

TDMS No. 20107 - 03

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

Date Report Requested: 02/28/2011

Test Type: CHRONIC

N,N-Dimethyl-p-toluidine

Time Report Requested: 11:17:44

Route: GAVAGE

CAS Number: 99-97-8

First Dose M/F: 10/20/04 / 10/21/04

Species/Strain: RATS/F 344/N

Lab: BAT

F1_Rev.1__R2

C Number: C20107
Lock Date: 02/20/2008
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL
Study Gender: Both
TDMSE Version: 2.3.0
PWG Approval Date: 01/25/2011

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CAS Number: 99-97-8

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Species/Strain: RATS/F 344/N

Lab: BAT

| FISCHER 344 RATS MALE | 0 MG/KG | 6 MG/KG | 20 MG/KG | 60 MG/KG |
|-----------------------|---------|---------|----------|----------|
|-----------------------|---------|---------|----------|----------|

Disposition Summary

| | | | | |
|----------------------------------|----|----|----|----|
| Animals Initially In Study | 50 | 50 | 50 | 50 |
| Early Deaths | | | | |
| Dosing Accident | | 1 | 1 | 3 |
| Moribund Sacrifice | 11 | 7 | 11 | 7 |
| Natural Death | 2 | 5 | 7 | 19 |
| Survivors | | | | |
| Terminal Sacrifice | 37 | 37 | 31 | 21 |
| Animals Examined Microscopically | 50 | 50 | 50 | 50 |

ALIMENTARY SYSTEM

| | | | | |
|-------------------------------------|---------|----------|---------|----------|
| Esophagus | (50) | (50) | (50) | (50) |
| Foreign Body | | | 1 | |
| Inflammation | | | | 1 [3.0] |
| Perforation | | | 1 | 2 |
| Periesophageal Tissue, Inflammation | | | | 1 [3.0] |
| Intestine Large, Cecum | (50) | (50) | (50) | (50) |
| Intestine Large, Colon | (50) | (50) | (50) | (50) |
| Parasite Metazoan | 1 | 2 | 1 | |
| Intestine Large, Rectum | (50) | (50) | (50) | (50) |
| Parasite Metazoan | 3 | 5 | 2 | 3 |
| Intestine Small, Duodenum | (50) | (50) | (50) | (50) |
| Inflammation, Chronic Active | | | 1 [2.0] | |
| Intestine Small, Ileum | (50) | (50) | (50) | (50) |
| Parasite Metazoan | | | 1 | |
| Intestine Small, Jejunum | (50) | (50) | (50) | (50) |
| Liver | (50) | (50) | (50) | (50) |
| Angiectasis | 1 [2.0] | | | |
| Basophilic Focus | 28 | 6 | | 3 |
| Clear Cell Focus | 30 | 36 | 26 | 35 |
| Congestion | 1 [2.0] | | | |
| Degeneration, Cystic | 4 [1.3] | 10 [1.4] | 9 [1.3] | 17 [1.3] |
| Eosinophilic Focus | 11 | 21 | 21 | 29 |
| Fatty Change, Focal | 6 [1.3] | 2 [1.0] | 3 [1.3] | 9 [1.2] |

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Lab: BAT

| FISCHER 344 RATS MALE | 0 MG/KG | 6 MG/KG | 20 MG/KG | 60 MG/KG |
|---|----------|----------|----------|----------|
| Fatty Change, Diffuse | 1 [2.0] | 8 [1.1] | 5 [1.6] | 5 [2.0] |
| Hematopoietic Cell Proliferation | 1 [1.0] | | 1 [1.0] | 1 [1.0] |
| Hemorrhage | 1 [2.0] | | | |
| Hepatodiaphragmatic Nodule | 8 | 1 | | 3 |
| Inflammation | 40 [1.1] | 46 [1.1] | 42 [1.0] | 44 [1.0] |
| Mixed Cell Focus | 18 | 17 | 17 | 35 |
| Vacuolization Cytoplasmic | | 1 [2.0] | 3 [1.3] | 1 [2.0] |
| Bile Duct, Cyst | | 1 | 3 | |
| Bile Duct, Fibrosis | 21 [1.0] | 27 [1.0] | 41 [1.1] | 42 [1.5] |
| Bile Duct, Hyperplasia | 40 [1.2] | 42 [1.5] | 44 [1.6] | 44 [1.8] |
| Hepatocyte, Hypertrophy | | | 6 [1.5] | 31 [1.5] |
| Hepatocyte, Necrosis | 2 [1.0] | | 2 [2.0] | 1 [1.0] |
| Oval Cell, Hyperplasia | | | 2 [1.5] | 2 [1.0] |
| Mesentery | (7) | (5) | (2) | (1) |
| Fat, Necrosis | 7 [2.9] | 5 [3.0] | 1 [3.0] | 1 [3.0] |
| Pancreas | (50) | (50) | (50) | (50) |
| Basophilic Focus | 1 [2.0] | | | |
| Cyst | 2 | 4 | 6 | 2 |
| Hyperplasia | | 1 [3.0] | | |
| Infiltration Cellular, Mononuclear Cell | 16 [1.3] | 14 [1.3] | 16 [1.2] | 20 [1.4] |
| Lipomatosis | | | 1 [1.0] | |
| Metaplasia, Hepatocyte | | | | 1 [2.0] |
| Acinus, Atrophy | 21 [1.8] | 20 [2.0] | 17 [1.6] | 12 [1.7] |
| Acinus, Hyperplasia | 2 [2.0] | 2 [2.5] | 1 [3.0] | |
| Salivary Glands | (50) | (50) | (50) | (50) |
| Infiltration Cellular | | 1 [1.0] | | |
| Stomach, Forestomach | (50) | (50) | (50) | (50) |
| Edema | | 1 [2.0] | | |
| Erosion | 1 [1.0] | | | |
| Hyperplasia, Squamous | | 3 [1.7] | 5 [2.2] | 11 [2.2] |
| Inflammation | 1 [2.0] | 5 [1.6] | 5 [2.6] | 7 [2.6] |
| Ulcer | | 2 [2.0] | 5 [2.6] | 6 [2.0] |
| Stomach, Glandular | (50) | (50) | (50) | (50) |
| Erosion | 1 [1.0] | | | |
| Inflammation | | 1 [2.0] | 2 [1.5] | 1 [2.0] |
| Mineralization | | | | 2 [1.5] |

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

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

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N,N-Dimethyl-p-toluidine

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Species/Strain: RATS/F 344/N

Lab: BAT

| FISCHER 344 RATS MALE | 0 MG/KG | 6 MG/KG | 20 MG/KG | 60 MG/KG |
|---------------------------------|---------|---------|----------|----------|
| Necrosis | | | | 1 [3.0] |
| Ulcer | | 1 [2.0] | 2 [2.0] | |
| Tongue | (0) | (1) | (0) | (1) |
| Tooth | (1) | (2) | (2) | (0) |
| Dysplasia | | | 1 | |
| Peridental Tissue, Inflammation | 1 [3.0] | 2 [2.0] | 1 [2.0] | |

CARDIOVASCULAR SYSTEM

| | | | | |
|---------------------------|----------|----------|----------|----------|
| Blood Vessel | (50) | (50) | (50) | (50) |
| Aorta, Mineralization | | | | 1 [2.0] |
| Heart | (50) | (50) | (50) | (50) |
| Cardiomyopathy | 46 [1.4] | 50 [1.3] | 49 [1.4] | 48 [1.4] |
| Mineralization | | | | 3 [1.3] |
| Pigmentation | 1 [1.0] | | | |
| Thrombosis | | | 1 [3.0] | 2 [3.0] |
| Artery, Inflammation | | 1 [2.0] | | |
| Pericardium, Inflammation | | | | 1 [1.0] |

ENDOCRINE SYSTEM

| | | | | |
|-----------------------------------|----------|----------|----------|----------|
| Adrenal Cortex | (50) | (50) | (50) | (50) |
| Angiectasis | 13 [1.4] | 9 [1.2] | 7 [1.1] | 4 [1.0] |
| Hyperplasia | 17 [1.4] | 21 [1.6] | 10 [1.4] | 8 [1.5] |
| Hypertrophy | 9 [1.4] | 6 [1.5] | 6 [1.7] | 7 [1.3] |
| Necrosis | | | | 1 [2.0] |
| Vacuolization Cytoplasmic | 31 [1.5] | 31 [1.2] | 26 [1.3] | 28 [1.5] |
| Adrenal Medulla | (50) | (50) | (50) | (50) |
| Hyperplasia | 18 [1.5] | 15 [1.9] | 12 [1.7] | 18 [1.6] |
| Infiltration Cellular, Lymphocyte | | 1 [3.0] | | |
| Islets, Pancreatic | (50) | (50) | (50) | (50) |
| Hyperplasia | 1 [1.0] | 2 [2.0] | 1 [1.0] | |
| Parathyroid Gland | (49) | (49) | (45) | (48) |
| Cyst | | 1 | | |
| Hyperplasia, Focal | 2 [2.0] | | | |

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|------------------------------|----------|----------|----------|----------|
| Hyperplasia, Diffuse | 1 [2.0] | | 2 [2.5] | 5 [2.0] |
| Pituitary Gland | (50) | (50) | (50) | (50) |
| Angiectasis | | 1 [2.0] | | |
| Cyst | 1 | 2 | 2 | 1 |
| Pars Distalis, Cyst | | | 1 | |
| Pars Distalis, Hemorrhage | 1 [3.0] | | | |
| Pars Distalis, Hyperplasia | 15 [2.3] | 18 [2.2] | 15 [2.3] | 18 [1.9] |
| Thyroid Gland | (50) | (49) | (50) | (49) |
| C-cell, Hyperplasia | 14 [1.7] | 20 [1.5] | 14 [1.3] | 5 [1.8] |
| Follicle, Cyst | | 1 | | |
| Follicular Cell, Hyperplasia | | | 1 [1.0] | |

GENERAL BODY SYSTEM

| | | | | |
|------------|-----|-----|-----|-----|
| Tissue NOS | (0) | (0) | (2) | (0) |
|------------|-----|-----|-----|-----|

GENITAL SYSTEM

| | | | | |
|-------------------------|----------|----------|----------|----------|
| Coagulating Gland | (1) | (2) | (1) | (0) |
| Inflammation | 1 [4.0] | 2 [3.0] | | |
| Epithelium, Hyperplasia | 1 [3.0] | 1 [3.0] | | |
| Epididymis | (50) | (50) | (50) | (50) |
| Atypia Cellular | | 1 [4.0] | | |
| Inflammation | | 1 [1.0] | 2 [1.5] | 2 [1.5] |
| Preputial Gland | (50) | (50) | (50) | (50) |
| Cyst | | | | 1 |
| Hyperplasia | 1 [3.0] | | | 1 [3.0] |
| Inflammation | 49 [1.5] | 49 [1.6] | 43 [1.4] | 45 [1.3] |
| Prostate | (50) | (50) | (50) | (50) |
| Inflammation | 23 [1.8] | 28 [2.0] | 18 [1.6] | 16 [1.9] |
| Pigmentation | | | | 1 [2.0] |
| Epithelium, Hyperplasia | 2 [1.0] | 6 [1.3] | 2 [2.0] | 3 [1.7] |
| Seminal Vesicle | (50) | (50) | (50) | (50) |
| Inflammation | 1 [3.0] | 1 [3.0] | | 1 [3.0] |
| Epithelium, Hyperplasia | | 1 [4.0] | | 1 [3.0] |

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Lab: BAT

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|--------------------------------|----------|----------|----------|----------|
| Testes | (50) | (50) | (50) | (50) |
| Cyst | | 1 | | |
| Mineralization | 1 [1.0] | | 1 [2.0] | 1 [2.0] |
| Interstitial Cell, Hyperplasia | 16 [1.2] | 16 [1.4] | 6 [1.8] | 12 [1.4] |

HEMATOPOIETIC SYSTEM

| | | | | |
|---|----------|----------|----------|----------|
| Bone Marrow | (50) | (50) | (50) | (50) |
| Hemorrhage | | | 1 [2.0] | 4 [2.3] |
| Hyperplasia | 17 [2.5] | 13 [2.5] | 28 [2.1] | 50 [2.7] |
| Myelofibrosis | | | 1 [2.0] | |
| Necrosis | 1 [2.0] | | | |
| Lymph Node | (4) | (3) | (3) | (7) |
| Deep Cervical, Hyperplasia, Plasma Cell | 1 [2.0] | | | |
| Mediastinal, Ectasia | | 2 [2.0] | 2 [2.5] | 3 [2.7] |
| Mediastinal, Hemorrhage | | 1 [3.0] | | |
| Mediastinal, Hyperplasia, Lymphoid | | | 1 [2.0] | 3 [2.3] |
| Mediastinal, Hyperplasia, Plasma Cell | | 1 [2.0] | | 1 [3.0] |
| Lymph Node, Mesenteric | (50) | (50) | (50) | (50) |
| Atrophy | | 1 [2.0] | | |
| Ectasia | | | | 2 [2.5] |
| Hyperplasia, Lymphoid | 2 [2.0] | 1 [4.0] | | 1 [2.0] |
| Hyperplasia, Plasma Cell | | | | 1 [2.0] |
| Infiltration Cellular, Histiocyte | 21 [1.1] | 23 [1.4] | 30 [1.3] | 34 [1.5] |
| Spleen | (50) | (50) | (50) | (50) |
| Congestion | 1 [2.0] | | | 39 [1.9] |
| Hematopoietic Cell Proliferation | 34 [1.0] | 44 [1.1] | 42 [1.5] | 44 [1.3] |
| Inflammation, Suppurative | | | | 2 [1.5] |
| Pigmentation | 36 [1.1] | 48 [1.7] | 47 [2.1] | 48 [2.0] |
| Capsule, Fibrosis | 1 [2.0] | | 2 [1.5] | 46 [1.8] |
| Capsule, Hemorrhage | | 1 [3.0] | | |
| Capsule, Hypertrophy, Mesothelium | | 1 [1.0] | 3 [1.0] | 39 [1.1] |
| Lymphoid Follicle, Atrophy | | 5 [2.2] | 2 [1.5] | 19 [2.0] |
| Red Pulp, Atrophy | | | 1 [3.0] | 8 [2.6] |
| Thymus | (50) | (48) | (48) | (47) |

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Lab: BAT

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|---|--|--|---|--|
| Atrophy Hyperplasia, Lymphoid | 44 [2.8] | 46 [2.7] | 44 [2.5] | 44 [2.5] 1 [3.0] |
| INTEGUMENTARY SYSTEM | | | | |
| Mammary Gland Cyst Hyperplasia | (50) | (50) | (49) | (50) 1 2 [1.0] |
| Skin Cyst Epithelial Inclusion Inflammation | (50) | (50) | (50) | (50) 1 1 [3.0] |
| MUSCULOSKELETAL SYSTEM | | | | |
| Bone | (50) | (50) | (50) | (50) |
| NERVOUS SYSTEM | | | | |
| Brain Demyelination Hemorrhage | (50) 1 [2.0] 1 [2.0] | (50) | (50) | (50) |
| Spinal Cord | (0) | (1) | (0) | (0) |
| RESPIRATORY SYSTEM | | | | |
| Lung Congestion Foreign Body Inflammation Mineralization Alveolar Epithelium, Hyperplasia Alveolus, Foreign Body Alveolus, Infiltration Cellular, Histiocyte | (50) 2 [1.5] 8 [2.8] 14 [1.1] | (50) 1 5 [1.6] 9 [2.3] 2 [1.0] | (50) 1 [3.0] 6 [1.7] 6 [2.3] 1 5 [1.0] | (50) 3 [2.7] 1 [1.0] 1 [1.0] 6 [2.8] 11 [1.1] |

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|--|----------|----------|----------|----------|
| Alveolus, Inflammation, Suppurative | | | | 1 [2.0] |
| Nose | (50) | (49) | (50) | (49) |
| Foreign Body | 13 | 17 | 11 | 9 |
| Inflammation | 35 [1.4] | 40 [1.6] | 38 [1.2] | 48 [1.9] |
| Glands, Olfactory Epithelium, Dilatation | | | 3 [1.0] | 49 [2.4] |
| Glands, Olfactory Epithelium, Hyperplasia | | 2 [1.0] | | 48 [1.9] |
| Glands, Olfactory Epithelium, Metaplasia | | | | 38 [1.5] |
| Glands, Olfactory Epithelium, Necrosis | | | | 22 [2.7] |
| Glands, Respiratory Epithelium, Dilatation | 13 [1.0] | 15 [1.0] | 19 [1.0] | 48 [1.6] |
| Glands, Respiratory Epithelium, Hyperplasia | | 8 [1.1] | 8 [1.5] | 41 [1.7] |
| Glands, Respiratory Epithelium, Metaplasia, Respiratory | 29 [1.0] | 39 [1.0] | 39 [1.0] | 47 [2.6] |
| Glands, Transitional Epithelium, Dilatation | | | 5 [1.2] | 3 [1.7] |
| Glands, Transitional Epithelium, Hyperplasia | | 1 [1.0] | 24 [1.1] | 40 [1.6] |
| Nerve, Atrophy | | | | 15 [1.3] |
| Olfactory Epithelium, Accumulation, Hyaline Droplet | 49 [2.1] | 44 [2.0] | 40 [1.7] | |
| Olfactory Epithelium, Degeneration | | | 1 [2.0] | 47 [2.1] |
| Olfactory Epithelium, Hyperplasia, Basal Cell | | 1 [1.0] | 2 [1.0] | 38 [1.3] |
| Olfactory Epithelium, Metaplasia, Respiratory | 4 [1.0] | 9 [1.4] | 9 [1.3] | 40 [1.3] |
| Respiratory Epithelium, Accumulation, Hyaline Droplet | 42 [1.5] | 35 [1.2] | 30 [1.4] | 8 [1.0] |
| Respiratory Epithelium, Hyperplasia | 15 [1.2] | 29 [1.5] | 32 [1.3] | 49 [1.6] |
| Respiratory Epithelium, Ulcer | | | | 1 [2.0] |
| Squamous Epithelium, Cyst | | 1 | | |
| Transitional Epithelium, Hyperplasia | 1 [2.0] | 1 [1.0] | 11 [1.1] | 46 [1.7] |
| Trachea | (50) | (50) | (50) | (50) |
| Inflammation | 3 [1.3] | 1 [2.0] | 1 [1.0] | 3 [1.7] |
| Perforation | | | | 1 |
| Peritracheal Tissue, Inflammation | | | | 2 [3.0] |

SPECIAL SENSES SYSTEM

| | | | | |
|--------------|------|---------|------|------|
| Eye | (50) | (50) | (50) | (50) |
| Dysplasia | | 1 | | |
| Inflammation | | 1 [2.0] | | |

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|---------------------------------|---------|---------|----------|----------|
| Cornea, Hyperplasia | | 1 [2.0] | | |
| Cornea, Inflammation | 1 [2.0] | 1 [3.0] | | |
| Lens, Degeneration | | 1 [3.0] | | 1 [3.0] |
| Retina, Atrophy | | 1 [3.0] | 1 [3.0] | 3 [2.3] |
| Harderian Gland | (50) | (50) | (50) | (50) |
| Infiltration Cellular, Lymphoid | | 1 [3.0] | | |
| Inflammation | 3 [1.3] | 6 [1.5] | | 10 [1.3] |
| Zymbal's Gland | (49) | (50) | (50) | (50) |
| Hyperplasia | 1 [4.0] | | 1 [1.0] | |

URINARY SYSTEM

| | | | | |
|--|----------|----------|----------|----------|
| Kidney | (50) | (50) | (50) | (50) |
| Accumulation, Hyaline Droplet | 2 [2.0] | 1 [1.0] | | |
| Cyst | | | 1 | 1 |
| Mineralization | 44 [1.0] | 37 [1.0] | 38 [1.0] | 49 [1.1] |
| Nephropathy | 49 [1.4] | 49 [2.0] | 48 [2.5] | 49 [2.7] |
| Pigmentation | 24 [1.2] | 46 [1.0] | 37 [1.2] | 44 [1.6] |
| Papilla, Necrosis | | 2 [4.0] | | |
| Pelvis, Dilatation | | | | 3 [2.3] |
| Pelvis, Inflammation | | 3 [2.3] | 1 [2.0] | |
| Pelvis, Transitional Epithelium, Hyperplasia | 1 [2.0] | 2 [1.0] | 6 [1.7] | 5 [1.0] |
| Ureter | (0) | (0) | (0) | (1) |
| Inflammation | | | | 1 [2.0] |
| Urinary Bladder | (50) | (50) | (50) | (50) |
| Hemorrhage | | 1 [3.0] | | 2 [3.0] |
| Inflammation | | 2 [3.0] | 2 [1.5] | 2 [3.0] |
| Ulcer | | 1 [4.0] | | |
| Transitional Epithelium, Necrosis | | | | 1 [4.0] |

*** END OF MALE ***

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|-------------------------|---------|---------|----------|----------|
|-------------------------|---------|---------|----------|----------|

Disposition Summary

| | | | | |
|---|-----------|-----------|-----------|-----------|
| Animals Initially In Study | 50 | 50 | 50 | 50 |
| Early Deaths | | | | |
| Accidentally Killed | | 1 | | |
| Dosing Accident | | | | 1 |
| Moribund Sacrifice | 14 | 3 | 8 | 8 |
| Natural Death | 3 | 4 | 9 | 18 |
| Survivors | | | | |
| Terminal Sacrifice | 33 | 42 | 33 | 23 |
| Animals Examined Microscopically | 50 | 50 | 50 | 50 |

ALIMENTARY SYSTEM

| | | | | |
|----------------------------------|----------|----------|----------|----------|
| Esophagus | (50) | (50) | (50) | (50) |
| Intestine Large, Cecum | (50) | (50) | (50) | (50) |
| Intestine Large, Colon | (50) | (50) | (50) | (50) |
| Parasite Metazoan | | 1 | | |
| Intestine Large, Rectum | (50) | (50) | (50) | (50) |
| Parasite Metazoan | 4 | 4 | 3 | 3 |
| Intestine Small, Duodenum | (50) | (50) | (50) | (50) |
| Intestine Small, Ileum | (50) | (50) | (50) | (50) |
| Intestine Small, Jejunum | (50) | (50) | (50) | (50) |
| Hyperplasia, Lymphoid | | 1 [3.0] | | |
| Liver | (50) | (50) | (50) | (49) |
| Angiectasis | 1 [1.0] | 4 [1.8] | 10 [1.1] | 5 [1.4] |
| Basophilic Focus | 46 | 45 | 5 | 6 |
| Clear Cell Focus | 7 | 17 | 24 | 29 |
| Degeneration, Cystic | | | 2 [1.0] | 10 [1.2] |
| Eosinophilic Focus | 18 | 24 | 29 | 32 |
| Fatty Change, Focal | 8 [1.4] | 13 [1.2] | 3 [1.3] | 4 [1.3] |
| Fatty Change, Diffuse | 9 [1.6] | 1 [1.0] | 3 [2.7] | 1 [3.0] |
| Hematopoietic Cell Proliferation | | | 2 [1.0] | 2 [1.0] |
| Hepatodiaphragmatic Nodule | 3 | 6 | 5 | 3 |
| Inflammation | 38 [1.1] | 46 [1.0] | 42 [1.0] | 39 [1.1] |
| Mixed Cell Focus | 14 | 20 | 17 | 26 |

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

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

Test Type: CHRONIC

N,N-Dimethyl-p-toluidine

Time Report Requested: 11:17:44

Route: GAVAGE

CAS Number: 99-97-8

First Dose M/F: 10/20/04 / 10/21/04

Species/Strain: RATS/F 344/N

Lab: BAT

| FISCHER 344 RATS FEMALE | 0 MG/KG | 6 MG/KG | 20 MG/KG | 60 MG/KG |
|---|----------|----------|----------|----------|
| Bile Duct, Cyst | | 1 | | 1 |
| Bile Duct, Fibrosis | 6 [1.2] | 11 [1.0] | 23 [1.0] | 27 [1.1] |
| Bile Duct, Hyperplasia | 10 [1.6] | 21 [1.0] | 27 [1.0] | 43 [1.5] |
| Centrilobular, Degeneration | | | 1 [2.0] | 1 [2.0] |
| Hepatocyte, Hypertrophy | | | 6 [1.3] | 22 [1.3] |
| Hepatocyte, Necrosis | | | 1 [2.0] | 5 [1.8] |
| Oval Cell, Hyperplasia | 2 [2.0] | | 2 [1.5] | 1 [1.0] |
| Mesentery | (8) | (9) | (9) | (3) |
| Fat, Necrosis | 8 [3.0] | 9 [3.0] | 9 [3.0] | 3 [3.0] |
| Pancreas | (50) | (50) | (50) | (50) |
| Cyst | 5 | 4 | 5 | 5 |
| Fibrosis | 1 [2.0] | | | |
| Infiltration Cellular, Mononuclear Cell | 13 [1.5] | 11 [1.1] | 9 [1.6] | 9 [1.2] |
| Acinus, Atrophy | 14 [1.4] | 7 [1.7] | 9 [1.2] | 7 [1.6] |
| Acinus, Hyperplasia | | | | 1 [1.0] |
| Duct, Fibrosis | 1 [2.0] | | | |
| Duct, Inflammation, Chronic Active | | 1 [3.0] | | |
| Salivary Glands | (50) | (50) | (50) | (48) |
| Stomach, Forestomach | (50) | (50) | (50) | (50) |
| Hyperplasia, Squamous | 5 [1.8] | 1 [1.0] | 4 [1.8] | 4 [2.3] |
| Inflammation | 5 [2.2] | | 4 [2.0] | 2 [2.5] |
| Ulcer | 5 [2.4] | | 3 [2.0] | 2 [2.5] |
| Stomach, Glandular | (50) | (50) | (50) | (50) |
| Inflammation | | | 1 [1.0] | |
| Mineralization | 1 [1.0] | | | |
| Ulcer | | | 1 [3.0] | |
| Tongue | (1) | (0) | (0) | (2) |
| Tooth | (0) | (1) | (0) | (0) |
| Peridontal Tissue, Inflammation | | 1 [1.0] | | |

CARDIOVASCULAR SYSTEM

| | | | | |
|----------------|----------|----------|----------|----------|
| Blood Vessel | (50) | (50) | (50) | (50) |
| Heart | (50) | (50) | (50) | (50) |
| Cardiomyopathy | 36 [1.1] | 42 [1.1] | 40 [1.1] | 42 [1.1] |

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

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

Test Type: CHRONIC

N,N-Dimethyl-p-toluidine

Time Report Requested: 11:17:44

Route: GAVAGE

CAS Number: 99-97-8

First Dose M/F: 10/20/04 / 10/21/04

Species/Strain: RATS/F 344/N

Lab: BAT

| FISCHER 344 RATS FEMALE | 0 MG/KG | 6 MG/KG | 20 MG/KG | 60 MG/KG |
|--------------------------|---------|---------|----------|----------|
| Pigmentation | | | 1 [1.0] | |
| Thrombosis | | | | 1 [3.0] |
| Endocardium, Hyperplasia | | 1 [2.0] | | |

ENDOCRINE SYSTEM

| | | | | |
|------------------------------|----------|----------|----------|----------|
| Adrenal Cortex | (50) | (50) | (50) | (49) |
| Angiectasis | 39 [1.8] | 42 [1.7] | 43 [1.6] | 34 [1.5] |
| Degeneration, Cystic | 8 [2.0] | 5 [1.0] | 5 [1.0] | 3 [2.0] |
| Hyperplasia | 26 [1.7] | 24 [1.5] | 28 [1.5] | 12 [1.4] |
| Hypertrophy | 11 [1.7] | 10 [1.2] | 12 [1.9] | 8 [1.4] |
| Necrosis | 1 [1.0] | | | 1 [2.0] |
| Pigmentation | | 1 [3.0] | | |
| Vacuolization Cytoplasmic | 26 [1.5] | 26 [1.3] | 26 [1.3] | 18 [1.4] |
| Adrenal Medulla | (50) | (50) | (50) | (49) |
| Atrophy | | 1 [3.0] | | |
| Hyperplasia | 4 [1.5] | 3 [1.7] | 1 [3.0] | 5 [1.8] |
| Islets, Pancreatic | (50) | (50) | (50) | (50) |
| Parathyroid Gland | (50) | (50) | (50) | (46) |
| Hyperplasia, Focal | | | 1 [2.0] | |
| Hyperplasia, Diffuse | 1 [1.0] | 2 [1.0] | 2 [1.0] | 5 [1.4] |
| Pituitary Gland | (50) | (50) | (50) | (50) |
| Cyst | 11 | 20 | 15 | 4 |
| Fibrosis | | 1 [2.0] | | |
| Pigmentation | | 1 [2.0] | | |
| Pars Distalis, Angiectasis | 1 [3.0] | | | 1 [3.0] |
| Pars Distalis, Cyst | 4 | | 2 | 1 |
| Pars Distalis, Hyperplasia | 14 [2.5] | 17 [2.6] | 15 [2.5] | 17 [2.6] |
| Thyroid Gland | (49) | (47) | (47) | (45) |
| C-cell, Hyperplasia | 29 [1.5] | 33 [1.4] | 15 [1.0] | 4 [1.5] |
| Follicle, Cyst | 1 | | | |
| Follicular Cell, Hyperplasia | 1 [1.0] | 1 [1.0] | | |

GENERAL BODY SYSTEM

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

Test Type: CHRONIC

N,N-Dimethyl-p-toluidine

Time Report Requested: 11:17:44

Route: GAVAGE

CAS Number: 99-97-8

First Dose M/F: 10/20/04 / 10/21/04

Species/Strain: RATS/F 344/N

Lab: BAT

| FISCHER 344 RATS FEMALE | 0 MG/KG | 6 MG/KG | 20 MG/KG | 60 MG/KG |
|-------------------------|---------|---------|----------|----------|
|-------------------------|---------|---------|----------|----------|

None

GENITAL SYSTEM

| | | | | |
|----------------------------------|----------|----------|----------|----------|
| Clitoral Gland | (50) | (49) | (50) | (50) |
| Cyst | 11 | 8 | 7 | 5 |
| Hyperplasia | 9 [1.6] | 9 [2.0] | 6 [2.2] | 4 [2.0] |
| Inflammation | 22 [1.4] | 26 [1.5] | 20 [1.5] | 15 [1.1] |
| Ovary | (50) | (50) | (50) | (50) |
| Atrophy | | 2 [2.0] | | |
| Cyst | 4 | 3 | 5 | |
| Uterus | (50) | (50) | (50) | (50) |
| Cyst | 1 | | | |
| Decidual Reaction | | | 1 [3.0] | |
| Hemorrhage | | | | 2 [3.0] |
| Inflammation | 1 [1.0] | | 1 [2.0] | |
| Cervix, Cyst | | | | 1 |
| Endometrium, Hyperplasia, Cystic | | | | 2 [3.0] |
| Myometrium, Fibrosis | | 1 [3.0] | | |
| Vagina | (1) | (1) | (0) | (0) |

HEMATOPOIETIC SYSTEM

| | | | | |
|-----------------------------------|----------|----------|----------|----------|
| Bone Marrow | (50) | (50) | (50) | (50) |
| Hyperplasia | 18 [2.8] | 13 [2.5] | 18 [2.7] | 49 [2.6] |
| Myelofibrosis | 1 [2.0] | | | 1 [3.0] |
| Lymph Node | (2) | (1) | (2) | (1) |
| Mediastinal, Ectasia | 1 [2.0] | 1 [2.0] | 1 [2.0] | 1 [3.0] |
| Lymph Node, Mesenteric | (50) | (49) | (50) | (49) |
| Hyperplasia, Lymphoid | 1 [3.0] | | | |
| Infiltration Cellular, Histiocyte | 30 [1.3] | 29 [1.2] | 35 [1.2] | 33 [1.5] |
| Spleen | (50) | (50) | (50) | (50) |
| Congestion | | 9 [1.1] | 26 [1.3] | 28 [1.8] |
| Hematopoietic Cell Proliferation | 32 [1.6] | 45 [1.8] | 47 [1.9] | 42 [1.7] |
| Necrosis | 2 [3.0] | | | |

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Test Type: CHRONIC

N,N-Dimethyl-p-toluidine

Time Report Requested: 11:17:44

Route: GAVAGE

CAS Number: 99-97-8

First Dose M/F: 10/20/04 / 10/21/04

Species/Strain: RATS/F 344/N

Lab: BAT

| FISCHER 344 RATS FEMALE | 0 MG/KG | 6 MG/KG | 20 MG/KG | 60 MG/KG |
|-----------------------------------|----------|----------|----------|----------|
| Pigmentation | 44 [2.0] | 47 [2.1] | 47 [2.5] | 49 [2.2] |
| Capsule, Fibrosis | 8 [1.1] | | 8 [1.1] | 41 [1.3] |
| Capsule, Hemorrhage | | 1 [3.0] | | |
| Capsule, Hypertrophy, Mesothelium | 1 [1.0] | 14 [1.0] | 10 [1.0] | 16 [1.1] |
| Lymphoid Follicle, Atrophy | 1 [2.0] | 2 [3.0] | | 28 [2.4] |
| Red Pulp, Hyperplasia | | 1 [3.0] | | |
| Thymus | (47) | (50) | (50) | (48) |
| Atrophy | 45 [2.6] | 45 [2.2] | 45 [2.3] | 44 [2.4] |

INTEGUMENTARY SYSTEM

| | | | | |
|---------------------------|---------|---------|---------|------|
| Mammary Gland | (50) | (50) | (50) | (50) |
| Cyst | 4 | | 3 | |
| Hyperplasia | 9 [1.2] | 9 [1.1] | 2 [1.0] | |
| Skin | (50) | (50) | (50) | (50) |
| Cyst Epithelial Inclusion | | 1 [3.0] | | |

MUSCULOSKELETAL SYSTEM

| | | | | |
|--------------|------|------|---------|------|
| Bone | (50) | (50) | (50) | (50) |
| Hyperostosis | | | 1 [2.0] | |

NERVOUS SYSTEM

| | | | | |
|------------------|------|---------|---------|------|
| Brain | (50) | (50) | (50) | (50) |
| Hemorrhage | | 1 [2.0] | 1 [3.0] | |
| Hydrocephalus | | 1 [2.0] | | |
| Peripheral Nerve | (0) | (0) | (1) | (0) |
| Spinal Cord | (0) | (0) | (1) | (0) |

RESPIRATORY SYSTEM

| | | | | |
|------|------|------|------|------|
| Lung | (50) | (50) | (50) | (50) |
|------|------|------|------|------|

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Test Type: CHRONIC

N,N-Dimethyl-p-toluidine

Time Report Requested: 11:17:44

Route: GAVAGE

CAS Number: 99-97-8

First Dose M/F: 10/20/04 / 10/21/04

Species/Strain: RATS/F 344/N

Lab: BAT

| FISCHER 344 RATS FEMALE | 0 MG/KG | 6 MG/KG | 20 MG/KG | 60 MG/KG |
|--|----------|----------|----------|----------|
| Congestion | | | | 2 [2.0] |
| Fibrosis | 1 [2.0] | | | |
| Inflammation | 3 [1.3] | | | 1 [1.0] |
| Metaplasia, Squamous | 2 [1.5] | | | |
| Alveolar Epithelium, Hyperplasia | 5 [1.8] | 2 [2.5] | 2 [2.0] | 2 [1.5] |
| Alveolus, Infiltration Cellular, Histiocyte | 11 [1.0] | 10 [1.0] | 11 [1.0] | 17 [1.0] |
| Nose | (50) | (49) | (50) | (49) |
| Foreign Body | 3 | 8 | 1 | 4 |
| Inflammation | 23 [1.3] | 24 [1.4] | 22 [1.1] | 45 [1.5] |
| Glands, Hyperplasia | | | | 1 [1.0] |
| Glands, Olfactory Epithelium, Dilatation | | | | 48 [2.4] |
| Glands, Olfactory Epithelium, Hyperplasia | | | 4 [1.0] | 47 [1.9] |
| Glands, Olfactory Epithelium, Metaplasia | | | | 42 [1.3] |
| Glands, Olfactory Epithelium, Necrosis | | | | 18 [2.8] |
| Glands, Respiratory Epithelium, Dilatation | 5 [1.0] | 12 [1.0] | 27 [1.1] | 47 [1.2] |
| Glands, Respiratory Epithelium, Hyperplasia | 6 [1.2] | 9 [1.0] | 22 [1.3] | 45 [1.6] |
| Glands, Respiratory Epithelium, Metaplasia, Respiratory | 17 [1.1] | 33 [1.1] | 44 [1.8] | 47 [2.0] |
| Glands, Transitional Epithelium, Dilatation | | | | 9 [1.4] |
| Glands, Transitional Epithelium, Hyperplasia | | 4 [1.0] | 12 [1.2] | 24 [1.4] |
| Nasolacrimal Duct, Inflammation | 1 [3.0] | | | |
| Nerve, Atrophy | | | | 4 [1.8] |
| Olfactory Epithelium, Accumulation, Hyaline Droplet | 43 [1.7] | 42 [2.1] | 38 [1.6] | |
| Olfactory Epithelium, Degeneration | | | 1 [1.0] | 46 [2.0] |
| Olfactory Epithelium, Hyperplasia, Basal Cell | | | | 25 [1.2] |
| Olfactory Epithelium, Metaplasia, Respiratory | 4 [1.5] | 6 [1.5] | 1 [2.0] | 21 [1.2] |
| Olfactory Epithelium, Metaplasia, Squamous | | | | 2 [1.5] |
| Respiratory Epithelium, Accumulation, Hyaline Droplet | 35 [1.4] | 30 [1.2] | 23 [1.1] | 2 [1.0] |
| Respiratory Epithelium, Hyperplasia | 10 [1.0] | 13 [1.4] | 11 [1.1] | 41 [1.3] |
| Transitional Epithelium, Degeneration | | | | 1 [1.0] |
| Transitional Epithelium, Hyperplasia | | 1 [1.0] | 6 [1.0] | 33 [1.1] |
| Trachea | (50) | (50) | (50) | (50) |
| Inflammation | | | | 1 [2.0] |
| Inflammation, Suppurative | | | | 1 [1.0] |
| Perforation | | | | 1 |

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Test Type: CHRONIC

N,N-Dimethyl-p-toluidine

Time Report Requested: 11:17:44

Route: GAVAGE

CAS Number: 99-97-8

First Dose M/F: 10/20/04 / 10/21/04

Species/Strain: RATS/F 344/N

Lab: BAT

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|-------------------------|---------|---------|----------|----------|
|-------------------------|---------|---------|----------|----------|

SPECIAL SENSES SYSTEM

| | | | | |
|------------------------------------|---------|---------|---------|---------|
| Ear | (1) | (0) | (0) | (1) |
| Eye | (50) | (50) | (50) | (50) |
| Cataract | 3 [3.0] | 2 [3.5] | 3 [3.0] | |
| Ciliary Body, Cornea, Inflammation | 1 [4.0] | | | |
| Cornea, Degeneration | | | | 1 [2.0] |
| Retina, Atrophy | 2 [3.5] | 3 [3.0] | 3 [3.0] | 1 [3.0] |
| Harderian Gland | (50) | (50) | (50) | (50) |
| Inflammation | 6 [1.7] | 4 [1.5] | 2 [1.0] | 1 [1.0] |
| Lacrimal Gland | (0) | (0) | (0) | (1) |

URINARY SYSTEM

| | | | | |
|--|----------|----------|----------|----------|
| Kidney | (50) | (50) | (50) | (50) |
| Accumulation, Hyaline Droplet | 25 [1.2] | 23 [1.1] | 5 [1.0] | 1 [1.0] |
| Calculus Micro Observation Only | | | 1 | |
| Cyst | | 1 | | 1 |
| Infarct | 4 [2.3] | | 5 [2.0] | 2 [3.0] |
| Mineralization | 33 [1.1] | 35 [1.0] | 35 [1.1] | 37 [1.1] |
| Nephropathy | 28 [1.1] | 38 [1.2] | 38 [1.2] | 41 [1.8] |
| Pigmentation | 41 [1.0] | 45 [1.0] | 43 [1.0] | 49 [1.4] |
| Papilla, Fibrosis | 1 [2.0] | | 1 [1.0] | |
| Papilla, Inflammation | 1 [2.0] | | | |
| Papilla, Necrosis | | | | 1 [3.0] |
| Pelvis, Dilatation | | | | 1 [2.0] |
| Pelvis, Inflammation | 3 [1.7] | 3 [2.3] | 9 [2.0] | 5 [2.6] |
| Pelvis, Transitional Epithelium, Hyperplasia | 2 [2.0] | 3 [1.3] | 8 [2.0] | 6 [2.0] |
| Renal Tubule, Dilatation | 1 [2.0] | | | |
| Renal Tubule, Hyperplasia | 1 [1.0] | | | |
| Urinary Bladder | (50) | (50) | (50) | (50) |
| Inflammation | | | | 1 [1.0] |

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Test Type: CHRONIC

N,N-Dimethyl-p-toluidine

Time Report Requested: 11:17:44

Route: GAVAGE

CAS Number: 99-97-8

First Dose M/F: 10/20/04 / 10/21/04

Species/Strain: RATS/F 344/N

Lab: BAT

FISCHER 344 RATS FEMALE

0 MG/KG

6 MG/KG

20 MG/KG

60 MG/KG

*** END OF REPORT ***