 | 0 | 2 | 9 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 6 | 8 | 5 | 2 | 6 | 2 | 7 | 2 | 2 |
| | 6 | 0 | 9 | 9 | 9 | 1 | 9 | 9 | 5 | 4 | 1 | 8 | 3 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 9 | 9 | 6 | 2 | 9 | 0 | 9 | 9 |
| 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 | 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 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

Alimentary System

Intestine Large, Colon
Inflammation, Chronic
Perforation

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Angiectasis | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | |
| Basophilic Focus | 2 | 1 | 4 | 3 | 1 | 2 | 2 | | 2 | | 2 | 3 | 3 | | | 3 | 2 | 4 | 1 | 4 | 2 | | | 1 | 2 | | 2 | 2 | |
| Bile Duct, Hyperplasia | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| Centrilobular, Degeneration | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | |
| Centrilobular, Fatty Change | | | | | | | | | 3 | | | | | | 3 | | | | | | 1 | | | | | 3 | | | |
| Clear Cell Focus | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Congestion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eosinophilic Focus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hematopoietic Cell Proliferation | | | | | | | | | | | | | | 1 | | 1 | | | | | | | | | | | | | |
| Hepatodiaphragmatic Nodule | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | |
| Infiltration Cellular, Lymphocyte | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic | | | | | | | | | | | | | 2 | | | 2 | 1 | 1 | 2 | | | | | 2 | | | | 1 | |
| Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | |
| Periportal, Fatty Change | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic, Focal | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | |

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

+ ..Tissue examined microscopically

X ..Lesion present

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Lab: NIEHS

| F 344/N Rat Female
07F | 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 | |
| | 6 | 5 | 7 | 6 | 7 | 5 | 7 | 7 | 6 | 5 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 5 | 7 | 5 | 5 | 3 | 7 | 5 | 7 | 6 | 7 | 7 | |
| | 1 | 4 | 2 | 3 | 2 | 4 | 2 | 2 | 6 | 3 | 0 | 2 | 9 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 6 | 8 | 5 | 2 | 6 | 2 | 7 | 2 | 2 |
| | 6 | 0 | 9 | 9 | 9 | 1 | 9 | 9 | 5 | 4 | 1 | 8 | 3 | 8 | 6 | 1 | 6 | 6 | 6 | 6 | 2 | 9 | 9 | 6 | 2 | 9 | 0 | 9 | 9 |
| | 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 | 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| Mesentery | | | | | | + | | | | | | | | | | | | | | | | | | | | | | | |
| Fat, Necrosis | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| Pancreas | | + | + | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Acinus, Degeneration | | 1 | | 1 | 2 | 1 | | | | | | 1 | 1 | | | | 1 | 1 | | | 1 | | | 1 | | 1 | 2 | 1 | 1 |
| Inflammation, Acute | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cardiovascular System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Heart | | + | + | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Cardiomyopathy | | | | | | 1 | | | | | | | | | | 1 | | | | | | 1 | | | | | | | |
| Fibrosis | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | |
| Thrombosis | | | | | | | | | | 3 | | | | | | | | | | | | | | | | | | | |
| Valve, Inflammation, Chronic | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| Endocrine System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Cortex | | + | + | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Congestion | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | 2 | 2 | | | | | | | 2 | 2 | | | | | 1 |
| Hypertrophy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic, Diffuse | | | | | | | | | | 1 | | | | | | | | | | | | | 2 | | | | | | |
| Vacuolization Cytoplasmic, Focal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| Adrenal Medulla | | + | + | + | + | + | M | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Islets, Pancreatic | | + | + | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |

* ..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: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:30

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

| F 344/N Rat Female
07F | 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 |
| ANIMAL ID | 6 | 5 | 7 | 6 | 7 | 5 | 7 | 7 | 6 | 5 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 5 | 7 | 5 | 5 | 3 | 7 | 5 | 7 | 6 | 7 | 7 | |
| | 1 | 4 | 2 | 3 | 2 | 4 | 2 | 2 | 6 | 3 | 0 | 2 | 9 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 6 | 8 | 5 | 2 | 6 | 2 | 7 | 2 | 2 |
| | 6 | 0 | 9 | 9 | 9 | 1 | 9 | 9 | 5 | 4 | 1 | 8 | 3 | 8 | 6 | 1 | 6 | 6 | 6 | 6 | 2 | 9 | 9 | 6 | 2 | 9 | 0 | 9 | 9 |
| | 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 | 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| Parathyroid Gland | | + | + | M | + | + | + | + | M | M | | + | M | + | + | + | + | M | M | + | + | + | M | M | M | + | + | + | + |
| Pituitary Gland | | + | + | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Pars Distalis, Angiectasis | | | | | | | | | 3 | 2 | | | | | | | | 1 | | | | 1 | | | | | 1 | | |
| Pars Distalis, Cyst | | | | 1 | | 2 | 1 | | | | | | | 1 | 2 | | | 2 | | | | 1 | | | | | | | |
| Pars Distalis, Hyperplasia | | | | 2 | | | 2 | | | | | | | 3 | 2 | 1 | | | 1 | 3 | 1 | 1 | | | | | | | |
| Pars Distalis, Pigmentation, Hemosiderin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Thyroid Gland | | + | + | + | + | + | + | + | + | M | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| C Cell, Hyperplasia | | | | | | | | | 1 | | | | | 1 | | | | | 1 | 1 | | 1 | | | | | | 1 | 1 |
| Ultimobranchial Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| General Body System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Genital System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Clitoral Gland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| Ovary | | + | + | + | M | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Congestion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyst | | | | 2 | | | | | | | | | | 3 | 2 | | 1 | | 2 | | | | | | | | | 1 | |
| Uterus | | + | + | + | M | + | + | + | + | + | | + | + | M | + | + | + | | + | + | + | + | + | + | + | + | + | + | + |
| Bilateral, Dilatation | | | | 2 | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Dilatation | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | |
| Serosa, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* ..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

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Experiment Number: 92004-01
Test Type: CHRONIC
Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
Test Compound: NTP 91/92 diet study
CAS Number: DIET9192

Date Report Requested: 10/20/2014
Time Report Requested: 18:28:30
First Dose M/F: NA / NA
Lab: NIEHS

**F 344/N Rat Female
07F**

| 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 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | 5 | 7 | 6 | 7 | 5 | 7 | 7 | 6 | 5 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 5 | 7 | 5 | 3 | 7 | 5 | 7 | 6 | 7 | 7 |
| | 1 | 4 | 2 | 3 | 2 | 4 | 2 | 2 | 6 | 3 | 0 | 2 | 9 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 6 | 8 | 5 | 2 | 7 | 2 | 2 |
| | 6 | 0 | 9 | 9 | 9 | 1 | 9 | 9 | 5 | 4 | 1 | 8 | 3 | 8 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 9 | 9 | 6 | 2 | 9 | 9 |
| 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 | 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 | 0 | 0 | 0 |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Hematopoietic System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---|---|---|---|---|---|---|---|---|---|--|---|---|--|---|--|---|--|--|--|--|---|--|--|---|--|---|--|
| Lymph Node, Mesenteric | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Amyloid Deposition | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hemorrhage | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | |
| Hyperplasia, Lymphoid | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | |
| Inflammation, Acute | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spleen | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fibrosis | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| Hematopoietic Cell Proliferation | | | | | | | | | | | | | | | 3 | | 1 | | | | | | | | | | | |
| Pigmentation, Hemosiderin | | | | | | | | | | | | 1 | | | | | | | | | | 1 | | | | | 1 | |
| Thymus | M | + | + | + | + | + | + | + | M | M | | | | | | | | | | | | | | | | | | |
| Atrophy | | | 2 | 2 | 2 | 1 | 2 | 2 | | | | | | | | | | | | | | | | | | | | |

Integumentary System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Mammary Gland | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skin | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Acute | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Subcut Tiss, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Musculoskeletal System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Bone | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Nervous 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

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Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:30

First Dose M/F: NA / NA

Lab: NIEHS

**F 344/N Rat Female
07F**

| 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 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | 5 | 7 | 6 | 7 | 5 | 7 | 7 | 6 | 5 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 5 | 7 | 5 | 3 | 7 | 5 | 7 | 6 | 7 | 7 |
| | 1 | 4 | 2 | 3 | 2 | 4 | 2 | 2 | 6 | 3 | 0 | 2 | 9 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 6 | 8 | 5 | 2 | 6 | 2 | 2 |
| | 6 | 0 | 9 | 9 | 9 | 1 | 9 | 9 | 5 | 4 | 1 | 8 | 3 | 8 | 6 | 1 | 6 | 6 | 6 | 2 | 9 | 9 | 6 | 2 | 9 | 0 | 9 |
| 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 | 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 | 0 | 0 | 0 |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

Nervous System

NONE

Respiratory System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|--|--|---|---|---|---|--|---|---|---|---|---|--|---|---|--|---|---|
| Lung | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | | |
| Alveolus, Infiltration Cellular, Histiocyte | 1 | | | 1 | 1 | 1 | | 1 | | | | 1 | 1 | 1 | 1 | | | | 1 | | 1 | | | 1 | | | 1 |
| Artery, Mineralization | 1 | | | 1 | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | | 1 | | 1 | 1 | | 1 | | | 1 | | | 1 | 1 |
| Congestion | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | |
| Hyperplasia, Adenomatous | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infiltration Cellular, Histiocyte | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |

Special Senses System

Zymbal's Gland

Urinary System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Kidney | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | | | |
| Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Mineralization | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nephropathy | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pigmentation | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Renal Tubule, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

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Lab: NIEHS

| F 344/N Rat Female
07F | DAY ON TEST | | ANIMAL ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|-------------|------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|---|---|--|
| | 0616 | 0716 | 0000 | 0001 | 0002 | 0003 | 0004 | 0005 | 0006 | 0007 | 0008 | 0009 | 0010 | 0011 | 0012 | 0013 | 0014 | 0015 | 0016 | 0017 | 0018 | 0019 | 0020 | 0021 | 0022 | 0023 | 0024 | 0025 | 0026 | 0027 | 0028 | 0029 | 0030 | | | |
| Urinary Bladder | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Fibrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infiltration Cellular, Lymphocyte | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* ..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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Lab: NIEHS

DAY ON TEST

F 344/N Rat Female
07F

ANIMAL ID

*TOTALS

Alimentary System

| | | |
|-----------------------------------|----|-----|
| Intestine Large, Colon | 1 | |
| Inflammation, Chronic | 1 | 4.0 |
| Perforation | 1 | |
| Liver | 56 | |
| Angiectasis | 2 | 1.5 |
| Basophilic Focus | 41 | 2.2 |
| Bile Duct, Hyperplasia | 2 | 1.5 |
| Centrilobular, Degeneration | 2 | 1.5 |
| Centrilobular, Fatty Change | 7 | 2.3 |
| Clear Cell Focus | 4 | 1.0 |
| Congestion | 1 | 2.0 |
| Eosinophilic Focus | 1 | 1.0 |
| Hematopoietic Cell Proliferation | 2 | 1.0 |
| Hepatodiaphragmatic Nodule | 2 | |
| Hyperplasia | 1 | 3.0 |
| Infiltration Cellular, Lymphocyte | 1 | 1.0 |
| Inflammation, Chronic | 11 | 1.5 |
| Necrosis | 2 | 1.5 |
| Periportal, Fatty Change | 2 | 1.0 |
| Vacuolization Cytoplasmic | 1 | 1.0 |
| Vacuolization Cytoplasmic, Focal | 1 | 2.0 |
| Mesentery | 2 | |

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

+ ..Tissue examined microscopically

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Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:30

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Female
07F

ANIMAL ID

*TOTALS

| | | |
|------------------------------------|----|-----|
| Fat, Necrosis | 1 | 3.0 |
| Pancreas | 55 | |
| Acinus, Degeneration | 27 | 1.2 |
| Inflammation, Acute | 1 | 1.0 |
| Cardiovascular System | | |
| Heart | 56 | |
| Cardiomyopathy | 5 | 1.4 |
| Fibrosis | 2 | 1.0 |
| Thrombosis | 2 | 2.5 |
| Valve, Inflammation, Chronic | 1 | 2.0 |
| Endocrine System | | |
| Adrenal Cortex | 56 | |
| Congestion | 2 | 1.5 |
| Hyperplasia | 9 | 1.4 |
| Hypertrophy | 1 | 1.0 |
| Vacuolization Cytoplasmic, Diffuse | 4 | 1.8 |
| Vacuolization Cytoplasmic, Focal | 4 | 1.3 |
| Adrenal Medulla | 55 | |
| Hyperplasia | 2 | 1.0 |
| Islets, Pancreatic | 55 | |
| Hyperplasia | 1 | 3.0 |
| Parathyroid Gland | 36 | |
| Pituitary Gland | 55 | |

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:31

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

**F 344/N Rat Female
07F**

ANIMAL ID

***TOTALS**

| | | |
|--|----|-----|
| Pars Distalis, Angiectasis | 9 | 1.7 |
| Pars Distalis, Cyst | 12 | 1.3 |
| Pars Distalis, Hyperplasia | 13 | 1.8 |
| Pars Distalis, Pigmentation, Hemosiderin | 1 | 1.0 |
| Thyroid Gland | 54 | |
| C Cell, Hyperplasia | 10 | 1.0 |
| Ultimobranchial Cyst | 1 | 1.0 |

General Body System

NONE

Genital System

| | | |
|-----------------------|----|-----|
| Clitoral Gland | 7 | |
| Hyperplasia | 1 | 3.0 |
| Ovary | 55 | |
| Congestion | 1 | 2.0 |
| Cyst | 8 | 1.8 |
| Uterus | 52 | |
| Bilateral, Dilatation | 4 | 1.8 |
| Dilatation | 3 | 2.0 |
| Serosa, Cyst | 1 | 3.0 |

Hematopoietic System

| | | |
|------------------------|----|-----|
| Lymph Node, Mesenteric | 56 | |
| Amyloid Deposition | 1 | 3.0 |

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

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I ..Insufficient tissue

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Lab: NIEHS

DAY ON TEST

F 344/N Rat Female
07F

| ANIMAL ID | *TOTALS | |
|---|---------|-----|
| Hemorrhage | 2 | 1.5 |
| Hyperplasia, Lymphoid | 1 | 1.0 |
| Inflammation, Acute | 1 | 2.0 |
| Spleen | 56 | |
| Fibrosis | 3 | 2.0 |
| Hematopoietic Cell Proliferation | 6 | 1.5 |
| Pigmentation, Hemosiderin | 13 | 1.0 |
| Thymus | 40 | |
| Atrophy | 36 | 2.1 |
| Integumentary System | | |
| Mammary Gland | 29 | |
| Hyperplasia | 1 | 2.0 |
| Skin | 4 | |
| Inflammation, Acute | 1 | 2.0 |
| Subcut Tiss, Necrosis | 1 | 1.0 |
| Musculoskeletal System | | |
| Bone | 1 | |
| Nervous System | | |
| NONE | | |
| Respiratory System | | |
| Lung | 56 | |
| Alveolus, Infiltration Cellular, Histiocyte | 33 | 1.1 |

* ..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: NIEHS

DAY ON TEST

F 344/N Rat Female

07F

ANIMAL ID

***TOTALS**

| | | |
|-----------------------------------|----|-----|
| Artery, Mineralization | 38 | 1.0 |
| Congestion | 3 | 1.7 |
| Hyperplasia, Adenomatous | 4 | 2.5 |
| Infiltration Cellular, Histiocyte | 1 | 1.0 |
| Inflammation, Chronic | 4 | 1.3 |

Special Senses System

Zymbal's Gland 1

Urinary System

| | | |
|-----------------------------------|----|-----|
| Kidney | 56 | |
| Cyst | 1 | 1.0 |
| Hemorrhage | 1 | 2.0 |
| Mineralization | 2 | 1.0 |
| Nephropathy | 21 | 1.4 |
| Pigmentation | 13 | 1.0 |
| Renal Tubule, Cyst | 1 | 1.0 |
| Vacuolization Cytoplasmic | 1 | 2.0 |
| Urinary Bladder | 54 | |
| Fibrosis | 1 | 1.0 |
| Hemorrhage | 1 | 1.0 |
| Hyperplasia | 1 | 1.0 |
| Infiltration Cellular, Lymphocyte | 11 | 1.0 |

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Lab: NIEHS

| F 344/N Rat Female
91F | 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 | | |
| | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 7 | 5 | 7 | 5 | 7 | 4 | 7 | 7 | 7 | 6 | 7 | 6 | | |
| | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 0 | 2 | 0 | 5 | 2 | 2 | 7 | 2 | 0 | 2 | 0 | 2 | 2 | 2 | 1 | 2 | 7 | |
| | 9 | 9 | 9 | 9 | 9 | 8 | 9 | 1 | 9 | 9 | 9 | 9 | 8 | 9 | 0 | 1 | 6 | 6 | 2 | 9 | 6 | 9 | 1 | 9 | 9 | 1 | 2 | 7 | 9 | 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 | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 |

Alimentary System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M |
| Basophilic Focus | 1 | 2 | 3 | 2 | 1 | | 3 | | 3 | 1 | 4 | 1 | 2 | 4 | 1 | | 1 | 1 | 2 | 2 | 3 | | 3 | 3 | | 1 | 1 | 2 | | |
| Bile Duct, Hyperplasia | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| Centrilobular, Fatty Change | | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | |
| Clear Cell Focus | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | |
| Eosinophilic Focus | | | | | | | | | | 1 | | | | | | | 1 | | | | | | | | 1 | 1 | | | | |
| Hepatodiaphragmatic Nodule | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infiltration Cellular, Polymorphnuclr | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic | | | 2 | 1 | 1 | | | | | | 2 | 1 | 1 | 2 | 1 | | 1 | 2 | 1 | | | | | | | 1 | | 1 | | 1 |
| Necrosis | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | |
| Periportal, Fatty Change | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | 3 | 1 | | |
| Mesentery | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fat, Necrosis | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | M |
| Acinus, Degeneration | | | | | | | | | | 1 | 1 | | 1 | | | 1 | | | | | 1 | | | | | | | | 1 | |
| Infiltration Cellular, Lymphocyte | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stomach, Forestomach | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stomach, Glandular | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Cardiovascular System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heart | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | M |
|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

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Time Report Requested: 18:28:31

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

| F 344/N Rat Female
91F | 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 | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ANIMAL ID | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 7 | 5 | 7 | 5 | 7 | 4 | 7 | 7 | 7 | 6 | 7 | 6 | | | | | |
| | | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 0 | 2 | 0 | 5 | 2 | 2 | 7 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 7 | | | | |
| | | 9 | 9 | 9 | 9 | 9 | 8 | 9 | 1 | 9 | 9 | 9 | 9 | 9 | 8 | 9 | 0 | 1 | 6 | 6 | 2 | 2 | 9 | 6 | 9 | 1 | 9 | 1 | 2 | 7 | 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 | | | | |
| | | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | | |
| | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | | | |
| Cardiomyopathy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endocrine System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Cortex | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | | | |
| Angiectasis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hypertrophy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic, Focal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Medulla | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | | | |
| Islets, Pancreatic | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | | | |
| Parathyroid Gland | | M | M | + | + | M | + | + | M | + | + | M | M | + | M | + | M | + | M | + | M | + | + | + | + | + | + | + | + | + | M | + | + | M | |
| Fibrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pituitary Gland | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | | |
| Pars Distalis, Angiectasis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pars Distalis, Cyst | | 1 | | 1 | | 2 | | | | 3 | | | | | 1 | | | | | | 1 | | | | | | | 2 | | | 2 | | | | |
| Pars Distalis, Hyperplasia | | 1 | | | | | | | | | | | | 1 | | | | | | | 3 | 3 | | | | | 3 | | | | | | | | |
| Pars Distalis, Pigmentation, Hemosiderin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pigmentation, Hemosiderin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thyroid Gland | | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | M |
| C Cell, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Follicle, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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 CAS Number: DIET9192

Date Report Requested: 10/20/2014
 Time Report Requested: 18:28:32
 First Dose M/F: NA / NA
 Lab: NIEHS

**F 344/N Rat Female
 91F**

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

NONE

Genital System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Clitoral Gland | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ovary | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | |
| Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Interstitial Cell, Hyperplasia | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Uterus | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | |
| Bilateral, Dilatation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dilatation | 3 | | | | | | | | | | 1 | | | | | | | | | | | 2 | | | | | 4 | | | | | |
| Endometrium, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Acute | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lymph Node, Mesenteric | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | |
| Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spleen | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | |
| Hematopoietic Cell Proliferation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pigmentation, Hemosiderin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thymus | M | M | + | + | + | M | M | + | M | + | + | + | + | + | + | M | M | + | M | M | + | + | + | M | + | + | M | + | + | M | M | |
| Atrophy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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Lab: NIEHS

| F 344/N Rat Female
91F | 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 | | |
|---------------------------|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ANIMAL ID | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 7 | 5 | 7 | 5 | 7 | 4 | 7 | 7 | 7 | 6 | 7 | 6 | |
| | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 0 | 2 | 0 | 5 | 2 | 2 | 7 | 2 | 0 | 2 | 0 | 2 | 2 | 2 | 1 | 2 | 7 | |
| | 9 | 9 | 9 | 9 | 9 | 8 | 9 | 1 | 9 | 9 | 9 | 9 | 9 | 8 | 9 | 0 | 1 | 6 | 6 | 2 | 9 | 6 | 9 | 1 | 9 | 9 | 1 | 2 | 7 | 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 | |
| | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 |

Integumentary System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|--|---|--|---|---|---|--|--|--|--|---|---|--|--|--|--|--|---|--|--|--|--|--|--|---|---|--|---|---|--|
| Mammary Gland | | + | | + | + | | | | | | + | + | | | | | | + | | | | | | | + | + | | + | | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | |
| Hyperplasia, Atypical | | | | | | 3 | | | | | | | | | | | | | | | | | | | | | | | | |
| Skin | | | | | | | | | | | | + | | | | | | | | | | | | | | | | | + | |
| Inflammation, Acute | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | |

Musculoskeletal System

NONE

Nervous System

NONE

Respiratory System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lung | | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M |
| Alveolus, Infiltration Cellular, Histiocyte | | 1 | | 1 | | | | 1 | | 1 | | | 1 | 1 | | | | | 1 | | 1 | | | 1 | | | | | | | |
| Artery, Mineralization | | | 1 | | | 1 | | 1 | | 1 | 1 | 1 | 1 | | | 1 | 1 | 1 | 1 | | 1 | | 1 | | | | | 1 | | | |
| Bronchus, Inflammation, Acute | | | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Congestion | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | |
| Hemorrhage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia, Adenomatous | | | | | | | | | | | | | 3 | | | | | | | | | | | | | | 2 | | | | |
| Inflammation, Chronic | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |

Special Senses System

* ..Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ ..Tissue examined microscopically M ..Missing tissue 1-4 ..Lesion qualified as:
X ..Lesion present A ..Autolysis precludes evaluation 1) Minimal 3) Moderate
I ..Insufficient tissue BLANK ..Not examined microscopically 2) Mild 4) Marked

Experiment Number: 92004-01

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Date Report Requested: 10/20/2014

Test Type: CHRONIC

Test Compound: NTP 91/92 diet study

Time Report Requested: 18:28:32

Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

| F 344/N Rat Female
91F | 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 |
| | 7 | 7 | 7 | 7 | 4 | 7 | 5 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 7 |
| | 2 | 2 | 2 | 0 | 3 | 2 | 3 | 2 | 2 | 4 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 1 | 2 | 2 |
| | 9 | 9 | 9 | 1 | 5 | 7 | 4 | 7 | 4 | 7 | 6 | 6 | 9 | 6 | 5 | 6 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 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 | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Alimentary System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Liver | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Basophilic Focus | 4 | 2 | 1 | | | 2 | | 2 | | | 2 | 2 | 4 | 3 | 1 | 1 | 1 | 3 | 2 | 1 | 2 | 2 | 1 | | 2 | 1 | 1 | | 1 |
| Bile Duct, Hyperplasia | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| Centrilobular, Fatty Change | | | | 4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Clear Cell Focus | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eosinophilic Focus | | | 1 | | | | | 1 | | | | | | 1 | | | | | | | | | | | | | | | 1 |
| Hepatodiaphragmatic Nodule | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infiltration Cellular, Polymorphnuclr | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic | 2 | | | | | 1 | | | | | | | 1 | | 1 | 1 | | | 1 | | | | 1 | 1 | | | 2 | 1 | |
| Necrosis | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | |
| Periportal, Fatty Change | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Mesentery | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fat, Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pancreas | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Acinus, Degeneration | | | | | | | | | 1 | 3 | | | 1 | | | | 1 | | | | | 1 | 1 | | | | 1 | 1 | |
| Infiltration Cellular, Lymphocyte | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | |
| Stomach, Forestomach | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Stomach, Glandular | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Cardiovascular System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Heart | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:32

First Dose M/F: NA / NA

Lab: NIEHS

| F 344/N Rat Female
91F | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|
| | 07 | 07 | 07 | 07 | 04 | 07 | 05 | 07 | 06 | 05 | 07 | 07 | 07 | 06 | 05 | 07 | 07 | 07 | 07 | 07 | 07 | 05 | 07 | 07 | 07 | 07 | 07 | | |
| ANIMAL ID | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | | |
| | 2 | 2 | 2 | 0 | 3 | 2 | 3 | 2 | 2 | 4 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 1 | 2 | 2 | | |
| | 9 | 9 | 9 | 1 | 5 | 7 | 4 | 7 | 4 | 7 | 6 | 9 | 6 | 5 | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 6 | | |
| | 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 | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | | |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|--|---|---|---|---|--|--|--|--|--|--|--|--|
| Cardiomyopathy | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Endocrine System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | |
| Angiectasis | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | 1 | 1 | 2 | 2 | | | | | | | | | | | 1 | 1 | | | | | | | | | 1 | | | | | | | | | | |
| Hypertrophy | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | |
| Necrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic, Focal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | | |
| Parathyroid Gland | M | + | + | M | M | + | + | + | M | + | + | + | + | + | + | + | + | + | + | M | + | M | + | + | M | + | + | + | M | + | | | | | | | | | | | | | | | |
| Fibrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pituitary Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | |
| Pars Distalis, Angiectasis | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pars Distalis, Cyst | | | | | | | | | | | 2 | 1 | 2 | 2 | 1 | 1 | | | | | | | | | | | 2 | 2 | | | | | | | | | | | | | | | | | |
| Pars Distalis, Hyperplasia | | | | | | | | | | | 2 | 1 | | | | | | | | | | | 1 | 2 | | | | | | | | | | | 2 | 3 | 1 | | | | | | | | |
| Pars Distalis, Pigmentation, Hemosiderin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pigmentation, Hemosiderin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thyroid Gland | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | | | | | | | | | | | | | |
| C Cell, Hyperplasia | 1 | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | | 1 | 3 | | | | | | | | | | |
| Follicle, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| General Body 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
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CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

| F 344/N Rat Female
91F | 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 | |
| | 7 | 7 | 7 | 7 | 4 | 7 | 5 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | |
| | 2 | 2 | 2 | 0 | 3 | 2 | 3 | 2 | 2 | 4 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 1 | 2 | 2 | 2 | 2 |
| | 9 | 9 | 9 | 1 | 5 | 7 | 4 | 7 | 4 | 7 | 6 | 6 | 9 | 6 | 5 | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 |
| 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 | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

NONE

Genital System

Clitoral Gland

+ +

Cyst

Ovary

+ +

Cyst

2 1 3 1 3

Interstitial Cell, Hyperplasia

Uterus

+ +

Bilateral, Dilatation

3

Dilatation

1 1 1

Endometrium, Cyst

Inflammation, Acute

2

Hematopoietic System

Lymph Node, Mesenteric

+ +

Hemorrhage

2

Spleen

+ +

Hematopoietic Cell Proliferation

1 1

Pigmentation, Hemosiderin

1 1 1 1 2 1

Thymus

+ + + M M + + + + + M M + + + + + M + + M + M + + M +

Atrophy

2 2

Cyst

1

* ..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

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Lab: NIEHS

F 344/N Rat Female
91F

| 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 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | 7 | 7 | 7 | 4 | 7 | 5 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | 2 | 2 | 2 | 0 | 3 | 2 | 3 | 2 | 2 | 4 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 1 | 2 | 2 | 2 | 2 | 2 |
| | 9 | 9 | 9 | 1 | 5 | 7 | 4 | 7 | 4 | 7 | 6 | 6 | 9 | 6 | 5 | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | 8 | 6 |
| 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 | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 |

Integumentary System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------|---|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Mammary Gland | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia, Atypical | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Acute | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Musculoskeletal System

NONE

Nervous System

NONE

Respiratory System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Lung | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Alveolus, Infiltration Cellular, Histiocyte | | | 1 | | | | 1 | | | | 1 | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Artery, Mineralization | | | | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | | | | 1 | | | 1 | 1 | 1 | 1 | | | | | | | | |
| Bronchus, Inflammation, Acute | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Congestion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hemorrhage | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia, Adenomatous | 2 | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Inflammation, Chronic | 1 | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |

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

A ..Autolysis precludes evaluation

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:33

First Dose M/F: NA / NA

Lab: NIEHS

F 344/N Rat Female
91F

| 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 | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | 7 | 7 | 7 | 4 | 7 | 5 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 6 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | 2 | 2 | 2 | 0 | 3 | 2 | 3 | 2 | 2 | 4 | 2 | 2 | 0 | 2 | 2 | 9 | 2 | 2 | 2 | 2 | 2 | 2 | 6 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | 9 | 9 | 9 | 1 | 5 | 7 | 4 | 7 | 4 | 7 | 6 | 6 | 9 | 6 | 5 | 6 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 6 | 8 | 8 | 8 | 8 | 6 | |
| 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 | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 | 0 | |

Lacrimal Gland

Urinary System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kidney | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Hemorrhage | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nephropathy | | | | | | 1 | | | | | | 1 | | 1 | | 1 | | | 1 | | | 1 | | | | | | | | | | | | |
| Pigmentation | | | | 1 | | | | | | 2 | 1 | | | | 2 | | 1 | | | | | | | | | | | 1 | | | | 1 | | 1 |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Infiltration Cellular, Lymphocyte | | | | | | | | | | | 1 | | | | | | | | | | | 1 | | | | | | | | | | 1 | 1 | |

* ..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:

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2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:33

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Female

91F

ANIMAL ID

*TOTALS

Alimentary System

| | | |
|---------------------------------------|----|-----|
| Liver | 56 | |
| Basophilic Focus | 46 | 2.0 |
| Bile Duct, Hyperplasia | 3 | 1.0 |
| Centrilobular, Fatty Change | 2 | 3.5 |
| Clear Cell Focus | 2 | 1.0 |
| Degeneration | 1 | 2.0 |
| Eosinophilic Focus | 8 | 1.0 |
| Hepatodiaphragmatic Nodule | 1 | |
| Infiltration Cellular, Polymorphnuclr | 1 | 2.0 |
| Inflammation, Chronic | 24 | 1.3 |
| Necrosis | 2 | 2.0 |
| Periportal, Fatty Change | 4 | 1.8 |
| Mesentery | 3 | |
| Fat, Necrosis | 3 | 2.0 |
| Pancreas | 58 | |
| Acinus, Degeneration | 14 | 1.1 |
| Infiltration Cellular, Lymphocyte | 1 | 1.0 |
| Stomach, Forestomach | 1 | |
| Stomach, Glandular | 1 | |

Cardiovascular System

| | | |
|----------------|----|-----|
| Heart | 57 | |
| Cardiomyopathy | 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

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2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:33

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Female

91F

ANIMAL ID

***TOTALS**

Endocrine System

| | | | |
|--|----|-----|--|
| Adrenal Cortex | 58 | | |
| Angiectasis | 1 | 2.0 | |
| Hyperplasia | 16 | 1.3 | |
| Hypertrophy | 5 | 1.4 | |
| Necrosis | 1 | 2.0 | |
| Vacuolization Cytoplasmic, Focal | 3 | 1.3 | |
| Adrenal Medulla | 58 | | |
| Islets, Pancreatic | 58 | | |
| Parathyroid Gland | 40 | | |
| Fibrosis | 1 | 2.0 | |
| Pituitary Gland | 57 | | |
| Pars Distalis, Angiectasis | 2 | 2.0 | |
| Pars Distalis, Cyst | 20 | 1.6 | |
| Pars Distalis, Hyperplasia | 13 | 1.8 | |
| Pars Distalis, Pigmentation, Hemosiderin | 1 | 2.0 | |
| Pigmentation, Hemosiderin | 1 | 1.0 | |
| Thyroid Gland | 55 | | |
| C Cell, Hyperplasia | 8 | 1.6 | |
| Follicle, Cyst | 2 | 1.0 | |

General Body 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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:33

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Female
91F

ANIMAL ID

*TOTALS

Genital System

| | | | |
|--------------------------------|----|---|-----|
| Clitoral Gland | 5 | | |
| Cyst | | 1 | 3.0 |
| Ovary | 57 | | |
| Cyst | | 5 | 2.0 |
| Interstitial Cell, Hyperplasia | | 1 | 1.0 |
| Uterus | 57 | | |
| Bilateral, Dilatation | | 1 | 3.0 |
| Dilatation | | 7 | 1.9 |
| Endometrium, Cyst | | 1 | 2.0 |
| Inflammation, Acute | | 1 | 2.0 |

Hematopoietic System

| | | | |
|----------------------------------|----|----|-----|
| Lymph Node, Mesenteric | 58 | | |
| Hemorrhage | | 3 | 2.0 |
| Spleen | 58 | | |
| Hematopoietic Cell Proliferation | | 5 | 1.6 |
| Pigmentation, Hemosiderin | | 17 | 1.1 |
| Thymus | 39 | | |
| Atrophy | | 38 | 2.1 |
| Cyst | | 1 | 1.0 |

Integumentary System

| | | | |
|---------------|----|--|--|
| Mammary Gland | 26 | | |
|---------------|----|--|--|

* ..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: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:33

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Female

91F

ANIMAL ID

*TOTALS

| | | |
|-----------------------|---|-----|
| Hyperplasia | 1 | 3.0 |
| Hyperplasia, Atypical | 1 | 3.0 |
| Skin | 2 | |
| Inflammation, Acute | 1 | 3.0 |

Musculoskeletal System

NONE

Nervous System

NONE

Respiratory System

| | | |
|---|----|-----|
| Lung | 57 | |
| Alveolus, Infiltration Cellular, Histiocyte | 14 | 1.0 |
| Artery, Mineralization | 36 | 1.0 |
| Bronchus, Inflammation, Acute | 1 | 4.0 |
| Congestion | 1 | 2.0 |
| Hemorrhage | 1 | 1.0 |
| Hyperplasia, Adenomatous | 5 | 2.4 |
| Inflammation, Chronic | 4 | 1.0 |

Special Senses System

| | | |
|----------------|---|--|
| Lacrimal Gland | 1 | |
|----------------|---|--|

Urinary System

| | | |
|--------|----|--|
| Kidney | 58 | |
|--------|----|--|

* ..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:

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Experiment Number: 92004-01
Test Type: CHRONIC
Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
Test Compound: NTP 91/92 diet study
CAS Number: DIET9192

Date Report Requested: 10/20/2014
Time Report Requested: 18:28:33
First Dose M/F: NA / NA
Lab: NIEHS

DAY ON TEST

F 344/N Rat Female
91F

| ANIMAL ID | *TOTALS | |
|-----------------------------------|---------|-----|
| Hemorrhage | 1 | 1.0 |
| Nephropathy | 12 | 1.0 |
| Pigmentation | 10 | 1.3 |
| Urinary Bladder | 56 | |
| Infiltration Cellular, Lymphocyte | 12 | 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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Experiment Number: 92004-01
 Test Type: CHRONIC
 Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
 Test Compound: NTP 91/92 diet study
 CAS Number: DIET9192

Date Report Requested: 10/20/2014
 Time Report Requested: 18:28:34
 First Dose M/F: NA / NA
 Lab: NIEHS

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F 344/N Rat Female
92F | 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 |
| | | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 5 | 7 | 7 | 6 | 7 | 6 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 6 | 3 | 6 | 7 |
| | | 0 | 2 | 2 | 2 | 3 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 4 | 2 | 2 | 6 | 2 | 7 | 0 | 2 | 6 | 2 | 0 | 2 | 2 | 6 | 8 | 1 | 2 |
| | 1 | 6 | 9 | 9 | 1 | 7 | 1 | 7 | 7 | 7 | 9 | 9 | 7 | 9 | 8 | 0 | 8 | 3 | 8 | 6 | 0 | 6 | 6 | 1 | 9 | 9 | 0 | 4 | 7 | 9 | |
| 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 | 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 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 |

Endocrine System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adrenal Cortex | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Angiectasis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | 2 | | | 1 | | 1 | | 1 | 1 | 2 | | | | | | | 1 | | 2 | | | | 2 | 1 | | | | | | | |
| Hypertrophy | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | |
| Vacuolization Cytoplasmic, Diffuse | 1 | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic, Focal | | | | | | | | | | | | | 2 | 2 | | | | | | 1 | | | | | | | | | | | |
| Adrenal Medulla | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hyperplasia | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia, Focal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Islets, Pancreatic | + | + | + | + | + | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Hyperplasia | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | | |
| Parathyroid Gland | + | + | + | M | + | M | M | + | M | M | + | M | + | + | M | M | + | M | + | + | M | + | + | M | M | + | M | M | M | + | |
| Pituitary Gland | + | + | + | + | + | + | | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Pars Distalis, Angiectasis | | | | | | | | | | 2 | | | | | | | 2 | | | | | | | | | | | | | | |
| Pars Distalis, Cyst | | | | 3 | | | | | | | | | 2 | | | 3 | | | | | 1 | | | 2 | | | | | | | 1 |
| Pars Distalis, Hyperplasia | | | | | | | | | | 3 | 2 | 1 | | | | 3 | | | | 1 | | | 2 | 1 | | | | | | | |
| Thyroid Gland | + | + | + | + | + | | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| C Cell, Hyperplasia | | | | | | | | | | 1 | 1 | | | | | | | | | | | | | | 1 | | | | | | |
| Follicle, Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ultimobranchial Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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+ ..Tissue examined microscopically
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Species/Strain: Rat/F 344/N

CAS Number: DIET9192

First Dose M/F: NA / NA

Lab: NIEHS

| F 344/N Rat Female
92F | DAY ON TEST | | ANIMAL ID | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---|---|---|
| | 0
7
1 | 0
7
6 | 0
7
9 | 0
7
9 | 0
5
1 | 0
7
7 | 0
7
1 | 0
7
7 | 0
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7 | 0
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9 | 0
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6 | 0
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1 | 0
7
9 | 0
7
9 | 0
6
4 | 0
3
8 | 0
6
7 | 0
6
9 | | | |
| | 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 | 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 |
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | |
| | 1 | 2 | 3 | 4 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|--|--|---|---|--|--|---|--|--|---|---|--|--|--|---|--|---|---|--|---|--|--|---|---|--|--|---|--|--|--|--|--|--|---|--|---|---|
| Mammary Gland | | | + | + | | | + | | | + | + | | | | + | | + | + | | + | | | + | + | | | + | | | | | | | + | | | |
| Galactoceles | | | 4 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | 3 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Skin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | + | + |

Musculoskeletal System

NONE

Nervous System

Brain

+

Respiratory System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lung | + | + | + | + | + | + | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Alveolus, Infiltration Cellular, Histiocyte | | | | | | 1 | | | 1 | 1 | | 1 | 1 | | 1 | | 1 | 2 | | | | 1 | 1 | 1 | 1 | | 1 | 1 | | 1 | | | 1 | | | |
| Artery, Mineralization | | 1 | | 1 | 1 | | | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | | | | 1 | | 1 | 1 | 1 | | | | 1 | | | | | | 1 | |
| Congestion | | 1 | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 2 | |
| Hyperplasia, Adenomatous | | | | | | | | | | | 1 | | 3 | | | | | | | | 1 | | | | | | | | | | | | | | | 3 |
| Inflammation, Chronic | | | | | | 1 | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | |

Special Senses System

Eye

+

Bilateral, Degeneration

3

Degeneration

Urinary System

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

+ ..Tissue examined microscopically

M ..Missing tissue

1-4 ..Lesion qualified as:

X ..Lesion present

A ..Autolysis precludes evaluation

1) Minimal 3) Moderate

I ..Insufficient tissue

BLANK ..Not examined microscopically

2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:35

First Dose M/F: NA / NA

Lab: NIEHS

| F 344/N Rat Female
92F | DAY ON TEST | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|---|--|--|--|--|--|
| | 0
7
1 | 0
7
6 | 0
7
9 | 0
7
9 | 0
5
1 | 0
7
7 | 0
7
1 | 0
7
7 | 0
7
7 | 0
7
7 | 0
7
7 | 0
7
9 | 0
7
9 | 0
5
7 | 0
7
9 | 0
7
8 | 0
6
0 | 0
7
6 | 0
6
3 | 0
7
8 | 0
7
6 | 0
7
2 | 0
7
6 | 0
7
2 | 0
7
6 | 0
7
1 | 0
7
9 | 0
6
8 | 0
3
4 | 0
6
7 | 0
6
9 | | | | | | |
| 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 | | | | | |
| Kidney | + | + | + | + | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydronephrosis | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infiltration Cellular, Lymphocyte | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nephropathy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pigmentation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Renal Tubule, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Renal Tubule, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urinary Bladder | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Infiltration Cellular, Lymphocyte | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* ..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: NIEHS

F 344/N Rat Female
92F

| 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 | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | 7 | 7 | 6 | 5 | 6 | 7 | 7 | 5 | 7 | 7 | 6 | 6 | 5 | 7 | 7 | 7 | 6 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | |
| | 2 | 0 | 2 | 7 | 4 | 2 | 2 | 2 | 7 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | 9 | 1 | 9 | 3 | 0 | 1 | 8 | 8 | 2 | 6 | 6 | 2 | 2 | 5 | 7 | 7 | 7 | 4 | 7 | 9 | 5 | 9 | 9 | 9 | 9 | 8 | 8 | 8 | |
| 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 | 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 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | |
| | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |

Alimentary System

Intestine Large, Cecum

Liver +

Basophilic Focus 2 2 3 1 3 3 3 4 2 3 3 2 3 3 1 3 3 4 2 2 3 3

Bile Duct, Hyperplasia

Centrilobular, Degeneration 2

Centrilobular, Fatty Change 3

Clear Cell Focus 1 1 1 1 1 1

Eosinophilic Focus 1 1

Fatty Change

Hepatodiaphragmatic Nodule X X X

Inflammation, Chronic 1 1 1 2 1 1

Necrosis 2

Periportal, Fatty Change 1 1 1

Mesentery + +

Fat, Necrosis 3 3

Pancreas + M

Acinus, Degeneration 1

Cardiovascular System

Heart +

Cardiomyopathy 1

Fibrosis 1

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Lab: NIEHS

F 344/N Rat Female
92F

| 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 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | 7 | 7 | 6 | 5 | 6 | 7 | 7 | 5 | 7 | 7 | 6 | 6 | 5 | 7 | 7 | 7 | 6 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | 2 | 0 | 2 | 7 | 4 | 2 | 2 | 2 | 7 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | 9 | 1 | 9 | 3 | 0 | 1 | 8 | 8 | 2 | 6 | 6 | 2 | 2 | 5 | 7 | 7 | 4 | 7 | 9 | 5 | 9 | 9 | 9 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 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 | 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 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 |

Endocrine System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adrenal Cortex | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| Angiectasis | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | | | |
| Degeneration | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | | |
| Hyperplasia | | | | | | | | | | | | | | | 2 | | 3 | | | | | 3 | | | | 2 | | | 1 | | | |
| Hypertrophy | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic, Diffuse | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vacuolization Cytoplasmic, Focal | | | | | | | | | | | | | | 1 | | | | | | | | | | | | 1 | 2 | | | | | 1 |
| Adrenal Medulla | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia, Focal | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | M |
| Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| Parathyroid Gland | + | + | M | + | + | + | + | + | + | + | + | M | M | + | M | + | + | + | + | M | M | M | + | + | + | + | + | + | + | + | + | |
| Pituitary Gland | + | + | + | + | + | + | + | I | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Pars Distalis, Angiectasis | 1 | | | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pars Distalis, Cyst | 1 | | | | | | | | | | 1 | | 2 | | 3 | | 1 | | 2 | | | | | | | | | | 1 | 1 | | |
| Pars Distalis, Hyperplasia | 1 | | | 2 | | | | | | | | | | | | | 2 | | 1 | | | | 1 | | | | 3 | | | | | |
| Thyroid Gland | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| C Cell, Hyperplasia | | | | | | | | | | | 1 | 1 | | | | | 1 | | | | | | | | | | | | | | | |
| Follicle, Cyst | | | | | | | | | | | | | | | 2 | | | | | | | | | | | | | | | | | |
| Ultimobranchial Cyst | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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F 344/N Rat Female
92F

| 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 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7 | 7 | 7 | 6 | 5 | 6 | 7 | 7 | 5 | 7 | 7 | 6 | 6 | 5 | 7 | 7 | 7 | 6 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | 2 | 0 | 2 | 7 | 4 | 2 | 2 | 2 | 7 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | 9 | 1 | 9 | 3 | 0 | 1 | 8 | 8 | 2 | 6 | 6 | 2 | 2 | 5 | 7 | 7 | 7 | 4 | 7 | 9 | 5 | 9 | 9 | 9 | 8 | 8 | 8 | 8 | 8 | 8 |
| 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 | 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 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 |

General Body System

NONE

Genital System

Clitoral Gland

Ovary +

Cyst 2 2 2

Uterus +

Bilateral, Dilatation

Dilatation 3

Hematopoietic System

Lymph Node, Mesenteric +

Infiltration Cellular, Histiocyte

Spleen +

Fibrosis

Hematopoietic Cell Proliferation 3

Inflammation, Acute 1

Pigmentation, Hemosiderin 2 1 1 1 1 1 1

Thymus + M + + + + + M M M M + M M + + + + M + M + + + + M M

Atrophy 2 2 2 2 2 2 2 2 2 2 2 2 2 3 2 2 2 3 2 2 2 2

Cyst 1

Integumentary System

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

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| F 344/N Rat Female
92F | 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 |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ANIMAL ID | 7 | 7 | 7 | 6 | 5 | 6 | 7 | 7 | 5 | 7 | 7 | 6 | 6 | 5 | 7 | 7 | 7 | 6 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | | 2 | 0 | 2 | 7 | 4 | 2 | 2 | 2 | 7 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | | 9 | 1 | 9 | 3 | 0 | 1 | 8 | 8 | 2 | 6 | 6 | 2 | 2 | 5 | 7 | 7 | 7 | 4 | 7 | 9 | 5 | 9 | 9 | 9 | 8 | 8 | 8 | 8 | 8 |
| Mammary Gland | | 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 |
| Galactoceles | | 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 |
| Hyperplasia | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| Skin | | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 |
| Musculoskeletal System | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| | | | + | | + | | + | + | | + | | + | + | | | | + | + | + | | | | + | | + | + | | | | |
| Brain | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Respiratory System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Lung | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Alveolus, Infiltration Cellular, Histiocyte | | | | | | | | | | | 1 | | 1 | | 1 | | 1 | 1 | | 1 | 1 | | | | | | | | 1 | |
| Artery, Mineralization | | | 1 | 1 | 1 | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Congestion | | | | | | 2 | | | | 1 | | | | | | | | | | | | | | | | | | | | |
| Hyperplasia, Adenomatous | | | | | | | | | | | 3 | | | | | 1 | | | | | | | | | | | | | | |
| Inflammation, Chronic | | | | 1 | | | | | | | | | | | | | 1 | | | 1 | | | 1 | | | | | | | |
| Special Senses System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Eye | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bilateral, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urinary System | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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|-----------------------------------|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 |
| ANIMAL ID | 7 | 7 | 7 | 6 | 5 | 6 | 7 | 7 | 5 | 7 | 7 | 6 | 6 | 5 | 7 | 7 | 7 | 6 | 7 | 7 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | 2 | 0 | 2 | 7 | 4 | 2 | 2 | 2 | 7 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | 9 | 1 | 9 | 3 | 0 | 1 | 8 | 8 | 2 | 6 | 6 | 2 | 2 | 5 | 7 | 7 | 4 | 7 | 9 | 5 | 9 | 9 | 9 | 8 | 8 | 8 | 8 | 8 | 8 |
| Kidney | 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 |
| Cyst | 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 |
| Hydronephrosis | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 |
| Infiltration Cellular, Lymphocyte | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 |
| Nephropathy | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| Pigmentation | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Renal Tubule, Degeneration | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Renal Tubule, Hyperplasia | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Urinary Bladder | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | M | + | + | + | + | + | + | + | + | + | + | + | + |
| Infiltration Cellular, Lymphocyte | 1 | | | | 1 | | | 1 | 1 | 1 | | | | 1 | | | | 1 | | | | | | | | | | | 1 |

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

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Lab: NIEHS

DAY ON TEST

**F 344/N Rat Female
92F**

ANIMAL ID

***TOTALS**

Alimentary System

| | | |
|-----------------------------|----|-----|
| Intestine Large, Cecum | 1 | |
| Liver | 59 | |
| Basophilic Focus | 45 | 2.4 |
| Bile Duct, Hyperplasia | 1 | 1.0 |
| Centrilobular, Degeneration | 3 | 2.7 |
| Centrilobular, Fatty Change | 2 | 3.5 |
| Clear Cell Focus | 6 | 1.0 |
| Eosinophilic Focus | 5 | 1.0 |
| Fatty Change | 1 | 3.0 |
| Hepatodiaphragmatic Nodule | 5 | |
| Inflammation, Chronic | 13 | 1.2 |
| Necrosis | 2 | 2.5 |
| Periportal, Fatty Change | 3 | 1.0 |
| Mesentery | 2 | |
| Fat, Necrosis | 2 | 3.0 |
| Pancreas | 57 | |
| Acinus, Degeneration | 17 | 1.1 |

Cardiovascular System

| | | |
|----------------|----|-----|
| Heart | 59 | |
| Cardiomyopathy | 2 | 1.0 |
| Fibrosis | 1 | 1.0 |

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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

Experiment Number: 92004-01

Test Type: CHRONIC

Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: NTP 91/92 diet study

CAS Number: DIET9192

Date Report Requested: 10/20/2014

Time Report Requested: 18:28:36

First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Female
92F

ANIMAL ID

*TOTALS

Endocrine System

| | | | |
|------------------------------------|----|-----|--|
| Adrenal Cortex | 59 | | |
| Angiectasis | 1 | 2.0 | |
| Degeneration | 1 | 2.0 | |
| Hyperplasia | 15 | 1.7 | |
| Hypertrophy | 1 | 1.0 | |
| Vacuolization Cytoplasmic, Diffuse | 2 | 1.5 | |
| Vacuolization Cytoplasmic, Focal | 7 | 1.4 | |
| Adrenal Medulla | 58 | | |
| Hyperplasia | 2 | 1.0 | |
| Hyperplasia, Focal | 1 | 2.0 | |
| Islets, Pancreatic | 57 | | |
| Hyperplasia | 2 | 1.5 | |
| Parathyroid Gland | 37 | | |
| Pituitary Gland | 57 | | |
| Pars Distalis, Angiectasis | 8 | 1.9 | |
| Pars Distalis, Cyst | 14 | 1.7 | |
| Pars Distalis, Hyperplasia | 15 | 1.8 | |
| Thyroid Gland | 56 | | |
| C Cell, Hyperplasia | 7 | 1.0 | |
| Follicle, Cyst | 1 | 2.0 | |
| Ultimobranchial Cyst | 1 | 1.0 | |

General Body System

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First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

F 344/N Rat Female
92F

ANIMAL ID

*TOTALS

| NONE | | |
|-----------------------------------|----|-----|
| Genital System | | |
| Clitoral Gland | 7 | |
| Ovary | 59 | |
| Cyst | 8 | 2.5 |
| Uterus | 59 | |
| Bilateral, Dilatation | 2 | 1.5 |
| Dilatation | 5 | 2.2 |
| Hematopoietic System | | |
| Lymph Node, Mesenteric | 59 | |
| Infiltration Cellular, Histiocyte | 1 | 1.0 |
| Spleen | 59 | |
| Fibrosis | 1 | 1.0 |
| Hematopoietic Cell Proliferation | 2 | 2.0 |
| Inflammation, Acute | 1 | 1.0 |
| Pigmentation, Hemosiderin | 14 | 1.1 |
| Thymus | 40 | |
| Atrophy | 38 | 2.1 |
| Cyst | 1 | 1.0 |
| Integumentary System | | |
| Mammary Gland | 26 | |
| Galactocele | 2 | 2.5 |

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Date Report Requested: 10/20/2014

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First Dose M/F: NA / NA

Lab: NIEHS

DAY ON TEST

**F 344/N Rat Female
92F**

| ANIMAL ID | *TOTALS | |
|---|---------|-----|
| Hyperplasia | 2 | 2.0 |
| Skin | 3 | |
| Musculoskeletal System | | |
| NONE | | |
| Nervous System | | |
| Brain | 1 | |
| Respiratory System | | |
| Lung | 59 | |
| Alveolus, Infiltration Cellular, Histiocyte | 23 | 1.0 |
| Artery, Mineralization | 41 | 1.0 |
| Congestion | 5 | 1.4 |
| Hyperplasia, Adenomatous | 6 | 2.0 |
| Inflammation, Chronic | 5 | 1.0 |
| Special Senses System | | |
| Eye | 2 | |
| Bilateral, Degeneration | 1 | 3.0 |
| Degeneration | 1 | 3.0 |
| Urinary System | | |
| Kidney | 59 | |
| Cyst | 1 | 2.0 |
| Hydronephrosis | 1 | 2.0 |

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Experiment Number: 92004-01
Test Type: CHRONIC
Species/Strain: Rat/F 344/N

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL
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Lab: NIEHS

DAY ON TEST

F 344/N Rat Female
92F

ANIMAL ID

*TOTALS

| | | |
|-----------------------------------|----|-----|
| Infiltration Cellular, Lymphocyte | 1 | 1.0 |
| Nephropathy | 10 | 1.0 |
| Pigmentation | 8 | 1.4 |
| Renal Tubule, Degeneration | 1 | 1.0 |
| Renal Tubule, Hyperplasia | 1 | 1.0 |
| Urinary Bladder | 57 | |
| Infiltration Cellular, Lymphocyte | 17 | 1.0 |

** END OF REPORT **

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