

Experiment Number: 20725 - 02

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

Date Report Requested: 04/29/2016

Test Type: 90-DAY

2,3-Butanedione

Time Report Requested: 14:39:21

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 431-03-8

First Dose M/F: 07/28/08 / 07/28/08

Species/Strain: MICE/B6C3F1

Lab: BNW

F1_Rev.1_M3

NTP Study Number: C20725
Lock Date: 02/27/2009
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL
Study Gender: Both
TDMSE Version: 3.0.2.3_002
PWG Approval Date: NONE

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CAS Number: 431-03-8

First Dose M/F: 07/28/08 / 07/28/08

Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	CONTROL	6.25 ppm	12.5 ppm	25 ppm	50 ppm	100 ppm
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Disposition Summary

Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Survivors						
Terminal Sacrifice	10	10	10	10	10	10
Animals Examined Microscopically	10	10	10	10	10	10

ALIMENTARY SYSTEM

Esophagus	(10)	(0)	(0)	(0)	(0)	(10)
Gallbladder	(8)	(0)	(0)	(0)	(0)	(8)
Intestine Large, Cecum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Large, Colon	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Large, Rectum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Duodenum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Ileum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Jejunum	(10)	(0)	(0)	(0)	(0)	(10)
Liver	(10)	(0)	(0)	(0)	(0)	(10)
Inflammation, Chronic Active	2 [1.0]					4 [1.0]
Pancreas	(10)	(0)	(0)	(0)	(0)	(10)
Salivary Glands	(10)	(0)	(0)	(0)	(0)	(10)
Stomach, Forestomach	(10)	(0)	(0)	(0)	(0)	(10)
Stomach, Glandular	(10)	(0)	(0)	(0)	(0)	(10)

CARDIOVASCULAR SYSTEM

Blood Vessel	(10)	(0)	(0)	(0)	(0)	(10)
Heart	(10)	(0)	(0)	(0)	(0)	(10)

ENDOCRINE SYSTEM

Adrenal Cortex	(10)	(0)	(0)	(0)	(0)	(10)
Accessory Adrenal Cortical Nodule	1 [1.0]					
Adrenal Medulla	(10)	(0)	(0)	(0)	(0)	(10)

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

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

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	CONTROL	6.25 ppm	12.5 ppm	25 ppm	50 ppm	100 ppm
Islets, Pancreatic	(10)	(0)	(0)	(0)	(0)	(10)
Parathyroid Gland	(3)	(0)	(0)	(0)	(0)	(7)
Pituitary Gland	(10)	(0)	(0)	(0)	(0)	(9)
Thyroid Gland	(10)	(0)	(0)	(0)	(0)	(10)

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Epididymis	(10)	(0)	(0)	(0)	(0)	(10)
Preputial Gland	(10)	(0)	(0)	(0)	(0)	(10)
Inflammation, Chronic Active						1 [4.0]
Prostate	(10)	(0)	(0)	(0)	(0)	(10)
Seminal Vesicle	(10)	(0)	(0)	(0)	(0)	(10)
Testes	(10)	(0)	(0)	(0)	(0)	(10)

HEMATOPOIETIC SYSTEM

Bone Marrow	(10)	(0)	(0)	(0)	(0)	(10)
Lymph Node, Bronchial	(9)	(0)	(0)	(0)	(0)	(9)
Lymph Node, Mandibular	(7)	(0)	(0)	(0)	(0)	(7)
Lymph Node, Mediastinal	(6)	(0)	(0)	(0)	(0)	(3)
Lymph Node, Mesenteric	(10)	(0)	(0)	(0)	(0)	(10)
Spleen	(10)	(0)	(0)	(0)	(0)	(10)
Thymus	(10)	(0)	(0)	(0)	(0)	(10)

INTEGUMENTARY SYSTEM

Skin	(10)	(0)	(0)	(0)	(0)	(10)
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a - Number of animals examined microscopically at site and number of animals with lesion

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Lab: BNW

B6C3F1 MICE MALE	CONTROL	6.25 ppm	12.5 ppm	25 ppm	50 ppm	100 ppm
MUSCULOSKELETAL SYSTEM						
Bone	(10)	(0)	(0)	(0)	(0)	(10)
NERVOUS SYSTEM						
Brain	(10)	(0)	(0)	(0)	(0)	(10)
RESPIRATORY SYSTEM						
Larynx	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Chronic Active Epithelium, Necrosis	1 [1.0]	1 [1.0]	3 [1.0]	3 [1.7]	8 [1.1]	10 [1.2]
Respiratory Epithelium, Hyperplasia			2 [1.0]	1 [1.0]	9 [1.0]	8 [1.0]
Respiratory Epithelium, Hyperplasia, Atypical				2 [1.0]	8 [1.5]	8 [2.4]
Respiratory Epithelium, Metaplasia, Atypical Squamous					7 [1.3]	10 [3.4]
Respiratory Epithelium, Metaplasia, Squamous				1 [1.0]	3 [1.3]	
Respiratory Epithelium, Regeneration					5 [1.2]	
Squamous Epithelium, Hyperplasia				3 [1.0]	3 [1.3]	5 [2.6]
Squamous Epithelium, Hyperplasia, Atypical					7 [1.7]	5 [2.8]
Lung	(10)	(10)	(10)	(10)	(10)	(10)
Bronchus, Infiltration Cellular, Polymorphonuclear						10 [1.7]
Bronchus, Inflammation, Chronic	1 [1.0]				7 [1.3]	10 [2.7]
Bronchus, Epithelium, Degeneration						1 [1.0]
Bronchus, Epithelium, Hyperplasia						1 [1.0]
Bronchus, Epithelium, Hyperplasia, Atypical					2 [1.5]	9 [2.1]
Bronchus, Epithelium, Metaplasia, Atypical Squamous						10 [2.2]
Bronchus, Epithelium, Regeneration					1 [1.0]	9 [2.6]
Nose	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Suppurative					10 [1.9]	10 [3.0]
Inflammation, Chronic		1 [1.0]				
Olfactory Epithelium, Atrophy					10 [1.8]	10 [1.6]

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CAS Number: 431-03-8

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	CONTROL	6.25 ppm	12.5 ppm	25 ppm	50 ppm	100 ppm
Olfactory Epithelium, Metaplasia, Respiratory					6 [1.5]	7 [1.6]
Respiratory Epithelium, Degeneration				1 [1.0]		
Respiratory Epithelium, Metaplasia, Squamous				1 [1.0]	10 [2.0]	10 [3.0]
Respiratory Epithelium, Necrosis				8 [1.0]	10 [2.0]	10 [1.7]
Respiratory Epithelium, Regeneration					10 [1.0]	10 [1.0]
Septum, Perforation						2 [2.5]
Turbinates, Atrophy					10 [3.0]	10 [3.0]
Turbinates, Necrosis					3 [1.0]	5 [1.0]
Trachea	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Chronic Active						7 [1.1]
Epithelium, Degeneration				1 [1.0]	3 [1.3]	8 [2.0]
Epithelium, Hyperplasia					2 [1.0]	9 [2.4]
Epithelium, Metaplasia, Atypical Squamous						10 [2.8]
Epithelium, Regeneration					7 [1.6]	
SPECIAL SENSES SYSTEM						
Eye	(10)	(0)	(0)	(0)	(0)	(10)
Harderian Gland	(10)	(0)	(0)	(0)	(0)	(10)
URINARY SYSTEM						
Kidney	(10)	(0)	(0)	(0)	(0)	(10)
Renal Tubule, Regeneration	1 [1.0]					
Urinary Bladder	(10)	(0)	(0)	(0)	(0)	(10)

*** END OF MALE ***

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Species/Strain: MICE/B6C3F1

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B6C3F1 MICE FEMALE	CONTROL	6.25 ppm	12.5 ppm	25 ppm	50 ppm	100 ppm
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Disposition Summary

Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Survivors						
Terminal Sacrifice	10	10	10	10	10	10
Animals Examined Microscopically	10	10	10	10	10	10

ALIMENTARY SYSTEM

Esophagus	(10)	(0)	(0)	(0)	(0)	(10)
Gallbladder	(9)	(0)	(0)	(0)	(0)	(6)
Inflammation, Suppurative	1 [2.0]					
Intestine Large, Cecum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Large, Colon	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Large, Rectum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Duodenum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Ileum	(10)	(0)	(0)	(0)	(0)	(10)
Intestine Small, Jejunum	(10)	(0)	(0)	(1)	(0)	(10)
Diverticulum				1 [1.0]		
Liver	(10)	(0)	(0)	(0)	(0)	(10)
Inflammation, Chronic Active	5 [1.0]					8 [1.0]
Pancreas	(10)	(0)	(0)	(0)	(0)	(10)
Salivary Glands	(10)	(0)	(0)	(0)	(0)	(10)
Stomach, Forestomach	(10)	(0)	(0)	(0)	(0)	(10)
Stomach, Glandular	(10)	(0)	(0)	(0)	(0)	(10)

CARDIOVASCULAR SYSTEM

Blood Vessel	(10)	(0)	(0)	(0)	(0)	(10)
Heart	(10)	(0)	(0)	(0)	(0)	(10)

ENDOCRINE SYSTEM

Adrenal Cortex	(10)	(0)	(0)	(0)	(0)	(10)
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Lab: BNW

B6C3F1 MICE FEMALE	CONTROL	6.25 ppm	12.5 ppm	25 ppm	50 ppm	100 ppm
Adrenal Medulla	(10)	(0)	(0)	(0)	(0)	(10)
Islets, Pancreatic	(10)	(0)	(0)	(0)	(0)	(10)
Parathyroid Gland	(5)	(0)	(0)	(0)	(0)	(7)
Pituitary Gland	(10)	(0)	(0)	(0)	(0)	(10)
Thyroid Gland	(10)	(0)	(0)	(0)	(0)	(8)

GENERAL BODY SYSTEM

None

GENITAL SYSTEM

Clitoral Gland	(10)	(0)	(0)	(0)	(0)	(6)
Inflammation, Chronic Active						2 [1.0]
Ovary	(10)	(0)	(0)	(0)	(0)	(10)
Uterus	(10)	(0)	(0)	(0)	(0)	(10)

HEMATOPOIETIC SYSTEM

Bone Marrow	(10)	(0)	(0)	(0)	(0)	(10)
Lymph Node, Bronchial	(9)	(0)	(0)	(0)	(0)	(9)
Lymph Node, Mandibular	(9)	(0)	(0)	(0)	(0)	(9)
Lymph Node, Mediastinal	(3)	(0)	(0)	(0)	(0)	(1)
Lymph Node, Mesenteric	(10)	(0)	(0)	(0)	(0)	(10)
Spleen	(10)	(0)	(0)	(0)	(0)	(10)
Thymus	(10)	(0)	(0)	(0)	(0)	(10)

INTEGUMENTARY SYSTEM

Mammary Gland	(10)	(0)	(0)	(0)	(0)	(10)
Skin	(10)	(0)	(0)	(0)	(0)	(10)

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B6C3F1 MICE FEMALE	CONTROL	6.25 ppm	12.5 ppm	25 ppm	50 ppm	100 ppm
MUSCULOSKELETAL SYSTEM						
Bone	(10)	(0)	(0)	(0)	(0)	(10)
NERVOUS SYSTEM						
Brain	(10)	(0)	(0)	(0)	(0)	(10)
RESPIRATORY SYSTEM						
Larynx	(10)	(10)	(10)	(10)	(9)	(10)
Inflammation, Chronic Active Epithelium, Necrosis		3 [1.0]	1 [1.0]	4 [1.0]	4 [1.0]	10 [1.6]
Respiratory Epithelium, Hyperplasia				1 [1.0]	5 [1.0]	9 [1.2]
Respiratory Epithelium, Metaplasia, Atypical Squamous				4 [1.0]	8 [1.1]	9 [2.3]
Respiratory Epithelium, Metaplasia, Squamous				1 [1.0]	9 [1.6]	
Respiratory Epithelium, Regeneration				2 [1.0]	8 [1.6]	
Squamous Epithelium, Hyperplasia				2 [1.0]	4 [1.8]	1 [2.0]
Squamous Epithelium, Hyperplasia, Atypical				2 [1.0]	3 [1.3]	9 [2.9]
Lung	(10)	(10)	(10)	(10)	(10)	(10)
Metaplasia, Osseous				1 [1.0]		
Bronchus, Infiltration Cellular, Polymorphonuclear						8 [1.6]
Bronchus, Inflammation, Chronic	1 [1.0]				5 [1.6]	8 [2.4]
Bronchus, Epithelium, Hyperplasia, Atypical						7 [2.3]
Bronchus, Epithelium, Metaplasia, Atypical Squamous						7 [2.0]
Bronchus, Epithelium, Regeneration					6 [1.0]	7 [2.3]
Nose	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Suppurative				1 [1.0]	10 [2.1]	10 [3.0]
Olfactory Epithelium, Accumulation, Hyaline Droplet					1 [1.0]	1 [1.0]
Olfactory Epithelium, Atrophy					10 [2.0]	10 [2.0]
Olfactory Epithelium, Metaplasia, Respiratory					8 [1.6]	9 [1.7]

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Lab: BNW

B6C3F1 MICE FEMALE	CONTROL	6.25 ppm	12.5 ppm	25 ppm	50 ppm	100 ppm
Olfactory Epithelium, Necrosis				1 [1.0]		
Respiratory Epithelium, Accumulation, Hyaline Droplet						2 [1.0]
Respiratory Epithelium, Degeneration				2 [1.0]		
Respiratory Epithelium, Metaplasia, Squamous					10 [2.0]	10 [3.0]
Respiratory Epithelium, Necrosis				4 [1.0]	10 [1.6]	10 [2.0]
Respiratory Epithelium, Regeneration					9 [1.1]	10 [1.6]
Septum, Necrosis						1 [1.0]
Turbinate, Atrophy					10 [3.0]	10 [3.0]
Turbinate, Necrosis					4 [1.0]	8 [1.3]
Trachea	(10)	(10)	(10)	(10)	(10)	(10)
Inflammation, Chronic Active Epithelium, Degeneration						7 [1.1]
Epithelium, Hyperplasia					3 [1.7]	8 [1.9]
Epithelium, Metaplasia, Atypical Squamous					2 [1.0]	9 [2.2]
Epithelium, Regeneration					7 [2.1]	10 [3.2]
SPECIAL SENSES SYSTEM						
Eye	(10)	(0)	(0)	(0)	(0)	(10)
Cornea, Epithelium, Cellular Alteration, Focal						1 [1.0]
Harderian Gland	(10)	(0)	(0)	(0)	(0)	(10)
URINARY SYSTEM						
Kidney	(10)	(0)	(0)	(0)	(0)	(10)
Renal Tubule, Casts Protein						1 [1.0]
Urinary Bladder	(10)	(0)	(0)	(0)	(0)	(10)

*** END OF REPORT ***

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)