

Experiment Number: 20515 - 04

**P05: INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS
ABRIDGED) (a)**

Date Report Requested: 03/08/2013

Test Type: CHRONIC

Metal working fluids (CIMSTAR 3800)

Time Report Requested: 14:13:47

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: CIMSTAR3800

First Dose M/F: 05/05/08 / 05/05/08

Species/Strain: MICE/B6C3F1

Lab: BNW

F1_M3

NTP Study Number: C20515
Lock Date: 01/12/2011
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL
Study Gender: Both
TDMSE Version: 3.0.1.1_001
PWG Approval Date: NONE

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First Dose M/F: 05/05/08 / 05/05/08

Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
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Disposition Summary

Animals Initially In Study	50	50	50	50
Early Deaths				
Moribund Sacrifice	5	12	7	4
Natural Death	6	7	7	6
Survivors				
Terminal Sacrifice	39	31	36	40
Animals Examined Microscopically	50	50	50	50

ALIMENTARY SYSTEM

Esophagus	(50)	(50)	(50)	(50)
Squamous Cell Papilloma				1 (2%)
Gallbladder	(44)	(44)	(44)	(44)
Intestine Large, Cecum	(50)	(50)	(49)	(49)
Intestine Large, Colon	(50)	(50)	(50)	(50)
Adenoma		1 (2%)		
Serosa, Carcinoma, Metastatic, Kidney			1 (2%)	
Intestine Large, Rectum	(50)	(50)	(50)	(49)
Intestine Small, Duodenum	(49)	(48)	(48)	(47)
Adenoma	1 (2%)			1 (2%)
Carcinoma			1 (2%)	
Hemangiosarcoma			1 (2%)	
Intestine Small, Ileum	(50)	(50)	(49)	(48)
Hemangioma			1 (2%)	
Intestine Small, Jejunum	(50)	(48)	(49)	(48)
Adenoma		1 (2%)	1 (2%)	
Carcinoma		1 (2%)		
Liver	(50)	(50)	(50)	(49)
Hemangiosarcoma, Multiple		1 (2%)		
Hepatoblastoma		1 (2%)	1 (2%)	
Hepatocellular Adenoma	10 (20%)	18 (36%)	15 (30%)	14 (29%)
Hepatocellular Adenoma, Multiple	14 (28%)	6 (12%)	10 (20%)	16 (33%)
Hepatocellular Carcinoma	9 (18%)	15 (30%)	7 (14%)	13 (27%)
Hepatocellular Carcinoma, Multiple	2 (4%)	2 (4%)	1 (2%)	2 (4%)

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

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
Hepatocholangiocarcinoma			2 (4%)	
Sarcoma			1 (2%)	
Mesentery	(4)	(5)	(3)	(4)
Hemangioma	1 (25%)			
Hepatocellular Carcinoma, Metastatic, Liver	1 (25%)			
Sarcoma, Metastatic, Liver			1 (33%)	
Pancreas	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney			1 (2%)	
Carcinoma, Metastatic, Stomach, Glandular	1 (2%)			
Sarcoma, Metastatic, Liver			1 (2%)	
Salivary Glands	(50)	(50)	(50)	(50)
Stomach, Forestomach	(50)	(50)	(50)	(50)
Stomach, Glandular	(50)	(50)	(50)	(50)
Carcinoma	1 (2%)			
Tooth	(50)	(47)	(49)	(50)

CARDIOVASCULAR SYSTEM

Blood Vessel	(45)	(49)	(48)	(48)
Aorta, Carcinoma, Metastatic, Kidney			1 (2%)	
Heart	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Kidney			1 (2%)	
Carcinoma, Metastatic, Stomach, Glandular	1 (2%)			
Pericardium, Alveolar/Bronchiolar Carcinoma, Metastatic, Lung		1 (2%)	1 (2%)	

ENDOCRINE SYSTEM

Adrenal Cortex	(49)	(50)	(50)	(50)
Adenoma	2 (4%)			4 (8%)
Sarcoma, Metastatic, Liver			1 (2%)	
Bilateral, Subcapsular, Adenoma	1 (2%)			
Extra Adrenal Tissue, Carcinoma, Metastatic, Kidney			1 (2%)	
Subcapsular, Adenoma	7 (14%)	4 (8%)	5 (10%)	6 (12%)

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

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
Subcapsular, Adenoma, Multiple	1 (2%)			
Adrenal Medulla	(48)	(50)	(50)	(50)
Pheochromocytoma Benign			1 (2%)	
Bilateral, Pheochromocytoma Benign	1 (2%)			
Islets, Pancreatic	(50)	(50)	(50)	(50)
Adenoma	2 (4%)	2 (4%)	1 (2%)	1 (2%)
Parathyroid Gland	(34)	(28)	(27)	(21)
Pituitary Gland	(50)	(50)	(50)	(48)
Thyroid Gland	(50)	(50)	(49)	(50)
GENERAL BODY SYSTEM				
Tissue NOS	(0)	(2)	(0)	(1)
Mediastinum, Alveolar/Bronchiolar Carcinoma, Metastatic, Lung		1 (50%)		1 (100%)
Mediastinum, Hepatocellular Carcinoma, Metastatic, Liver		1 (50%)		
GENITAL SYSTEM				
Epididymis	(50)	(50)	(50)	(50)
Penis	(0)	(0)	(0)	(1)
Preputial Gland	(50)	(49)	(48)	(49)
Prostate	(50)	(49)	(50)	(50)
Seminal Vesicle	(50)	(50)	(50)	(50)
Adenoma		1 (2%)		
Testes	(50)	(50)	(50)	(50)
Interstitial Cell, Adenoma		1 (2%)		
HEMATOPOIETIC SYSTEM				
Bone Marrow	(50)	(50)	(50)	(50)
Mast Cell Tumor Malignant, Metastatic, Skin				1 (2%)
Lymph Node	(4)	(3)	(1)	(1)
Renal, Sarcoma, Metastatic, Liver			1 (100%)	

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
Lymph Node, Bronchial	(26)	(31)	(26)	(18)
Alveolar/Bronchiolar Carcinoma, Metastatic, Lung		1 (3%)	1 (4%)	
Lymph Node, Mandibular	(31)	(36)	(34)	(33)
Lymph Node, Mediastinal	(39)	(39)	(32)	(35)
Alveolar/Bronchiolar Carcinoma, Metastatic, Lung	1 (3%)	1 (3%)		1 (3%)
Carcinoma, Metastatic, Stomach, Glandular	1 (3%)			
Lymph Node, Mesenteric	(49)	(50)	(48)	(49)
Carcinoma, Metastatic, Stomach, Glandular	1 (2%)			
Hemangiosarcoma		1 (2%)		
Spleen	(50)	(50)	(49)	(49)
Hemangiosarcoma		2 (4%)		
Thymus	(41)	(38)	(39)	(41)
Carcinoma, Metastatic, Stomach, Glandular	1 (2%)			
INTEGUMENTARY SYSTEM				
Mammary Gland	(1)	(0)	(1)	(0)
Skin	(50)	(49)	(50)	(50)
Carcinoma, Metastatic, Kidney			1 (2%)	
Carcinoma, Metastatic, Stomach, Glandular	1 (2%)			
Melanoma Benign	1 (2%)			1 (2%)
Subcutaneous Tissue, Fibroma			1 (2%)	
Subcutaneous Tissue, Fibrous Histiocytoma			1 (2%)	
Subcutaneous Tissue, Hemangiosarcoma				1 (2%)
Subcutaneous Tissue, Mast Cell Tumor Malignant				1 (2%)
MUSCULOSKELETAL SYSTEM				
Bone	(50)	(50)	(50)	(50)
Maxilla, Carcinoma, Metastatic, Harderian Gland		1 (2%)		
Skeletal Muscle	(1)	(3)	(2)	(3)
Carcinoma, Metastatic, Kidney			1 (50%)	

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B6C3F1 MICE MALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
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NERVOUS SYSTEM

Brain	(50)	(50)	(50)	(50)
Peripheral Nerve	(1)	(2)	(1)	(2)
Spinal Cord	(1)	(3)	(1)	(2)

RESPIRATORY SYSTEM

Larynx	(50)	(50)	(49)	(50)
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Adenoma	5 (10%)	2 (4%)	8 (16%)	9 (18%)
Alveolar/Bronchiolar Carcinoma	7 (14%)	7 (14%)	8 (16%)	5 (10%)
Alveolar/Bronchiolar Carcinoma, Multiple	1 (2%)	1 (2%)		5 (10%)
Carcinoma, Metastatic, Harderian Gland	1 (2%)			
Carcinoma, Metastatic, Kidney			1 (2%)	
Carcinoma, Metastatic, Stomach, Glandular	1 (2%)			
Hepatocellular Carcinoma, Metastatic, Liver	5 (10%)	9 (18%)	1 (2%)	3 (6%)
Hepatocholangiocarcinoma, Metastatic, Liver			1 (2%)	
Mast Cell Tumor Malignant, Metastatic, Uncertain Primary Site				1 (2%)
Nose	(50)	(50)	(50)	(50)
Pleura	(1)	(0)	(0)	(0)
Alveolar/Bronchiolar Carcinoma, Metastatic, Lung	1 (100%)			
Trachea	(50)	(50)	(47)	(50)

SPECIAL SENSES SYSTEM

Eye	(50)	(50)	(50)	(50)
Harderian Gland	(50)	(50)	(49)	(50)
Adenoma	7 (14%)	3 (6%)	4 (8%)	2 (4%)
Carcinoma	4 (8%)	5 (10%)	1 (2%)	1 (2%)
Bilateral, Adenoma				1 (2%)
Bilateral, Carcinoma	1 (2%)			

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

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Lab: BNW

B6C3F1 MICE MALE

Control

10 mg/m3

30 mg/m3

100 mg/m3

URINARY SYSTEM

Kidney	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Stomach, Glandular	1 (2%)			
Renal Tubule, Adenoma			1 (2%)	1 (2%)
Renal Tubule, Carcinoma			1 (2%)	
Ureter	(0)	(0)	(0)	(1)
Urinary Bladder	(50)	(50)	(50)	(49)
Hemangiosarcoma	1 (2%)			

SYSTEMIC LESIONS

Multiple Organ	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma	1 (2%)		1 (2%)	
Lymphoma Malignant	3 (6%)	5 (10%)	1 (2%)	1 (2%)

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

* Number of animals with any tissue examined microscopically

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE MALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
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Tumor Summary for Males

Total Animals with Primary Neoplasms (b)	46	46	40	44
Total Primary Neoplasms	83	80	75	86
Total Animals with Benign Neoplasms	39	33	33	38
Total Benign Neoplasms	53	39	48	57
Total Animals with Malignant Neoplasms	26	31	17	22
Total Malignant Neoplasms	30	41	27	29
Total Animals with Metastatic Neoplasms	8	11	4	6
Total Metastatic Neoplasms	17	15	16	7
Total Animals with Malignant Neoplasms Uncertain Primary Site				1
Total Animals with Neoplasms Uncertain- Benign or Malignant				
Total Uncertain Neoplasms				

*** END OF MALE ***

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b - Primary tumors: all tumors except metastatic tumors

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Lab: BNW

B6C3F1 MICE FEMALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
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Disposition Summary

Animals Initially In Study	50	50	50	50
Early Deaths				
Accidentally Killed				1
Moribund Sacrifice	7	8	10	11
Natural Death	4	5	3	5
Survivors				
Terminal Sacrifice	39	37	37	33
Animals Examined Microscopically	50	50	50	50

ALIMENTARY SYSTEM

Esophagus	(50)	(50)	(50)	(50)
Gallbladder	(46)	(49)	(41)	(41)
Leiomyosarcoma, Metastatic, Intestine Small, Duodenum				1 (2%)
Intestine Large, Cecum	(50)	(50)	(49)	(50)
Leiomyoma				1 (2%)
Intestine Large, Colon	(49)	(50)	(49)	(50)
Intestine Large, Rectum	(50)	(50)	(50)	(50)
Intestine Small, Duodenum	(47)	(50)	(50)	(49)
Adenoma	1 (2%)		1 (2%)	
Leiomyosarcoma				1 (2%)
Intestine Small, Ileum	(49)	(50)	(49)	(49)
Carcinoma		1 (2%)		
Intestine Small, Jejunum	(48)	(50)	(48)	(48)
Liver	(50)	(50)	(50)	(50)
Hemangiosarcoma				1 (2%)
Hepatoblastoma	1 (2%)			
Hepatocellular Adenoma	10 (20%)	11 (22%)	9 (18%)	7 (14%)
Hepatocellular Adenoma, Multiple	4 (8%)	3 (6%)	5 (10%)	3 (6%)
Hepatocellular Carcinoma	10 (20%)	8 (16%)	2 (4%)	1 (2%)
Hepatocellular Carcinoma, Multiple		1 (2%)		
Hepatocholangiocarcinoma				1 (2%)
Leiomyosarcoma, Metastatic, Uterus			1 (2%)	

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Lab: BNW

B6C3F1 MICE FEMALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
Mesentery	(16)	(23)	(21)	(15)
Hemangioma		2 (9%)		
Hemangiosarcoma			1 (5%)	
Fat, Leiomyosarcoma, Metastatic, Intestine Small, Duodenum				1 (7%)
Pancreas	(50)	(50)	(50)	(50)
Leiomyosarcoma, Metastatic, Intestine Small, Duodenum				1 (2%)
Salivary Glands	(50)	(50)	(50)	(49)
Stomach, Forestomach	(50)	(50)	(50)	(50)
Squamous Cell Papilloma				1 (2%)
Stomach, Glandular	(50)	(50)	(50)	(50)
Tooth	(1)	(0)	(2)	(4)

CARDIOVASCULAR SYSTEM

Blood Vessel	(46)	(44)	(49)	(44)
Heart	(50)	(50)	(50)	(50)

ENDOCRINE SYSTEM

Adrenal Cortex	(49)	(50)	(50)	(50)
Adenoma			1 (2%)	
Hepatocellular Carcinoma, Metastatic, Liver Subcapsular, Adenoma		2 (4%)	1 (2%)	
Adrenal Medulla	(49)	(50)	(49)	(50)
Pheochromocytoma Benign	1 (2%)	2 (4%)	1 (2%)	
Pheochromocytoma Malignant			1 (2%)	
Islets, Pancreatic	(50)	(50)	(50)	(49)
Adenoma	1 (2%)	1 (2%)	1 (2%)	1 (2%)
Parathyroid Gland	(26)	(29)	(22)	(25)
Pituitary Gland	(50)	(50)	(49)	(50)
Meningioma Malignant, Metastatic, Brain				1 (2%)
Pars Distalis, Adenoma	5 (10%)	4 (8%)	6 (12%)	9 (18%)
Pars Intermedia, Adenoma			2 (4%)	

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE FEMALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
Thyroid Gland	(50)	(48)	(50)	(50)
C-cell, Adenoma				1 (2%)
Follicular Cell, Carcinoma				3 (6%)

GENERAL BODY SYSTEM

Tissue NOS	(3)	(2)	(0)	(0)
Mediastinum, Carcinoma		1 (50%)		

GENITAL SYSTEM

Clitoral Gland	(44)	(45)	(43)	(44)
Ovary	(50)	(50)	(48)	(50)
Cystadenocarcinoma			1 (2%)	
Cystadenoma	2 (4%)	1 (2%)		
Granulosa Cell Tumor Benign	1 (2%)			
Leiomyosarcoma, Metastatic, Uterus			1 (2%)	
Luteoma	1 (2%)	1 (2%)		
Uterus	(50)	(50)	(50)	(50)
Carcinoma			1 (2%)	
Hemangiosarcoma	1 (2%)	1 (2%)		
Leiomyoma	1 (2%)			
Leiomyosarcoma			1 (2%)	
Polyp Stromal		3 (6%)	2 (4%)	

HEMATOPOIETIC SYSTEM

Bone Marrow	(50)	(50)	(50)	(50)
Sarcoma	1 (2%)			
Lymph Node	(11)	(12)	(16)	(10)
Renal, Hemangiosarcoma				1 (10%)
Lymph Node, Bronchial	(26)	(27)	(28)	(27)
Carcinoma, Metastatic, Uncertain Primary Site				1 (4%)
Lymph Node, Mandibular	(41)	(42)	(43)	(35)

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Lab: BNW

B6C3F1 MICE FEMALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
Hemangiosarcoma				1 (3%)
Lymph Node, Mediastinal	(43)	(46)	(40)	(47)
Lymph Node, Mesenteric	(48)	(50)	(49)	(49)
Spleen	(50)	(50)	(50)	(49)
Hemangiosarcoma	1 (2%)	1 (2%)		
Thymus	(44)	(46)	(45)	(45)
Thymoma Benign			1 (2%)	

INTEGUMENTARY SYSTEM

Mammary Gland	(50)	(50)	(50)	(50)
Adenoma				1 (2%)
Carcinoma	2 (4%)		2 (4%)	1 (2%)
Skin	(50)	(50)	(50)	(50)
Hemangiosarcoma	1 (2%)			
Rhabdomyosarcoma, Metastatic, Skeletal Muscle				1 (2%)
Lip, Squamous Cell Papilloma	1 (2%)			
Subcutaneous Tissue, Fibrosarcoma		1 (2%)	1 (2%)	1 (2%)
Subcutaneous Tissue, Hemangiosarcoma	1 (2%)			
Subcutaneous Tissue, Schwannoma Malignant		1 (2%)	1 (2%)	

MUSCULOSKELETAL SYSTEM

Bone	(50)	(50)	(50)	(50)
Femur, Sarcoma	1 (2%)			
Vertebra, Rhabdomyosarcoma, Metastatic, Skeletal Muscle				1 (2%)
Skeletal Muscle	(3)	(3)	(1)	(4)
Leiomyosarcoma, Metastatic, Intestine Small, Duodenum				1 (25%)
Rhabdomyosarcoma				1 (25%)

NERVOUS SYSTEM

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Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE FEMALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
Brain	(50)	(50)	(50)	(50)
Meningioma Malignant				1 (2%)
Peripheral Nerve	(2)	(3)	(1)	(3)
Rhabdomyosarcoma, Metastatic, Skeletal Muscle				1 (33%)
Spinal Cord	(3)	(3)	(1)	(3)

RESPIRATORY SYSTEM

Larynx	(49)	(49)	(50)	(50)
Lung	(50)	(50)	(50)	(50)
Alveolar/Bronchiolar Adenoma	1 (2%)	3 (6%)	2 (4%)	4 (8%)
Alveolar/Bronchiolar Adenoma, Multiple		1 (2%)		
Alveolar/Bronchiolar Carcinoma	4 (8%)	1 (2%)	4 (8%)	8 (16%)
Carcinoma, Metastatic, Mammary Gland			1 (2%)	1 (2%)
Hepatocellular Carcinoma, Metastatic, Liver	2 (4%)	4 (8%)	1 (2%)	
Schwannoma Malignant, Metastatic, Skin			1 (2%)	
Nose	(50)	(49)	(50)	(50)
Carcinoma, Metastatic, Harderian Gland			1 (2%)	
Trachea	(49)	(49)	(50)	(50)

SPECIAL SENSES SYSTEM

Eye	(50)	(50)	(50)	(50)
Carcinoma, Metastatic, Harderian Gland			1 (2%)	
Harderian Gland	(50)	(50)	(50)	(50)
Adenoma	2 (4%)	6 (12%)	3 (6%)	1 (2%)
Carcinoma		1 (2%)	1 (2%)	2 (4%)

URINARY SYSTEM

Kidney	(50)	(50)	(50)	(50)
Ureter	(0)	(0)	(1)	(0)
Urethra	(0)	(1)	(0)	(0)

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

Experiment Number: 20515 - 04

P05: INCIDENCE RATES OF NEOPLASMS BY ANATOMIC SITE (SYSTEMIC LESIONS ABRIDGED) (a)

Date Report Requested: 03/08/2013

Test Type: CHRONIC

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CAS Number: CIMSTAR3800

First Dose M/F: 05/05/08 / 05/05/08

Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE FEMALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
Sarcoma		1 (100%)		
Urinary Bladder	(50)	(50)	(50)	(50)

SYSTEMIC LESIONS

Multiple Organ	*(50)	*(50)	*(50)	*(50)
Histiocytic Sarcoma	2 (4%)	1 (2%)	1 (2%)	1 (2%)
Lymphoma Malignant	18 (36%)	18 (36%)	17 (34%)	20 (40%)

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

* Number of animals with any tissue examined microscopically

Test Type: CHRONIC

Metal working fluids (CIMSTAR 3800)

Time Report Requested: 14:13:47

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: CIMSTAR3800

First Dose M/F: 05/05/08 / 05/05/08

Species/Strain: MICE/B6C3F1

Lab: BNW

B6C3F1 MICE FEMALE	Control	10 mg/m3	30 mg/m3	100 mg/m3
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Tumor Summary for Females

Total Animals with Primary Neoplasms (b)	41	42	43	40
Total Primary Neoplasms	74	77	69	73
Total Animals with Benign Neoplasms	26	30	28	23
Total Benign Neoplasms	31	40	35	29
Total Animals with Malignant Neoplasms	30	31	28	34
Total Malignant Neoplasms	43	37	34	44
Total Animals with Metastatic Neoplasms	2	4	4	4
Total Metastatic Neoplasms	2	4	8	10
Total Animals with Malignant Neoplasms Uncertain Primary Site				1
Total Animals with Neoplasms Uncertain- Benign or Malignant				
Total Uncertain Neoplasms				

*** END OF REPORT ***

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

b - Primary tumors: all tumors except metastatic tumors