

酢酸ビニルのラット及びマウスを用いた  
経口投与によるがん原性試験(混水試験)報告書

# APPENDIX

(L1～R2)

がん原性：ラット/0162；マウス/0163

## APPENDIXES (CONTINUED)

- APPENDIX L 1 HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (TWO-YEAR STUDY:SUMMARY)  
RAT:MALE:DEAD AND MORIBUND ANIMALS
- APPENDIX L 2 HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (TWO-YEAR STUDY:SUMMARY)  
RAT:FEMALE:DEAD AND MORIBUND ANIMALS
- APPENDIX L 3 HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (TWO-YEAR STUDY:SUMMARY)  
RAT:MALE:SACRIFICED ANIMALS
- APPENDIX L 4 HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (TWO-YEAR STUDY:SUMMARY)  
RAT:FEMALE:SACRIFICED ANIMALS
- APPENDIX L 5 HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (TWO-YEAR STUDY:SUMMARY)  
MOUSE:MALE:DEAD AND MORIBUND ANIMALS
- APPENDIX L 6 HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (TWO-YEAR STUDY:SUMMARY)  
MOUSE:FEMALE:DEAD AND MRIBUND ANIMALS
- APPENDIX L 7 HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (TWO-YEAR STUDY:SUMMARY)  
MOUSE:MALE:SACRIFICED ANIMALS
- APPENDIX L 8 HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (TWO-YEAR STUDY:SUMMARY)  
MOUSE:FEMALE:SACRIFICED ANIMALS
- APPENDIX M 1 NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS-TIME RELATED  
RAT:MALE
- APPENDIX M 2 NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS-TIME RELATED  
RAT:FEMALE
- APPENDIX M 3 NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS-TIME RELATED  
MOUSE:MALE
- APPENDIX M 4 NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS-TIME RELATED  
MOUSE:FEMALE
- APPENDIX N 1 NEOPLASTIC LESIONS - INCIDENCE AND TIME OF TUMOR OCCURRENCE  
RAT:MALE
- APPENDIX N 2 NEOPLASTIC LESIONS - INCIDENCE AND TIME OF TUMOR OCCURRENCE  
RAT:FEMALE
- APPENDIX N 3 NEOPLASTIC LESIONS - INCIDENCE AND TIME OF TUMOR OCCURRENCE  
MOUSE:MALE
- APPENDIX N 4 NEOPLASTIC LESIONS - INCIDENCE AND TIME OF TUMOR OCCURRENCE  
MOUSE:FEMALE

A P P E N D I X E S (CONTINUED)

- APPENDIX O 1    NEOPLASTIC LESIONS - INCIDENCE AND STATISTICAL ANALYSIS  
RAT:MALE
- APPENDIX O 2    NEOPLASTIC LESIONS - INCIDENCE AND STATISTICAL ANALYSIS  
RAT:FEMALE
- APPENDIX O 3    NEOPLASTIC LESIONS - INCIDENCE AND STATISTICAL ANALYSIS  
MOSE:MALE
- APPENDIX O 4    NEOPLASTIC LESIONS - INCIDENCE AND STATISTICAL ANALYSIS  
MOUSE:FEMALE
- APPENDIX P 1    HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR (TWO-YEAR STUDY:SUMMARY)  
RAT:MALE:DEAD AND MORIBUND ANIMALS
- APPENDIX P 2    HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR (TWO-YEAR STUDY:SUMMARY)  
RAT:FEMALE:DEAD AND MORIBUND ANIMALS
- APPENDIX P 3    HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR (TWO-YEAR STUDY:SUMMARY)  
RAT:MALE:SACRIFICED ANIMALS
- APPENDIX P 4    HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR (TWO-YEAR STUDY:SUMMARY)  
RAT:FEMALE:SACRIFICED ANIMALS
- APPENDIX P 5    HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR (TWO-YEAR STUDY:SUMMARY)  
MOUSE:MALE:DEAD AND MORIBUND ANIMALS
- APPENDIX P 6    HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR (TWO-YEAR STUDY:SUMMARY)  
MOUSE:FEMALE:DEAD AND MRIBUND ANIMALS
- APPENDIX P 7    HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR (TWO-YEAR STUDY:SUMMARY)  
MOUSE:MALE:SACRIFICED ANIMALS
- APPENDIX P 8    HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR (TWO-YEAR STUDY:SUMMARY)  
MOUSE:FEMALE:SACRIFICED ANIMALS
- APPENDIX Q 1    IDENTITY OF VINYL ACETATE (TWO-YEAR STUDIES)
- APPENDIX Q 2    STABILITYTY OF VINYL ACETATE (TWO-YEAR STUDIES)
- APPENDIX Q 3    CONCENTRATION OF VINYL ACETATE IN DRINKING WATER  
(TWO-YEAR STUDIES)
- APPENDIX Q 4    STABILITY OF VINYL ACETATE IN DRINKING WATER  
(TWO-YEAR STUDIES)
- APPENDIX R 1    METHODS FOR HEMATOLOGY,BIOCHEMISTRY AND URINALYSIS
- APPENDIX R 2    UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY

APPENDIX L 1

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : MALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 1

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	6				10				14				11			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Integumentary system/appandage]																		
skin/app			< 6>				<10>				<14>				<11>			
	scar:dermis		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Respiratory system]																		
nasal cavit			< 6>				<10>				<14>				<11>			
	eosinophilic change:olfactory epithelium		1	0	0	0	6	0	0	0	4	1	0	0	0	0	0	0
			( 17 )	( 0 )	( 0 )	( 0 )	( 60 )	( 0 )	( 0 )	( 0 )	( 29 )	( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	eosinophilic change:respiratory epithelium		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	inflammation:foreign body		0	2	0	0	0	0	0	0	2	0	0	0	0	0	1	0
			( 0 )	( 33 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 14 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 9 )	( 0 )
	respiratory metaplasia:olfactory epithelium		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	respiratory metaplasia:gland		1	1	0	0	5	0	0	0	8	1	0	0	3	1	0	0
			( 17 )	( 17 )	( 0 )	( 0 )	( 50 )	( 0 )	( 0 )	( 0 )	( 57 )	( 7 )	( 0 )	( 0 )	( 27 )	( 9 )	( 0 )	( 0 )
lung			< 6>				<10>				<14>				<11>			
	congestion		0	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0
			( 0 )	( 17 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 9 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 3

Organ	Findings	Group Name No. of Animals on Study Grade	Control 6				400 ppm 10				2000 ppm 14				10000 ppm 11			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Hematopoietic system]																		
spleen			< 6>				<10>				<14>				<11>			
	atrophy		0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 14 )	( 0 )	( 0 )	( 0 )	( 18 )	( 9 )	( 0 )
	deposit of hemosiderin		0	2	0	0	2	0	0	0	0	1	0	0	1	0	0	0
			( 0 )	( 33 )	( 0 )	( 0 )	( 20 )	( 0 )	( 0 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 9 )	( 0 )	( 0 )	( 0 )
	extramedullary hematopoiesis		0	0	1	0	0	1	1	0	0	2	1	0	0	0	2	0
			( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 10 )	( 10 )	( 0 )	( 0 )	( 14 )	( 7 )	( 0 )	( 0 )	( 0 )	( 18 )	( 0 )
[Circulatory system]																		
heart			< 6>				<10>				<14>				<11>			
	thrombus		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 9 )	( 0 )
	mineralization		0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	hypertrophy		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 17 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	myocardial fibrosis		3	0	1	0	5	0	0	0	10	0	0	0	6	0	0	0
			( 50 )	( 0 )	( 17 )	( 0 )	( 50 )	( 0 )	( 0 )	( 0 )	( 71 )	( 0 )	( 0 )	( 0 )	( 55 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 4

Organ	Findings	Group Name No. of Animals on Study Grade	Control 6				400 ppm 10				2000 ppm 14				10000 ppm 11			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Circulatory system]																		
artery/aort	mineralization		< 6>				<10>				<14>				<11>			
			1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
[Digestive system]																		
tooth	inflammation		< 6>				<10>				<14>				<11>			
			0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)
tongue	mineralization		< 6>				<10>				<14>				<10>			
			0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	arteritis		< 6>				<10>				<14>				<11>			
			0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
stomach	mineralization		< 6>				<10>				<14>				<11>			
			0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	erosion:forestomach		< 6>				<10>				<14>				<11>			
			0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Group Name No. of Animals on Study Grade				Control 6				400 ppm 10				2000 ppm 14				10000 ppm 11			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																					
stomach		< 6>				<10>				<14>				<11>							
	ulcer:forestomach	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	hyperplasia:forestomach	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	erosion:glandular stomach	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)	( 0)
	ulcer:glandular stomach	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)	( 0)	( 9)	( 0)	( 0)	( 0)
liver		< 6>				<10>				<14>				<11>							
	necrosis:central	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	fatty change	1	0	0	0	0	1	0	0	1	3	0	0	0	0	0	0	0	0	0	0
		( 17)	( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 7)	( 21)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	inflammatory infiltration	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	granulation	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 6

Organ	Findings	Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	6				10				14				11			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
Liver			< 6>				<10>				<14>				<11>			
	vacuolated cell focus		1 ( 17)	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 ( 18)	0 ( 0)	0 ( 0)
	spongiosis hepatitis		2 ( 33)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 14)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 9)	0 ( 0)	0 ( 0)	0 ( 0)
	bile duct hyperplasia		1 ( 17)	3 ( 50)	1 ( 17)	0 ( 0)	0 ( 0)	6 ( 60)	3 ( 30)	0 ( 0)	3 ( 21)	8 ( 57)	1 ( 7)	0 ( 0)	1 ( 9)	4 ( 36)	4 ( 36)	0 ( 0)
pancreas			< 6>				<10>				<14>				<11>			
	atrophy		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	4 ( 40)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 14)	4 ( 29)	0 ( 0)	0 ( 0)	1 ( 9)	0 ( 0)	1 ( 9)	0 ( 0)
[Urinary system]																		
kidney			< 6>				<10>				<14>				<11>			
	hyaline droplet		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 14)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	deposit of hemosiderin		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 14)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
Grade	1 : Slight      2 : Moderate      3 : Marked      4 : Severe																	
< a >	a : Number of animals examined at the site																	
b	b : Number of animals with lesion																	
( c )	c : b / a * 100																	
Significant difference ;      * : P ≤ 0.05      ** : P ≤ 0.01      Test of Chi Square																		

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 7

Organ_____	Findings_____	Group Name No. of Animals on Study Grade	Control 6				400 ppm 10				2000 ppm 14				10000 ppm 11			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Urinary system]																		
kidney			< 6>				<10>				<14>				<11>			
	chronic nephropathy		0 ( 0 )	1 ( 17 )	1 ( 17 )	2 ( 33 )	1 ( 10 )	3 ( 30 )	3 ( 30 )	0 ( 0 )	2 ( 14 )	2 ( 14 )	1 ( 7 )	3 ( 21 )	2 ( 18 )	0 ( 0 )	2 ( 18 )	0 ( 0 )
	hydronephrosis		1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	tubular necrosis		0 ( 0 )	0 ( 0 )	1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 14 )	0 ( 0 )	1 ( 9 )	2 ( 18 )	4 ( 36 )	0 ( 0 )
[Endocrine system]																		
pituitary			< 6>				<10>				<14>				<11>			
	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 )	1 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	cyst		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 20 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	hyperplasia		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 20 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 21 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
thyroid			< 6>				< 9>				<14>				<10>			
	C-cell hyperplasia		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 11 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 8

Organ	Findings	Group Name No. of Animals on Study Grade	Control 6				400 ppm 10				2000 ppm 14				10000 ppm 11			
			1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)
[Endocrine system]																		
parathyroid	hyperplasia		< 6>				<10>				<14>				<11>			
			1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
adrenal	hyperplasia:medulla		< 6>				<10>				<14>				<11>			
			4 ( 67 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 7 )	1 ( 7 )	0 ( 0 )	0 * ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 * ( 0 )
	focal fatty change:cortex		< 6>				<10>				<14>				<11>			
			1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
[Reproductive system]																		
testis	atrophy		< 6>				<10>				<14>				<11>			
			0 ( 0 )	1 ( 17 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	2 ( 20 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 18 )	3 ( 27 )	0 ( 0 )
	mineralization		< 6>				<10>				<14>				<11>			
			0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	arteritis		< 6>				<10>				<14>				<11>			
			0 ( 0 )	1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
Grade	1 : Slight      2 : Moderate      3 : Marked      4 : Severe																	
< a >	a : Number of animals examined at the site																	
b	b : Number of animals with lesion																	
( c )	c : b / a * 100																	
Significant difference ;    * : P ≤ 0.05    ** : P ≤ 0.01    Test of Chi Square																		

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 9

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	6				10				14				11			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Reproductive system]																		
testis	interstitial cell hyperplasia		< 6>				<10>				<14>				<11>			
		1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 30 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
epididymis	degeneration		< 6>				<10>				<14>				<11>			
		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 20 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 21 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 27 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
prostate	inflammation		< 6>				<10>				<14>				<11>			
		1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 9 )	1 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
mammary gl	galactoceles		< 6>				<10>				<14>				<11>			
		1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
[Nervous system]																		
brain	hemorrhage		< 6>				<10>				<14>				<11>			
		1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
spinal cord	hemorrhage		< 6>				<10>				<14>				<11>			
		0 ( 0 )	1 ( 17 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 10

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	6				10				14				11			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Special sense organs/appandage]																		
eye			< 6>				<10>				<14>				<11>			
	cataract		1 ( 17)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	retinal atrophy		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	1 ( 10)	0 ( 0)	1 ( 7)	1 ( 7)	1 ( 7)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 9)	0 ( 0)
	keratitis		0 ( 0)	1 ( 17)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	degeneration:cornea		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 7)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
Harder gl			< 6>				<10>				<14>				<11>			
	degeneration		1 ( 17)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 7)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	inflammation		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	inflammatory infiltration		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 7)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
nasolacr d			< 6>				<10>				<14>				<11>			
	inflammation		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 11

Organ_____	Findings_____	Group Name				Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study				6				10				14				11			
		Grade																			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)			

[Musculoskeletal system]

bone		< 6>				<10>				<14>				<11>			
	ostitis fibrosa	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 17)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
 < a > a : Number of animals examined at the site  
 b b : Number of animals with lesion  
 ( c ) c : b / a \* 100  
 Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

(HPT150)

BAIS2

APPENDIX L 2

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : FEMALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 12

Organ	Findings	Group Name No. of Animals on Study Grade	Control 9				400 ppm 10				2000 ppm 9				10000 ppm 13			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
nasal cavit			< 9>				<10>				< 9>				<13>			
	inflammation		0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 22 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	eosinophilic change:olfactory epithelium		5	1	0	0	3	1	0	0	5	2	0	0	1	5	0	0 *
			( 56 )	( 11 )	( 0 )	( 0 )	( 30 )	( 10 )	( 0 )	( 0 )	( 56 )	( 22 )	( 0 )	( 0 )	( 8 )	( 38 )	( 0 )	( 0 )
	inflammation:foreign body		1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 11 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )
	respiratory metaplasia:gland		3	0	0	0	6	0	0	0	6	0	0	0	5	0	0	0
			( 33 )	( 0 )	( 0 )	( 0 )	( 60 )	( 0 )	( 0 )	( 0 )	( 67 )	( 0 )	( 0 )	( 0 )	( 38 )	( 0 )	( 0 )	( 0 )
trachea			< 9>				<10>				< 9>				<13>			
	inflammation		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
lung			< 9>				<10>				< 9>				<13>			
	congestion		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	inflammatory infiltration		1	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0
			( 11 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 23 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 13

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	9				10				9				13			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Hematopoietic system]																		
bone marrow			< 9>				<10>				< 9>				<13>			
	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)	1 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)
	fibrosis		1 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)
	increased hematopoiesis		2 ( 22)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 33)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)
spleen			< 9>				<10>				< 9>				<13>			
	atrophy		1 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	deposit of hemosiderin		1 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	1 ( 10)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 23)	0 ( 0)	0 ( 0)	0 ( 0)
	fibrosis		0 ( 0)	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 ( 8)	0 ( 0)	0 ( 0)
	extramedullary hematopoiesis		2 ( 22)	0 ( 0)	2 ( 22)	0 ( 0)	1 ( 10)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	5 ( 56)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 15)	0 ( 0)
[Circulatory system]																		
heart			< 9>				<10>				< 9>				<13>			
	thrombus		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 14

Organ	Findings	Group Name No. of Animals on Study Grade	Control 9				400 ppm 10				2000 ppm 9				10000 ppm 13			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Circulatory system]																		
heart	mineralization		< 9>				<10>				< 9>				<13>			
			1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	myocardial fibrosis		3	0	0	0	3	0	0	0	3	1	0	0	4	0	0	0
			( 33)	( 0)	( 0)	( 0)	( 30)	( 0)	( 0)	( 0)	( 33)	( 11)	( 0)	( 0)	( 31)	( 0)	( 0)	( 0)
[Digestive system]																		
oral cavity	inflammation		< 9>				<10>				< 9>				<13>			
			0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 11)	( 11)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)
	fibrosis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 0)
esophagus	squamous cell hyperplasia		< 9>				<10>				< 9>				<13>			
			0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)
	mineralization		< 9>				<10>				< 9>				<13>			
			0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 15

Organ_____	Findings_____	Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	9				10				9				13			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
stomach			< 9>				<10>				< 9>				<13>			
	ulcer:forestomach		0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 10)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	erosion:glandular stomach		0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)
	ulcer:glandular stomach		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
liver			< 9>				<10>				< 9>				<13>			
	herniation		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	necrosis:central		0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 8)	( 0)	( 0)
	necrosis:focal		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
	fatty change		0	2	0	0	2	0	0	0	0	1	0	0	0	0	0	0
			( 0)	( 22)	( 0)	( 0)	( 20)	( 0)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	granulation		0	1	0	0	0	0	1	0	1	0	0	0	2	0	0	0
			( 0)	( 11)	( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 11)	( 0)	( 0)	( 0)	( 15)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 16

Organ	Findings	Group Name No. of Animals on Study Grade	Control 9				400 ppm 10				2000 ppm 9				10000 ppm 13			
			1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)
[Digestive system]																		
liver			< 9>				<10>				< 9>				<13>			
	basophilic cell focus		2 ( 22)	1 ( 11)	0 ( 0)	0 ( 0)	1 ( 10)	1 ( 10)	0 ( 0)	0 ( 0)	1 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)
	vacuolated cell focus		1 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)
	spongiosis hepatitis		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	bile duct hyperplasia		1 ( 11)	1 ( 11)	0 ( 0)	0 ( 0)	3 ( 30)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
pancreas			< 9>				<10>				< 9>				<13>			
	atrophy		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 11)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
[Urinary system]																		
kidney			< 9>				<10>				< 9>				<13>			
	hyperplasia:tubular epithelial cell		0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 10)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 17

Organ_____	Findings_____	Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	9				10				9				13			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Urinary system]																		
kidney			< 9>				<10>				< 9>				<13>			
	infarct		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	hyaline droplet		0 ( 0 )	0 ( 0 )	1 ( 11 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	deposit of hemosiderin		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 11 )	1 ( 11 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	inflammatory infiltration		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 11 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	chronic nephropathy		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 20 )	2 ( 20 )	1 ( 10 )	0 ( 0 )	2 ( 22 )	0 ( 0 )	1 ( 11 )	0 ( 0 )	3 ( 23 )	1 ( 8 )	0 ( 0 )	1 ( 8 )
	hydronephrosis		0 ( 0 )	1 ( 11 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 11 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	tubular necrosis		0 ( 0 )	1 ( 11 )	2 ( 22 )	0 ( 0 )	1 ( 10 )	1 ( 10 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 33 )	0 ( 0 )	0 ( 0 )	2 ( 15 )	3 ( 23 )	0 ( 0 )
	mineralization:cortico-medullary junction		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 11 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 18

Organ	Findings	Group Name No. of Animals on Study Grade				Control 9				400 ppm 10				2000 ppm 9				10000 ppm 13			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Urinary system]																					
kidney		< 9>				<10>				< 9>				<13>							
	mineralization:papilla	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	mineralization:pelvis	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 11)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
[Endocrine system]																					
pituitary		< 9>				<10>				< 9>				<13>							
	angiectasis	0	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 22)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	cyst	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 15)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	hyperplasia	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
thyroid		< 9>				<10>				< 9>				<13>							
	ultimibranchial body remanet	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 19

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 10				2000 ppm 9				10000 ppm 13			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Endocrine system]																	
thyroid		< 9>				<10>				< 9>				<13>			
	C-cell hyperplasia	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 15 )	( 0 )	( 0 )	( 0 )
adrenal		< 9>				<10>				< 9>				<13>			
	hemorrhage	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
	peliosis-like lesion	1	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0
		( 11 )	( 11 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
	necrosis	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
	hyperplasia:cortical cell	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	hyperplasia:medulla	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	focal fatty change:cortex	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
[Reproductive system]																	
uterus		< 9>				<10>				< 9>				<13>			
	cystic endometrial hyperplasia	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
		( 11 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 20

Organ	Findings	Group Name No. of Animals on Study Grade	Control 9				400 ppm 10				2000 ppm 9				10000 ppm 13			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Reproductive system]																		
mammary gl	hyperplasia		< 9>				<10>				< 9>				<13>			
			0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 20 )	( 0 )	( 0 )	( 0 )	( 22 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	galactoceles		0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
[Nervous system]																		
brain	hemorrhage		< 9>				<10>				< 9>				<13>			
			0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 10 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
spinal cord	hemorrhage		< 9>				<10>				< 9>				<13>			
			0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 10 )	( 10 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Special sense organs/appandage]																		
eye	hemorrhage		< 9>				<10>				< 9>				<13>			
			0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 21

Organ	Findings	Group Name No. of Animals on Study Grade				Control 9				400 ppm 10				2000 ppm 9				10000 ppm 13			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Special sense organs/appandage]																					
eye		< 9>				<10>				< 9>				<13>							
	retinal atrophy	0	0	0	0	1	0	1	0	2	2	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 10)	( 0)	( 10)	( 0)	( 22)	( 22)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	keratitis	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	iritis	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
Harder gl		< 9>				<10>				< 9>				<13>							
	degeneration	0	1	0	0	1	0	0	0	1	0	0	0	1	1	0	0	1	1	0	0
		( 0)	( 11)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 8)	( 8)	( 0)	( 0)	( 8)	( 8)	( 0)	( 0)
nasolacr d		< 9>				<10>				< 9>				<13>							
	inflammation	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
[Musculoskeletal system]																					
bone		< 9>				<10>				< 9>				<13>							
	osteosclerosis	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
		( 11)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 11)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
 < a > a : Number of animals examined at the site  
 b : Number of animals with lesion  
 ( c ) c : b / a \* 100  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 22

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 10				2000 ppm 9				10000 ppm 13			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Body cavities]

retroperit		< 9>				<10>				< 9>				<13>			
inflammation		0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
 < a > a : Number of animals examined at the site  
 b b : Number of animals with lesion  
 ( c ) c : b / a \* 100  
 Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

(HPT150)

BAIS2

APPENDIX L 3

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : MALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 1

Organ	Findings	Group Name No. of Animals on Study Control 44				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Integumentary system/appandage]																	
skin/app		<44>				<40>				<36>				<39>			
	hyperplasia:epithelium	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	hyperplasia:epidermis	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	duct ectasia:sebaceous gland	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )
[Respiratory system]																	
nasal cavit		<44>				<40>				<36>				<39>			
	eosinophilic change:olfactory epithelium	24	2	1	0	22	3	1	0	20	3	0	0	17	0	0	0
		( 55 )	( 5 )	( 2 )	( 0 )	( 55 )	( 8 )	( 3 )	( 0 )	( 56 )	( 8 )	( 0 )	( 0 )	( 44 )	( 0 )	( 0 )	( 0 )
	eosinophilic change:respiratory epithelium	3	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
	inflammation:foreign body	5	2	0	0	6	0	0	0	5	1	0	0	1	1	0	0
		( 11 )	( 5 )	( 0 )	( 0 )	( 15 )	( 0 )	( 0 )	( 0 )	( 14 )	( 3 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )
	respiratory metaplasia:olfactory epithelium	3	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 2

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																	
nasal cavity		<44>				<40>				<36>				<39>			
	respiratory metaplasia:gland	21	7	0	0	24	3	0	0	22	0	0	0 *	23	5	0	0
		( 48 )	( 16 )	( 0 )	( 0 )	( 60 )	( 8 )	( 0 )	( 0 )	( 61 )	( 0 )	( 0 )	( 0 )	( 59 )	( 13 )	( 0 )	( 0 )
lung		<44>				<40>				<36>				<39>			
	accumulation of foamy cells	2	0	0	0	2	0	0	0	1	1	0	0	2	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
	bronchiolar-alveolar cell hyperplasia	4	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0
		( 9 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Hematopoietic system]																	
bone marrow		<44>				<40>				<36>				<39>			
	granulation	1	0	0	0	3	1	0	0	1	1	0	0	3	3	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 8 )	( 3 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )	( 8 )	( 8 )	( 0 )	( 0 )
	fibrosis	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	increased hematopoiesis	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 3

Organ	Findings	Group Name No. of Animals on Study Grade	Control 44				400 ppm 40				2000 ppm 36				10000 ppm 39				
			1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	
[Hematopoietic system]																			
Lymph node	ectasia of sinus		<44>				<40>				<36>				<39>				
		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 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )		
spleen	deposit of hemosiderin		<44>				<40>				<35>				<39>				
		3 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )		
	fibrosis		0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	3 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	
		extramedullary hematopoiesis		0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
			lymphoid hyperplasia		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 ( 3 )	0 ( 0 )	0 ( 0 )
[Circulatory system]																			
heart	myocardial fibrosis		<44>				<40>				<36>				<39>				
		21 ( 48 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	19 ( 48 )	4 ( 10 )	0 ( 0 )	0 ( 0 )	23 ( 64 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	17 ( 44 )	1 ( 3 )	0 ( 0 )	0 ( 0 )		
Grade	1 : Slight      2 : Moderate      3 : Marked      4 : Severe																		
< a >	a : Number of animals examined at the site																		
b	b : Number of animals with lesion																		
( c )	c : b / a * 100																		
Significant difference ;    * : P ≤ 0.05    ** : P ≤ 0.01    Test of Chi Square																			

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 4

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Circulatory system]																	
artery/aort	arteritis	<44>				<40>				<36>				<39>			
		1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Digestive system]																	
oral cavity	inflammation	<44>				<40>				<36>				<39>			
		4	2	0	0	2	3	0	0	0	4	0	0	5	3	0	0
		( 9 )	( 5 )	( 0 )	( 0 )	( 5 )	( 8 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 13 )	( 8 )	( 0 )	( 0 )
	basal cell activation	<44>				<40>				<36>				<39>			
		0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
tooth	inflammation	<44>				<40>				<36>				<39>			
		0	1	0	0	1	2	0	0	1	1	0	0	3	0	0	0
		( 0 )	( 2 )	( 0 )	( 0 )	( 3 )	( 5 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
tongue	inflammation	<44>				<40>				<36>				<39>			
		0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
	arteritis	<44>				<40>				<36>				<39>			
		0	0	0	0	1	0	0	0	4	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 5

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																	
salivary gl		<44>				<40>				<36>				<39>			
	inflammation	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
esophagus		<44>				<40>				<36>				<39>			
	squamous cell hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
stomach		<44>				<40>				<36>				<39>			
	basal cell activation	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
	erosion:forestomach	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	ulcer:forestomach	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	hyperplasia:forestomach	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 2 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	erosion:glandular stomach	0	0	0	0	1	0	0	0	3	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 6

Organ	Findings	Group Name No. of Animals on Study Grade				Control 44				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																					
stomach	ulcer:glandular stomach	<44>				<40>				<36>				<39>							
		0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
liver	lymph node with epithelial hyperplasia	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
liver	herniation	<44>				<40>				<36>				<39>							
		3	0	0	0	0	0	0	0	3	0	0	0	1	0	0	0	1	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
liver	fatty change	2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
liver	lymphocytic infiltration	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
liver	granulation	9	2	2	0	10	1	1	0	3	5	2	0	12	4	6	0	12	4	6	0
		( 20 )	( 5 )	( 5 )	( 0 )	( 25 )	( 3 )	( 3 )	( 0 )	( 8 )	( 14 )	( 6 )	( 0 )	( 31 )	( 10 )	( 15 )	( 0 )	( 31 )	( 10 )	( 15 )	( 0 )
liver	hyperplasia	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 2 )	( 0 )	( 3 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
liver	clear cell focus	6	1	0	0	9	1	0	0	7	1	0	0	3	2	0	0	3	2	0	0
		( 14 )	( 2 )	( 0 )	( 0 )	( 23 )	( 3 )	( 0 )	( 0 )	( 19 )	( 3 )	( 0 )	( 0 )	( 8 )	( 5 )	( 0 )	( 0 )	( 8 )	( 5 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 7

Organ	Findings	Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	44				40				36				39			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
Liver			<44>				<40>				<36>				<39>			
	acidophilic cell focus		1 ( 2 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	basophilic cell focus		4 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	7 ( 19 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	4 ( 10 )	2 ( 5 )	0 ( 0 )	0 ( 0 )
	vacuolated cell focus		2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	6 ( 15 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	spongiosis hepatitis		9 ( 20 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	9 ( 23 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	4 ( 11 )	2 ( 6 )	0 ( 0 )	0 ( 0 )	11 ( 28 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	bile duct hyperplasia		3 ( 7 )	27 ( 61 )	14 ( 32 )	0 ( 0 )	0 ( 0 )	28 ( 70 )	12 ( 30 )	0 ( 0 )	2 ( 6 )	28 ( 78 )	6 ( 17 )	0 ( 0 )	0 ( 0 )	33 ( 85 )	7 ( 18 )	0 ( 0 )
pancreas	biliary cyst		1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	atrophy		14 ( 32 )	5 ( 11 )	0 ( 0 )	0 ( 0 )	11 ( 28 )	5 ( 13 )	1 ( 3 )	1 ( 3 )	14 ( 39 )	9 ( 25 )	2 ( 6 )	0 * ( 0 )	9 ( 23 )	4 ( 10 )	1 ( 3 )	0 ( 0 )
	arteritis		0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 8

Organ	Findings	Group Name No. of Animals on Study Control Grade				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																	
pancreas		<44>				<40>				<36>				<39>			
	hyperplasia:acinar cell	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Urinary system]																	
kidney		<44>				<40>				<36>				<39>			
	infarct	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
	inflammatory infiltration	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )
	chronic nephropathy	2	7	19	15	0	7	10	23	1	11	12	10	10	9	14	6 *
		( 5 )	( 16 )	( 43 )	( 34 )	( 0 )	( 18 )	( 25 )	( 58 )	( 3 )	( 31 )	( 33 )	( 28 )	( 26 )	( 23 )	( 36 )	( 15 )
	mineralization:pelvis	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Endocrine system]																	
pituitary		<44>				<40>				<36>				<39>			
	angiectasis	1	0	0	0	1	1	0	0	3	0	0	0	0	1	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 9

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Endocrine system]																	
pituitary		<44>				<40>				<36>				<39>			
	cyst	3	0	0	0	2	0	0	0	2	0	0	0	1	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	hyperplasia	11	0	0	0	7	3	0	0	6	2	0	0	5	1	0	0
		( 25 )	( 0 )	( 0 )	( 0 )	( 18 )	( 8 )	( 0 )	( 0 )	( 17 )	( 6 )	( 0 )	( 0 )	( 13 )	( 3 )	( 0 )	( 0 )
	Rathke pouch	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
thyroid		<44>				<40>				<35>				<39>			
	cyst	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )
	ultimibranchial body remanet	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	C-cell hyperplasia	8	0	0	0	2	1	0	0	4	0	0	0	5	0	0	0
		( 18 )	( 0 )	( 0 )	( 0 )	( 5 )	( 3 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )
panc islet		<44>				<40>				<36>				<39>			
	islet cell hyperplasia	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 10

Organ	Findings	Group Name No. of Animals on Study Grade				Control 44				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Endocrine system]																					
adrenal		<44>				<40>				<36>				<39>							
	thrombus	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	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:cortical cell	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 6 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	hyperplasia:medulla	11 ( 25 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	10 ( 25 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	6 ( 17 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	4 ( 10 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	4 ( 10 )	1 ( 3 )	0 ( 0 )	0 ( 0 )
	focal fatty change:cortex	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
[Reproductive system]																					
testis		<44>				<40>				<36>				<39>							
	atrophy	1 ( 2 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	1 ( 3 )	0 ( 0 )
	mineralization	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	arteritis	1 ( 2 )	4 ( 9 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	3 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 6 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 11

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Reproductive system]																	
testis		<44>				<40>				<36>				<39>			
	interstitial cell hyperplasia	2	1	0	0	8	0	0	0	1	0	0	0	4	0	0	0
		( 5 )	( 2 )	( 0 )	( 0 )	( 20 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 10 )	( 0 )	( 0 )	( 0 )
epididymis		<44>				<40>				<36>				<39>			
	degeneration	6	0	0	0	7	0	0	0	12	0	0	0	8	0	0	0
		( 14 )	( 0 )	( 0 )	( 0 )	( 18 )	( 0 )	( 0 )	( 0 )	( 33 )	( 0 )	( 0 )	( 0 )	( 21 )	( 0 )	( 0 )	( 0 )
prostate		<44>				<40>				<35>				<39>			
	inflammation	4	0	0	0	5	0	0	0	3	0	0	0	2	0	0	0
		( 9 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 9 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
	hyperplasia	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
mammary gl		<44>				<40>				<36>				<39>			
	inflammation	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	galactocoele	0	2	0	0	1	1	0	0	1	0	0	0	1	0	0	0
		( 0 )	( 5 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
[Nervous system]																	
brain		<44>				<40>				<36>				<39>			
	mineralization	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 12

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 36				10000 ppm 39			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Special sense organs/appandage]																	
eye		<44>				<40>				<36>				<39>			
	hemorrhage	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	cataract	2	0	0	0	7	0	0	0	4	0	0	0	2	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 18 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
	retinal atrophy	5	4	1	0	5	10	7	0 **	4	7	3	0	9	5	2	0
		( 11 )	( 9 )	( 2 )	( 0 )	( 13 )	( 25 )	( 18 )	( 0 )	( 11 )	( 19 )	( 8 )	( 0 )	( 23 )	( 13 )	( 5 )	( 0 )
	degeneration:cornea	2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
		<44>				<40>				<36>				<39>			
Harder gl	degeneration	0	1	0	0	0	0	0	0	4	0	0	0	1	0	0	0
		( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	lymphocytic infiltration	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	hyperplasia	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

APPENDIX L 4

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

RAT : FEMALE : SACRIFICED ANIMALS

(2-YEAR STUDY)



STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 13

Organ	Findings	Group Name No. of Animals on Study Grade				Control 41				400 ppm 40				2000 ppm 41				10000 ppm 37			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Integumentary system/appandage]

skin/app		<41>				<40>				<41>				<37>			
	inflammation	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	duct ectasia:sebaceous gland	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )

[Respiratory system]

nasal cavit		<41>				<40>				<41>				<37>			
	inflammation	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	eosinophilic change:olfactory epithelium	14	12	3	0	12	7	2	0	15	13	3	0	15	11	5	0
		( 34 )	( 29 )	( 7 )	( 0 )	( 30 )	( 18 )	( 5 )	( 0 )	( 37 )	( 32 )	( 7 )	( 0 )	( 41 )	( 30 )	( 14 )	( 0 )
	eosinophilic change:respiratory epithelium	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	inflammation:foreign body	1	0	0	0	1	1	0	0	2	1	0	0	1	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )	( 5 )	( 2 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	respiratory metaplasia:olfactory epithelium	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 14

Organ	Findings	Group Name	Control				400 ppm				2000 ppm				10000 ppm				
		No. of Animals on Study	41				40				41				37				
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	
[Respiratory system]																			
nasal cavity	respiratory metaplasia:gland		<41>				<40>				<41>				<37>				
		30 ( 73 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	29 ( 73 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	28 ( 68 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	25 ( 68 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	
lung	hemorrhage		<41>				<40>				<41>				<37>				
		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	
	inflammatory infiltration		2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	
		accumulation of foamy cells		1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
		[Hematopoietic system]																	
bone marrow	granulation		<41>				<40>				<41>				<37>				
		7 ( 17 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	5 ( 13 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	5 ( 12 )	1 ( 2 )	1 ( 2 )	0 ( 0 )	7 ( 19 )	3 ( 8 )	0 ( 0 )	0 ( 0 )		
	increased hematopoiesis		2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105#)

PAGE : 15

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	41				40				41				37			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Hematopoietic system]																		
bone marrow	reticulosis		<41>				<40>				<41>				<37>			
		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
spleen	atrophy		<41>				<40>				<41>				<37>			
		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	
	deposit of hemosiderin		8 ( 20 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	9 ( 23 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
		fibrosis		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 ( 3 )	0 ( 0 )	0 ( 0 )
	extramedullary hematopoiesis			4 ( 10 )	3 ( 7 )	0 ( 0 )	0 ( 0 )	4 ( 10 )	4 ( 10 )	0 ( 0 )	0 ( 0 )	3 ( 7 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	2 ( 5 )	2 ( 5 )	1 ( 3 )
[Circulatory system]																		
heart	fibrosis		<41>				<40>				<41>				<37>			
		0 ( 0 )	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 ( 3 )	0 ( 0 )	0 ( 0 )	

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 16

Organ	Findings	Group Name No. of Animals on Study Grade	Control 41				400 ppm 40				2000 ppm 41				10000 ppm 37			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Circulatory system]																		
heart	myocardial fibrosis		<41>				<40>				<41>				<37>			
			8	0	0	0	10	1	0	0	13	0	0	0	9	1	0	0
			( 20 )	( 0 )	( 0 )	( 0 )	( 25 )	( 3 )	( 0 )	( 0 )	( 32 )	( 0 )	( 0 )	( 0 )	( 24 )	( 3 )	( 0 )	( 0 )
	endothelial cell hyperplasia		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
artery/aort	arteritis		<41>				<40>				<41>				<37>			
			0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Digestive system]																		
oral cavity	inflammation		<41>				<40>				<41>				<37>			
			3	7	0	0	3	6	0	0	4	6	0	0	3	3	0	0
			( 7 )	( 17 )	( 0 )	( 0 )	( 8 )	( 15 )	( 0 )	( 0 )	( 10 )	( 15 )	( 0 )	( 0 )	( 8 )	( 8 )	( 0 )	( 0 )
	basal cell activation		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	epithelial dysplasia		<41>				<40>				<41>				<37>			
			0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 17

Organ	Findings	Group Name No. of Animals on Study Grade				Control 41				400 ppm 40				2000 ppm 41				10000 ppm 37			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																					
tooth	inflammation	<41>				<40>				<41>				<37>							
		1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	1	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )
tongue	lymphocytic infiltration	<41>				<40>				<41>				<37>							
		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	arteritis	<41>				<40>				<41>				<37>							
		2	0	0	0	2	0	0	0	3	0	0	0	1	0	0	0	3	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
esophagus	basal cell activation	<41>				<40>				<41>				<37>							
		0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	11	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )
stomach	basal cell activation	<41>				<40>				<41>				<37>							
		0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	14	0	0	0 *
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 14 )	( 0 )	( 0 )	( 0 )	( 14 )	( 0 )	( 0 )	( 0 )
liver	herniation	<41>				<40>				<41>				<37>							
		2	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	5	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
	peliosis-like lesion	<41>				<40>				<41>				<37>							
		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 18

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 41				10000 ppm 37			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																	
Liver		<41>				<40>				<41>				<37>			
	necrosis:focal	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	fatty change	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	inflammatory infiltration	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	lymphocytic infiltration	1	2	0	0	0	1	0	0	0	0	0	0	1	0	0	0
		( 2 )	( 5 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	granulation	11	11	6	0	11	4	4	0	15	5	4	0	14	4	3	0
		( 27 )	( 27 )	( 15 )	( 0 )	( 28 )	( 10 )	( 10 )	( 0 )	( 37 )	( 12 )	( 10 )	( 0 )	( 38 )	( 11 )	( 8 )	( 0 )
	clear cell focus	5	1	0	0	0	0	0	0 *	1	0	0	0	4	1	0	0
		( 12 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 11 )	( 3 )	( 0 )	( 0 )
	basophilic cell focus	11	2	0	0	18	2	0	0	19	2	0	0	14	1	0	0
		( 27 )	( 5 )	( 0 )	( 0 )	( 45 )	( 5 )	( 0 )	( 0 )	( 46 )	( 5 )	( 0 )	( 0 )	( 38 )	( 3 )	( 0 )	( 0 )
	vacuolated cell focus	2	0	0	0	3	0	0	0	3	0	0	0	1	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe																	
< a >		a : Number of animals examined at the site															
b		b : Number of animals with lesion															
( c )		c : b / a * 100															
Significant difference ;		* : P ≤ 0.05 ** : P ≤ 0.01 Test of Chi Square															

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 19

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 41				10000 ppm 37			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																	
Liver		<41>				<40>				<41>				<37>			
	bile duct hyperplasia	2	4	0	0	5	0	0	0	5	1	0	0	6	0	0	0 *
		( 5 )	( 10 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 12 )	( 2 )	( 0 )	( 0 )	( 16 )	( 0 )	( 0 )	( 0 )
pancreas		<41>				<40>				<41>				<37>			
	atrophy	3	2	0	0	8	1	0	0	2	4	2	0	5	4	0	0
		( 7 )	( 5 )	( 0 )	( 0 )	( 20 )	( 3 )	( 0 )	( 0 )	( 5 )	( 10 )	( 5 )	( 0 )	( 14 )	( 11 )	( 0 )	( 0 )
[Urinary system]																	
kidney		<41>				<40>				<41>				<37>			
	infarct	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	chronic nephropathy	16	7	4	3	15	8	8	1	19	10	4	4	12	9	4	2
		( 39 )	( 17 )	( 10 )	( 7 )	( 38 )	( 20 )	( 20 )	( 3 )	( 46 )	( 24 )	( 10 )	( 10 )	( 32 )	( 24 )	( 11 )	( 5 )
	mineralization:cortico-medullary junction	5	0	0	0	3	0	0	0	3	0	0	0	1	0	0	0
		( 12 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	mineralization:papilla	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 20

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	41				40				41				37			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Urinary system]																		
kidney	mineralization:pelvis		<41>				<40>				<41>				<37>			
		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 2)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
[Endocrine system]																		
pituitary	angiectasis		<41>				<40>				<41>				<37>			
		6	1	0	0	5	1	0	0	5	1	0	0	1	1	0	0	
		( 15)	( 2)	( 0)	( 0)	( 13)	( 3)	( 0)	( 0)	( 12)	( 2)	( 0)	( 0)	( 3)	( 3)	( 0)	( 0)	
	cyst		8	0	0	0	3	1	0	0	2	0	0	0	6	0	0	0
		( 20)	( 0)	( 0)	( 0)	( 8)	( 3)	( 0)	( 0)	( 5)	( 0)	( 0)	( 0)	( 16)	( 0)	( 0)	( 0)	
	hyperplasia		5	1	0	0	10	2	0	0	6	5	0	0	2	1	0	0
		( 12)	( 2)	( 0)	( 0)	( 25)	( 5)	( 0)	( 0)	( 15)	( 12)	( 0)	( 0)	( 5)	( 3)	( 0)	( 0)	
	Rathke pouch		0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	
thyroid	ultimibranchial body remanet		<41>				<40>				<41>				<37>			
		3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	
			( 7)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 21

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 41				10000 ppm 37			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Endocrine system]																	
thyroid		<41>				<40>				<41>				<37>			
	follicular hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
		<41>				<40>				<41>				<37>			
	C-cell hyperplasia	7	0	0	0	5	1	0	0	7	0	0	0	6	1	0	0
		( 17 )	( 0 )	( 0 )	( 0 )	( 13 )	( 3 )	( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 0 )	( 16 )	( 3 )	( 0 )	( 0 )
adrenal		<41>				<40>				<41>				<37>			
	peliosis-like lesion	7	1	0	0	11	2	0	0	7	0	0	0	8	0	0	0
		( 17 )	( 2 )	( 0 )	( 0 )	( 28 )	( 5 )	( 0 )	( 0 )	( 17 )	( 0 )	( 0 )	( 0 )	( 22 )	( 0 )	( 0 )	( 0 )
		<41>				<40>				<41>				<37>			
	hyperplasia:cortical cell	1	0	0	0	3	0	0	0	2	0	0	0	2	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )
		<41>				<40>				<41>				<37>			
	hyperplasia:medulla	3	0	0	0	2	0	0	0	3	0	0	0	3	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
		<41>				<40>				<41>				<37>			
	focal fatty change:cortex	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
[Reproductive system]																	
ovary		<41>				<40>				<41>				<37>			
	cyst	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 22

		Group Name					Control					400 ppm					2000 ppm					10000 ppm				
		No. of Animals on Study					41					40					41					37				
		Grade					1					2					3					4				
Organ	Findings						1					2					3					4				
							(%)					(%)					(%)					(%)				

[Reproductive system]

uterus		<41>				<40>				<41>				<37>			
	hyperplasia:gland	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	mucous plug	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	cystic endometrial hyperplasia	6	1	0	0	7	0	0	0	3	2	0	0	2	5	0	0
		( 15 )	( 2 )	( 0 )	( 0 )	( 18 )	( 0 )	( 0 )	( 0 )	( 7 )	( 5 )	( 0 )	( 0 )	( 5 )	( 14 )	( 0 )	( 0 )
mammary gl		<41>				<40>				<41>				<37>			
	inflammation	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )
	hyperplasia	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	atypical hyperplasia	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	galactoceles	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

[Nervous system]

brain		<41>				<40>				<41>				<37>			
	mineralization	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 23

Organ	Findings	Group Name No. of Animals on Study Grade				Control 41				400 ppm 40				2000 ppm 41				10000 ppm 37			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Special sense organs/appandage]																					
eye		<41>				<40>				<41>				<37>							
	hemorrhage	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	cataract	4 ( 10 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	5 ( 13 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	6 ( 15 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	4 ( 11 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	retinal atrophy	4 ( 10 )	6 ( 15 )	5 ( 12 )	0 ( 0 )	7 ( 18 )	3 ( 8 )	7 ( 18 )	0 ( 0 )	10 ( 24 )	6 ( 15 )	9 ( 22 )	0 ( 0 )	4 ( 11 )	1 ( 3 )	7 ( 19 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	keratitis	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
Harder gl		<41>				<40>				<41>				<37>							
	degeneration	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 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 )
	inflammation	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 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 )
	Lymphocytic infiltration	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	hyperplasia	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 24

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 40				2000 ppm 41				10000 ppm 37			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Special sense organs/appandage]

nasolacr d		<41>				<40>				<41>				<37>			
	inflammation	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )

[Musculoskeletal system]

bone		<41>				<40>				<41>				<37>			
	osteosclerosis	7	2	4	0	6	1	6	0	12	3	1	0	8	4	2	0
		( 17 )	( 5 )	( 10 )	( 0 )	( 15 )	( 3 )	( 15 )	( 0 )	( 29 )	( 7 )	( 2 )	( 0 )	( 22 )	( 11 )	( 5 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
 < a > a : Number of animals examined at the site  
 b : Number of animals with lesion  
 ( c ) c : b / a \* 100  
 Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

(IIP150)

BAIS2

APPENDIX L 5

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOSUE : MALE : DEAD AND MORIBUND ANIMALS

MOSUE (2-YEAR STUDY)

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 1

Organ	Findings	Group Name No. of Animals on Study Grade	Control 15				400 ppm 8				2000 ppm 12				10000 ppm 17			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Integumentary system/appandage]

skin/app	ulcer	<15>				< 8>				<12>				<17>			
		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	inflammation	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

[Respiratory system]

nasal cavit	inflammation	<15>				< 8>				<12>				<17>			
		0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 12 )	( 0 )	( 0 )
	eosinophilic change:olfactory epithelium	2	1	0	0	4	0	0	0	0	0	0	0	7	0	0	0
		( 13 )	( 7 )	( 0 )	( 0 )	( 50 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 41 )	( 0 )	( 0 )	( 0 )
	eosinophilic change:respiratory epithelium	2	3	1	0	1	0	0	0	2	1	0	0	3	0	0	0
		( 13 )	( 20 )	( 7 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 17 )	( 8 )	( 0 )	( 0 )	( 18 )	( 0 )	( 0 )	( 0 )
	inflammation:foreign body	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	respiratory metaplasia:olfactory epithelium	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 25 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 2

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	15				8				12				17			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
nasal cavit	respiratory metaplasia:gland		<15>				< 8>				<12>				<17>			
		2	3	0	0	1	1	0	0	3	2	0	0	3	1	0	0	
		( 13)	( 20)	( 0)	( 0)	( 13)	( 13)	( 0)	( 0)	( 25)	( 17)	( 0)	( 0)	( 18)	( 6)	( 0)	( 0)	
larynx	basal cell activation		<15>				< 8>				<12>				<17>			
		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	
	epithelial dysplasia		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	
lung	congestion		<15>				< 8>				<12>				<17>			
		0	1	0	0	0	0	0	0	1	1	0	0	1	0	0	0	
		( 0)	( 7)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 8)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)	
	inflammatory infiltration		2	0	0	0	1	1	0	0	2	0	0	0	3	0	0	0
		( 13)	( 0)	( 0)	( 0)	( 13)	( 13)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)	( 18)	( 0)	( 0)	( 0)	
	bronchiolar-alveolar cell hyperplasia		1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 7)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 8)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	
[Hematopoietic system]																		
bone marrow	granulation		<15>				< 8>				<12>				<17>			
		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	
	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)		

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 3

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	15				8				12				17			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Hematopoietic system]																		
spleen			<15>				< 8>				<12>				<17>			
	atrophy		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	deposit of melanin		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 ( 6 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	extramedullary hematopoiesis		3 ( 20 )	1 ( 7 )	0 ( 0 )	0 ( 0 )	2 ( 25 )	1 ( 13 )	0 ( 0 )	0 ( 0 )	1 ( 8 )	2 ( 17 )	0 ( 0 )	0 ( 0 )	1 ( 6 )	3 ( 18 )	1 ( 6 )	0 ( 0 )
[Circulatory system]																		
heart			<15>				< 8>				<12>				<17>			
	mineralization		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 13 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	myocardial fibrosis		1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 6 )	1 ( 6 )	0 ( 0 )	0 ( 0 )
[Digestive system]																		
oral cavity			<15>				< 8>				<12>				<17>			
	squamous cell hyperplasia		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 ( 6 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 4

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 8				2000 ppm 12				10000 ppm 17			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																	
oral cavity		<15>				< 8>				<12>				<17>			
	basal cell activation	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
	epithelial dysplasia	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 18 )	( 0 )	( 0 )	( 0 )
tooth		<15>				< 8>				<12>				<17>			
	inflammation	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	dysplasia	2	1	0	0	1	0	0	0	2	0	1	0	4	0	1	0
		( 13 )	( 7 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 17 )	( 0 )	( 8 )	( 0 )	( 24 )	( 0 )	( 6 )	( 0 )
salivary gl		<15>				< 8>				<12>				<17>			
	atrophy	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 24 )	( 0 )	( 0 )
esophagus		<15>				< 8>				<12>				<17>			
	squamous cell hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 12 )	( 0 )	( 0 )	( 0 )
	basal cell activation	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 8				2000 ppm 12				10000 ppm 17			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																	
esophagus	epithelial dysplasia	<15>				< 8>				<12>				<17>			
		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )
stomach	erosion:forestomach	<15>				< 8>				<12>				<17>			
		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
	erosion:glandular stomach	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 6 )	( 0 )	( 0 )
liver	hyperplasia:glandular stomach	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
	necrosis:focal	<15>				< 8>				<12>				<17>			
		0	1	0	0	0	1	0	0	2	2	0	0	2	0	0	0
		( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 17 )	( 17 )	( 0 )	( 0 )	( 12 )	( 0 )	( 0 )	( 0 )
	fatty change	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	fatty change:central	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 6

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	15				8				12				17			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
liver			<15>				< 8>				<12>				<17>			
	granulation		0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 12 )	( 0 )	( 0 )	( 0 )
	basophilic cell focus		1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 7 )	( 13 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
gall bladd			<15>				< 8>				<12>				<17>			
	granulation		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Urinary system]																		
kidney			<15>				< 8>				<12>				<17>			
	hyaline droplet		0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 25 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 12 )	( 0 )	( 0 )	( 0 )
	basophilic change		3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 20 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	deposit of hemosiderin		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 7

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 8				2000 ppm 12				10000 ppm 17			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Urinary system]																	
kidney		<15>				< 8>				<12>				<17>			
	lymphocytic infiltration	1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	inflammatory polyp	0 ( 0 )	2 ( 13 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	vacuolization of proximal tubule	4 ( 27 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 25 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	5 ( 42 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	6 ( 35 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	hydronephrosis	0 ( 0 )	0 ( 0 )	2 ( 13 )	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 ( 6 )
	tubular necrosis	0 ( 0 )	1 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 13 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	mineralization:cortico-medullary junction	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 13 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 6 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	mineralization:pelvis	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 25 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	mineralization:cortex	7 ( 47 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	4 ( 50 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	9 ( 75 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	12 ( 71 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 8

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 8				2000 ppm 12				10000 ppm 17			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Endocrine system]																	
pituitary	Rathke pouch	<15>				< 8>				<12>				<17>			
		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
adrenal	hyperplasia:cortical cell	<15>				< 8>				<12>				<17>			
		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Reproductive system]																	
testis	atrophy	<15>				< 8>				<12>				<17>			
		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	mineralization	<15>				< 8>				<12>				<17>			
		0	2	0	0	1	0	0	0	1	0	0	0	2	1	0	0
		( 0 )	( 13 )	( 0 )	( 0 )	( 13 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 12 )	( 6 )	( 0 )	( 0 )
epididymis	spermatogenic granuloma	<15>				< 8>				<12>				<17>			
		1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
prostate	inflammation	<15>				< 8>				<12>				<17>			
		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 7 )	( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 9

Organ	Findings	Group Name No. of Animals on Study Grade				Control 15				400 ppm 8				2000 ppm 12				10000 ppm 17			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Reproductive system]																					
prep/cli gl	duct ectasia	<15>				< 8>				<12>				<17>							
		0	1	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0
		( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 18 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Nervous system]																					
brain	mineralization	<15>				< 8>				<12>				<17>							
		3	0	0	0	2	0	0	0	3	0	0	0	5	0	0	0	0	0	0	0
		( 20 )	( 0 )	( 0 )	( 0 )	( 25 )	( 0 )	( 0 )	( 0 )	( 25 )	( 0 )	( 0 )	( 0 )	( 29 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Special sense organs/appandage]																					
Harder gl	degeneration	<15>				< 8>				<12>				<17>							
		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
nasolacr d	inflammation	<15>				< 8>				<12>				<17>							
		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Musculoskeletal system]																					
muscle	degeneration	<15>				< 8>				<12>				<17>							
		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

APPENDIX L 6

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOSUE : FEMALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 10

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	24				23				25				26			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																		
nasal cavit			<24>				<23>				<25>				<26>			
	inflammation		2 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	squamous cell metaplasia		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	epidermal cyst		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	eosinophilic change:olfactory epithelium		1 ( 4 )	2 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 12 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 12 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	eosinophilic change:respiratory epithelium		6 ( 25 )	3 ( 13 )	0 ( 0 )	0 ( 0 )	6 ( 26 )	3 ( 13 )	0 ( 0 )	0 ( 0 )	9 ( 36 )	5 ( 20 )	1 ( 4 )	0 ( 0 )	7 ( 27 )	3 ( 12 )	0 ( 0 )	1 ( 4 )
	respiratory metaplasia:olfactory epithelium		1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	respiratory metaplasia:gland		1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	arteritis		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 11

Organ	Findings	Group Name No. of Animals on Study Grade				Control 24				400 ppm 23				2000 ppm 25				10000 ppm 26			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																					
Larynx		<24>				<23>				<25>				<26>							
	basal cell activation	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	( 4)	( 0)	( 0)	( 0)
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)				
Lung		<24>				<23>				<25>				<26>							
	congestion	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	( 12)	( 0)	( 0)	( 0)
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 12)	( 0)	( 0)	( 0)				
	hemorrhage	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	( 0)	( 4)	( 0)	( 0)
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)				
	edema	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	( 0)	( 0)	( 0)	( 0)
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)				
	inflammatory infiltration	2	0	0	0	0	0	0	0	1	0	0	0	4	2	0	0	( 15)	( 8)	( 0)	( 0)
		( 8)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 15)	( 8)	( 0)	( 0)				
	lymphocytic infiltration	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	( 0)	( 4)	( 0)	( 0)
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)				
	bronchiolar-alveolar cell hyperplasia	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	( 4)	( 0)	( 0)	( 0)
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)				
	infiltration:alveolar macrophage	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	( 0)	( 0)	( 0)	( 0)
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)				

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 12

Organ	Findings	Control 24				400 ppm 23				2000 ppm 25				10000 ppm 26			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Hematopoietic system]																	
bone marrow	granulation	<24>				<23>				<25>				<26>			
		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )
Lymph node	lymphadenitis	<24>				<23>				<25>				<26>			
		0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )
spleen	deposit of melanin	<24>				<23>				<25>				<26>			
		1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 4 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
	extramedullary hematopoiesis	<24>				<23>				<25>				<26>			
		4	9	0	0	1	8	0	0	3	4	0	0	1	5	0	0
		( 17 )	( 38 )	( 0 )	( 0 )	( 4 )	( 35 )	( 0 )	( 0 )	( 12 )	( 16 )	( 0 )	( 0 )	( 4 )	( 19 )	( 0 )	( 0 )
[Circulatory system]																	
heart	thrombus	<24>				<23>				<25>				<26>			
		0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0
		( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	mineralization	<24>				<23>				<25>				<26>			
		1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
		( 4 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 13

Organ	Findings	Group Name No. of Animals on Study Grade	Control 24				400 ppm 23				2000 ppm 25				10000 ppm 26			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Circulatory system]																		
heart	myocardial fibrosis		<24>				<23>				<25>				<26>			
			0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
	arteritis		0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )
artery/aort	arteritis		<24>				<23>				<25>				<26>			
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )
[Digestive system]																		
oral cavity	squamous cell hyperplasia		<24>				<23>				<25>				<26>			
			0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )
	basal cell activation		0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 12 )	( 4 )	( 0 )	( 0 )
	epithelial dysplasia		0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 4 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 14

Organ	Findings	Group Name No. of Animals on Study Grade	Control 24				400 ppm 23				2000 ppm 25				10000 ppm 26			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
tooth	inflammation		<24>				<23>				<25>				<26>			
			0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
	dysplasia		1	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
tongue	erosion		<24>				<23>				<25>				<26>			
			0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
	inflammation		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
	arteritis		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
salivary gl	atrophy		<24>				<23>				<25>				<26>			
			0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )
esophagus	squamous cell hyperplasia		<24>				<23>				<25>				<26>			
			0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
 < a > a : Number of animals examined at the site  
 b b : Number of animals with lesion  
 ( c ) c : b / a \* 100  
 Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 15

Organ	Findings	Group Name No. of Animals on Study Grade	Control 24				400 ppm 23				2000 ppm 25				10000 ppm 26			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
esophagus	basal cell activation		<24>				<23>				<25>				<26>			
			0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0 *
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 19 )	( 4 )	( 0 )	( 0 )
	epithelial dysplasia		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
stomach	erosion:forestomach		<24>				<23>				<25>				<26>			
			0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
	hyperplasia:forestomach		0	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )
	hyperplasia:glandular stomach		3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0
			( 13 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 12 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
liver	angiectasis		<24>				<23>				<25>				<26>			
			1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	necrosis:focal		1	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 9 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 16

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	24				23				25				26			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
Liver			<24>				<23>				<25>				<26>			
	fatty change:central		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	degeneration:central		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	inflammatory infiltration		0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )
	granulation		0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	basophilic cell focus		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
pancreas			<24>				<23>				<25>				<26>			
	atrophy		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
[Urinary system]																		
kidney			<24>				<23>				<25>				<26>			
	infarct		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 17

Organ	Findings	Group Name No. of Animals on Study Grade				Control 24				400 ppm 23				2000 ppm 25				10000 ppm 26			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Urinary system]																					
kidney		<24>				<23>				<25>				<26>							
	hyaline droplet	2 ( 8 )	4 ( 17 )	0 ( 0 )	0 ( 0 )	2 ( 9 )	6 ( 26 )	1 ( 4 )	0 ( 0 )	1 ( 4 )	6 ( 24 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	4 ( 15 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	4 ( 15 )	0 ( 0 )	0 ( 0 )
	basophilic change	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	deposit of hemosiderin	2 ( 8 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	inflammatory polyp	0 ( 0 )	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 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	0 ( 0 )	0 ( 0 )
	hydronephrosis	0 ( 0 )	1 ( 4 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	3 ( 12 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	3 ( 12 )	0 ( 0 )
	tubular necrosis	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	1 ( 4 )	0 ( 0 )
	mineralization:cortico-medullary junction	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	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 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	mineralization:papilla	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 18

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	24				23				25				26			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Endocrine system]																		
pituitary			<24>				<22>				<25>				<26>			
	angiectasis		0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	cyst		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	hyperplasia		0	0	0	0	2	0	0	0	2	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 9 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
[Reproductive system]																		
ovary			<24>				<23>				<25>				<26>			
	hemorrhage		0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	thrombus		0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
	cyst		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
uterus			<24>				<23>				<25>				<25>			
	cystic endometrial hyperplasia		2	2	0	0	3	2	0	0	3	5	0	0	4	5	0	0
			( 8 )	( 8 )	( 0 )	( 0 )	( 13 )	( 9 )	( 0 )	( 0 )	( 12 )	( 20 )	( 0 )	( 0 )	( 16 )	( 20 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 19

Organ	Findings	Group Name No. of Animals on Study Grade				Control 24				400 ppm 23				2000 ppm 25				10000 ppm 26			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Reproductive system]																					
mammary gl		<24>				<23>				<25>				<26>							
	hyperplasia	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
		<24>				<23>				<25>				<26>							
	galactocoele	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
prep/cli gl		<24>				<23>				<25>				<26>							
	duct ectasia	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Nervous system]																					
brain		<24>				<23>				<25>				<26>							
	hemorrhage	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
		<24>				<23>				<25>				<26>							
	mineralization	8	0	0	0	5	0	0	0	6	0	0	0	7	0	0	0	0	0	0	0
		( 33 )	( 0 )	( 0 )	( 0 )	( 22 )	( 0 )	( 0 )	( 0 )	( 24 )	( 0 )	( 0 )	( 0 )	( 27 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Special sense organs/appandage]																					
eye		<24>				<23>				<25>				<26>							
	retinal atrophy	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
 < a > a : Number of animals examined at the site  
 b : Number of animals with lesion  
 ( c ) c : b / a \* 100  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 20

Organ	Findings	Group Name No. of Animals on Study Grade	Control 24				400 ppm 23				2000 ppm 25				10000 ppm 26			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Special sense organs/appandage]

Harder gl	inflammatory infiltration	<24>				<23>				<25>				<26>			
		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
	hyperplasia	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

[Musculoskeletal system]

muscle	mineralization	<24>				<23>				<25>				<26>			
		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

(HPT150)

BAIS2

APPENDIX L 7

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOSUE : MALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 1

Organ	Findings	Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	35				42				38				33			
		Grade	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)
[Integumentary system/appandage]																		
skin/app			<35>				<42>				<38>				<33>			
	ulcer		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	inflammation		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	epidermal cyst		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
[Respiratory system]																		
nasal cavit			<35>				<42>				<38>				<33>			
	eosinophilic change:olfactory epithelium		11 ( 31 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	22 ( 52 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	12 ( 32 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	15 ( 45 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	eosinophilic change:respiratory epithelium		12 ( 34 )	6 ( 17 )	1 ( 3 )	0 ( 0 )	11 ( 26 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	14 ( 37 )	4 ( 11 )	0 ( 0 )	0 ( 0 )	7 ( 21 )	1 ( 3 )	1 ( 3 )	0 ( 0 )
	respiratory metaplasia:olfactory epithelium		3 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	11 ( 26 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	4 ( 11 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	respiratory metaplasia:gland		10 ( 29 )	14 ( 40 )	2 ( 6 )	0 ( 0 )	13 ( 31 )	14 ( 33 )	1 ( 2 )	0 ( 0 )	15 ( 39 )	10 ( 26 )	1 ( 3 )	0 ( 0 )	9 ( 27 )	3 ( 9 )	0 ( 0 )	0 ** ( 0 )
Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe																		
< a > a : Number of animals examined at the site																		
b b : Number of animals with lesion																		
( c ) c : b / a * 100																		
Significant difference ; * : P ≤ 0.05 ** : P ≤ 0.01 Test of Chi Square																		

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 2

Organ	Findings	Group Name No. of Animals on Study Grade	Control 35				400 ppm 42				2000 ppm 38				10000 ppm 33			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Respiratory system]

Larynx	squamous cell hyperplasia	<35>	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	basal cell activation		0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
	epithelial dysplasia		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
Lung	inflammation	<35>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	inflammatory infiltration		0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
	bronchiolar-alveolar cell hyperplasia		3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
			( 9 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	infiltration:alveolar macrophage		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

[Hematopoietic system]

Lymph node	Lymphadenitis	<35>	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 3

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	35				42				38				33			
Organ_____	Findings_____	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Hematopoietic system]																		
spleen			<35>				<42>				<38>				<33>			
	deposit of melanin		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	1 ( 3 )	0 ( 0 )	0 ( 0 )
	extramedullary hematopoiesis		3 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	4 ( 10 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	follicular hyperplasia		1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
[Circulatory system]																		
heart			<35>				<42>				<38>				<33>			
	mineralization		1 ( 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 )
	myocardial fibrosis		1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
artery/aort			<35>				<42>				<38>				<33>			
	mineralization		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 4

Organ	Findings	Group Name No. of Animals on Study Grade	Control 35				400 ppm 42				2000 ppm 38				10000 ppm 33			
			1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Circulatory system]																		
artery/aort	arteritis		<35>				<42>				<38>				<33>			
			0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Digestive system]																		
oral cavity	inflammation		<35>				<42>				<38>				<33>			
			0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	squamous cell hyperplasia		<35>				<42>				<38>				<33>			
			0	0	0	0	0	0	0	0	2	0	0	0	7	5	0	0 **
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 21 )	( 15 )	( 0 )	( 0 )
	basal cell activation		<35>				<42>				<38>				<33>			
			0	0	0	0	0	0	0	0	1	0	0	0	12	5	0	0 **
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 36 )	( 15 )	( 0 )	( 0 )
	epithelial dysplasia		<35>				<42>				<38>				<33>			
			0	0	0	0	0	0	0	0	0	0	0	0	18	3	0	0 **
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 55 )	( 9 )	( 0 )	( 0 )
tooth	cyst		<35>				<42>				<38>				<33>			
			0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 5

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	35				42				38				33			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
tooth			<35>				<42>				<38>				<33>			
	inflammation		5	0	0	0	4	0	0	0	1	0	0	0	2	0	0	0
			( 14)	( 0)	( 0)	( 0)	( 10)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)	( 6)	( 0)	( 0)	( 0)
	dysplasia		8	1	0	0	7	2	1	0	11	0	5	1	3	0	1	1
			( 23)	( 3)	( 0)	( 0)	( 17)	( 5)	( 2)	( 0)	( 29)	( 0)	( 13)	( 3)	( 9)	( 0)	( 3)	( 3)
tongue			<35>				<42>				<38>				<33>			
	epithelial dysplasia		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)	( 0)
	arteritis		1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
			( 3)	( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
salivary gl			<35>				<42>				<38>				<33>			
	atrophy		0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 3)	( 0)	( 0)
	mineralization		0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
			( 0)	( 0)	( 0)	( 0)	( 2)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 3)	( 0)	( 0)
esophagus			<35>				<42>				<38>				<33>			
	basal cell activation		0	0	0	0	0	0	0	0	0	0	0	0	7	1	0	0 **
			( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 21)	( 3)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 6

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 42				2000 ppm 38				10000 ppm 33			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																	
esophagus	epithelial dysplasia	<35>				<42>				<38>				<33>			
		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
stomach	basal cell activation	<35>				<42>				<38>				<33>			
		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	epithelial dysplasia	<35>				<42>				<38>				<33>			
		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	erosion:forestomach	<35>				<42>				<38>				<33>			
		0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
stomach	hyperplasia:forestomach	<35>				<42>				<38>				<33>			
		0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 9 )	( 0 )	( 0 )	( 0 )
	erosion:glandular stomach	<35>				<42>				<38>				<33>			
		1	0	0	0	3	0	0	0	1	0	0	0	1	0	0	0
		( 3 )	( 0 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	hyperplasia:glandular stomach	<35>				<42>				<38>				<33>			
		10	13	2	0	19	11	1	0	13	12	1	0	7	4	0	0 **
		( 29 )	( 37 )	( 6 )	( 0 )	( 45 )	( 26 )	( 2 )	( 0 )	( 34 )	( 32 )	( 3 )	( 0 )	( 21 )	( 12 )	( 0 )	( 0 )
large intes	inflammatory infiltration	<35>				<42>				<38>				<33>			
		0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 7

Organ_____	Findings_____	Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	35				42				38				33			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
Liver			<35>				<42>				<38>				<33>			
	angiectasis		0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
	necrosis:focal		0	0	0	0	1	0	2	0	1	0	1	0	0	1	1	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 5 )	( 0 )	( 3 )	( 0 )	( 3 )	( 0 )	( 0 )	( 3 )	( 3 )	( 0 )
	fatty change		0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	inflammatory infiltration		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	granulation		3	0	0	0	1	2	0	0	4	3	0	0	2	1	0	0
			( 9 )	( 0 )	( 0 )	( 0 )	( 2 )	( 5 )	( 0 )	( 0 )	( 11 )	( 8 )	( 0 )	( 0 )	( 6 )	( 3 )	( 0 )	( 0 )
	hyperplasia		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	clear cell focus		0	2	0	0	1	0	0	0	4	0	0	0	2	0	0	0
			( 0 )	( 6 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 6 )	( 0 )	( 0 )	( 0 )
	basophilic cell focus		1	1	0	0	3	0	0	0	4	0	0	0	1	0	0	0
			( 3 )	( 3 )	( 0 )	( 0 )	( 7 )	( 0 )	( 0 )	( 0 )	( 11 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 8

		Group Name No. of Animals on Study				Control 35				400 ppm 42				2000 ppm 38				10000 ppm 33			
Organ	Findings	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)				
[Digestive system]																					
Liver		<35>				<42>				<38>				<33>							
	vacuolated cell focus	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 3 )	0 ( 0 )	0 ( 0 )				
	mixed cell focus	2 ( 6 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )				
	biliary cyst	2 ( 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 )				
[Urinary system]																					
Kidney		<35>				<42>				<38>				<33>							
	cyst	1 ( 3 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )				
	basophilic change	17 ( 49 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	8 ( 19 )	2 ( 5 )	0 ( 0 )	0 ( 0 ) *	11 ( 29 )	1 ( 3 )	0 ( 0 )	0 ( 0 )	11 ( 33 )	0 ( 0 )	0 ( 0 )	0 ( 0 )				
	inflammatory infiltration	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 2 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )				
	lymphocytic infiltration	2 ( 6 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 5 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )				
Grade	1 : Slight	2 : Moderate	3 : Marked	4 : Severe																	
< a >	a : Number of animals examined at the site																				
b	b : Number of animals with lesion																				
( c )	c : b / a * 100																				
Significant difference ; * : P ≤ 0.05    ** : P ≤ 0.01    Test of Chi Square																					

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 9

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 42				2000 ppm 38				10000 ppm 33			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Urinary system]																	
kidney		<35>				<42>				<38>				<33>			
	osseous metaplasia	1 ( 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)
	vacuolization of proximal tubule	23 ( 66)	0 ( 0)	0 ( 0)	0 ( 0)	30 ( 71)	0 ( 0)	0 ( 0)	0 ( 0)	36 ( 95)	0 ( 0)	0 ( 0)	0 ( 0)	22 ( 67)	0 ( 0)	0 ( 0)	0 ( 0)
	mineralization:cortico-medullary junction	3 ( 9)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 5)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	mineralization:papilla	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 8)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
	mineralization:pelvis	2 ( 6)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 7)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 5)	0 ( 0)	0 ( 0)	0 ( 0)	3 ( 9)	0 ( 0)	0 ( 0)	0 ( 0)
	mineralization:cortex	26 ( 74)	0 ( 0)	0 ( 0)	0 ( 0)	37 ( 88)	0 ( 0)	0 ( 0)	0 ( 0)	29 ( 76)	0 ( 0)	0 ( 0)	0 ( 0)	30 ( 91)	0 ( 0)	0 ( 0)	0 ( 0)
	glomerulosclerosis	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 3)	0 ( 0)
urin bladd		<35>				<42>				<38>				<33>			
	inflammation	0 ( 0)	1 ( 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)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 10

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 42				2000 ppm 38				10000 ppm 33			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Endocrine system]																	
pituitary		<34>				<42>				<38>				<33>			
	angiectasis	1 ( 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)
	cyst	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
adrenal		<35>				<42>				<38>				<33>			
	hyperplasia:cortical cell	2 ( 6)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	2 ( 5)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)
[Reproductive system]																	
testis		<35>				<42>				<38>				<33>			
	atrophy	2 ( 6)	2 ( 6)	0 ( 0)	0 ( 0)	5 ( 12)	5 ( 12)	0 ( 0)	0 ( 0)	3 ( 8)	4 ( 11)	1 ( 3)	0 ( 0)	0 ( 0)	6 ( 18)	0 ( 0)	0 ( 0)
	mineralization	2 ( 6)	1 ( 3)	0 ( 0)	0 ( 0)	9 ( 21)	6 ( 14)	0 ( 0)	0 * ( 0)	3 ( 8)	9 ( 24)	1 ( 3)	0 * ( 0)	6 ( 18)	1 ( 3)	0 ( 0)	0 ( 0)
	xanthogranuloma	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	1 ( 2)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)	0 ( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference : \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 11

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 42				2000 ppm 38				10000 ppm 33			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Reproductive system]																	
epididymis		<35>				<42>				<38>				<33>			
	lymphocytic infiltration	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
		<35>				<42>				<38>				<33>			
	spermatogenic granuloma	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
		( 6 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )
semin ves		<35>				<42>				<38>				<33>			
	mineralization	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 3 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
		<35>				<42>				<38>				<33>			
	inflammatory infiltration	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
prep/cli gl		<35>				<42>				<38>				<33>			
	duct ectasia	3	12	0	0	1	11	1	0	1	16	0	0	0	9	0	0
		( 9 )	( 34 )	( 0 )	( 0 )	( 2 )	( 26 )	( 2 )	( 0 )	( 3 )	( 42 )	( 0 )	( 0 )	( 0 )	( 27 )	( 0 )	( 0 )
[Nervous system]																	
brain		<35>				<42>				<38>				<33>			
	mineralization	8	0	0	0	17	0	0	0	16	0	0	0	19	0	0	0 **
		( 23 )	( 0 )	( 0 )	( 0 )	( 40 )	( 0 )	( 0 )	( 0 )	( 42 )	( 0 )	( 0 )	( 0 )	( 58 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 12

Organ	Findings	Group Name No. of Animals on Study Grade				Control 35				400 ppm 42				2000 ppm 38				10000 ppm 33			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Special sense organs/appandage]

Harder gl	hyperplasia	<35>				<42>				<38>				<33>			
		0	1	0	0	1	0	0	0	2	0	0	0	0	0	0	0
		( 0 )	( 3 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 5 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

[Musculoskeletal system]

bone	osteosclerosis	<35>				<42>				<38>				<32>			
		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 2 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

(HPT150)

BAIS2

APPENDIX L 8

HISTOLOGICAL FINDINGS : NON-NEOPLASTIC LESIONS : SUMMARY

MOSUE : FEMALE : SACRIFICED ANIMALS

(2-YEAR STUDY)



STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 13

Organ	Findings	Group Name No. of Animals on Study Grade	Control 26				400 ppm 27				2000 ppm 25				10000 ppm 23			
			1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)

[Integumentary system/appandage]

skin/app	squamous cell hyperplasia	<26>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<27>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<25>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<23>	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	xanthogranuloma	<26>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<27>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<25>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<23>	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )

[Respiratory system]

nasal cavit	inflammation	<26>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<27>	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<25>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<23>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	eosinophilic change:olfactory epithelium	<26>	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	<27>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<25>	5 ( 20 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<23>	2 ( 9 )	2 ( 9 )	0 ( 0 )	0 ( 0 )
	eosinophilic change:respiratory epithelium	<26>	12 ( 46 )	5 ( 19 )	0 ( 0 )	0 ( 0 )	<27>	16 ( 59 )	2 ( 7 )	0 ( 0 )	0 ( 0 )	<25>	8 ( 32 )	9 ( 36 )	0 ( 0 )	0 ( 0 )	<23>	11 ( 48 )	4 ( 17 )	1 ( 4 )	0 ( 0 )
	respiratory metaplasia:olfactory epithelium	<26>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<27>	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<25>	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	<23>	3 ( 13 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	respiratory metaplasia:gland	<26>	5 ( 19 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	<27>	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<25>	9 ( 36 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	<23>	1 ( 4 )	1 ( 4 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 14

Organ	Findings	Group Name No. of Animals on Study Grade				Control 26				400 ppm 27				2000 ppm 25				10000 ppm 23			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Respiratory system]																					
Larynx		<26>				<27>				<25>				<23>							
	basal cell activation	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0 *
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 22 )	( 0 )	( 0 )	( 0 )	( 22 )	( 0 )	( 0 )	( 0 )
	epithelial dysplasia	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	2	1	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 9 )	( 4 )	( 0 )	( 0 )	( 9 )	( 4 )	( 0 )	( 0 )
Lung		<26>				<27>				<25>				<23>							
	lymphocytic infiltration	0	0	0	0	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
		( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 7 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	bronchiolar-alveolar cell hyperplasia	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0
		( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
[Hematopoietic system]																					
bone marrow		<25>				<27>				<25>				<23>							
	myelofibrosis	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
Lymph node		<26>				<27>				<25>				<23>							
	lymphadenitis	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 15

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	26				27				25				23			
Organ_____	Findings_____	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
<hr/>																		
[Hematopoietic system]																		
<hr/>																		
spleen																		
			<26>				<27>				<25>				<23>			
atrophy			0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )
angiectasis			2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
deposit of melanin			0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 9 )	( 4 )	( 0 )	( 0 )
extramedullary hematopoiesis			0	0	0	0	1	0	0	0	2	0	0	0	0	4	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 0 )	( 17 )	( 0 )	( 0 )
hyperplasia:vascular			0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
follicular hyperplasia			1	0	0	0	1	0	0	0	2	0	0	0	1	1	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 8 )	( 0 )	( 0 )	( 0 )	( 4 )	( 4 )	( 0 )	( 0 )

[Digestive system]

oral cavity			<26>				<27>				<25>				<23>			
	squamous cell hyperplasia		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	5 ( 22 )	0 ( 0 )	0 ( 0 )	0 * ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 16

Organ_____	Findings_____	Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	26				27				25				23			
		Grade	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)	1 (%)	2 (%)	3 (%)	4 (%)
[Digestive system]																		
oral cavity																		
	basal cell activation		<26>				<27>				<25>				<23>			
			0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	11 ( 48 )	2 ( 9 )	0 ( 0 )	0 ** ( 0 )
	epithelial dysplasia		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	14 ( 61 )	0 ( 0 )	0 ( 0 )	0 ** ( 0 )
	epithelial dysplasia:incisive duct		0 ( 0 )	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 ( 4 )	0 ( 0 )	0 ( 0 )
tooth																		
	inflammation		<26>				<27>				<25>				<23>			
			1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	6 ( 24 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 9 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	dysplasia		1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
tongue																		
	epithelial dysplasia		<26>				<27>				<25>				<23>			
			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 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	arteritis		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$  Test of Chi Square

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 17

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	26				27				25				23			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
salivary gl			<26>				<27>				<25>				<23>			
	atrophy		0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )
	lymphocytic infiltration		1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0
			( 4 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 9 )	( 0 )	( 0 )	( 0 )
esophagus			<26>				<27>				<25>				<23>			
	basal cell activation		0	0	0	0	0	0	0	0	0	0	0	0	7	2	0	0 **
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 30 )	( 9 )	( 0 )	( 0 )
	epithelial dysplasia		0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	2
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 13 )	( 0 )	( 4 )	( 9 )
stomach			<26>				<27>				<25>				<23>			
	lymphocytic infiltration		0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	basal cell activation		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
	erosion:forestomach		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
 < a > a : Number of animals examined at the site  
 b : Number of animals with lesion  
 ( c ) c : b / a \* 100  
 Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 18

Organ	Findings	Group Name No. of Animals on Study Grade				Control 26				400 ppm 27				2000 ppm 25				10000 ppm 23			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																					
stomach		<26>				<27>				<25>				<23>							
	hyperplasia:forestomach	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	( 9)	( 0)	( 0)	( 0)
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)				
	erosion:glandular stomach	1	0	0	0	2	0	0	0	1	0	0	0	1	0	0	0	( 4)	( 0)	( 0)	( 0)
		( 4)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)				
	hyperplasia:glandular stomach	6	1	0	0	8	4	0	0	10	1	0	0	4	0	0	0	( 17)	( 0)	( 0)	( 0)
		( 23)	( 4)	( 0)	( 0)	( 30)	( 15)	( 0)	( 0)	( 40)	( 4)	( 0)	( 0)	( 17)	( 0)	( 0)	( 0)				
Liver		<26>				<27>				<25>				<23>							
	angiectasis	2	1	0	0	2	0	0	0	1	1	0	0	2	2	0	0	( 9)	( 9)	( 0)	( 0)
		( 8)	( 4)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 4)	( 4)	( 0)	( 0)	( 9)	( 9)	( 0)	( 0)				
	necrosis:focal	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	( 0)	( 0)	( 0)	( 0)
		( 0)	( 0)	( 4)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)				
	lymphocytic infiltration	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	( 0)	( 4)	( 0)	( 0)
		( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)				
	granulation	11	4	0	0	8	5	0	0	7	1	0	0	5	1	0	0	( 42)	( 15)	( 0)	( 0)
		( 42)	( 15)	( 0)	( 0)	( 30)	( 19)	( 0)	( 0)	( 28)	( 4)	( 0)	( 0)	( 22)	( 4)	( 0)	( 0)				
	clear cell focus	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	( 0)	( 0)	( 0)	( 0)
		( 0)	( 0)	( 0)	( 0)	( 7)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)				

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 19

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	26				27				25				23			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Digestive system]																		
liver			<26>				<27>				<25>				<23>			
	basophilic cell focus		1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	vacuolated cell focus		1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	mixed cell focus		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 12 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	biliary cyst		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
[Urinary system]																		
kidney			<26>				<27>				<25>				<23>			
	cyst		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	hyaline droplet		1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 9 )	1 ( 4 )	0 ( 0 )	0 ( 0 )
	basophilic change		1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 20

Organ_____	Findings_____	Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	26				27				25				23			
		Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
			(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Urinary system]																		
kidney			<26>				<27>				<25>				<23>			
	lymphocytic infiltration		1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 7 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	polyp		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	hydronephrosis		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 9 )	0 ( 0 )	0 ( 0 )
	mineralization:cortico-medullary junction		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 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	mineralization:papilla		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )
	mineralization:pelvis		0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )
	mineralization:cortex		1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

[Endocrine system]

pituitary			<26>				<27>				<24>				<23>			
	angiectasis		2 ( 8 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	2 ( 7 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	3 ( 13 )	0 ( 0 )	0 ( 0 )	0 ( 0 )	1 ( 4 )	0 ( 0 )	0 ( 0 )	0 ( 0 )

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square



STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 21

Organ	Findings	Control 26				400 ppm 27				2000 ppm 25				10000 ppm 23			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
[Endocrine system]																	
pituitary	cyst	<26>				<27>				<24>				<23>			
		2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 8)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	hyperplasia	1	0	0	0	4	0	0	0	1	0	0	0	1	0	0	0
		( 4)	( 0)	( 0)	( 0)	( 15)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)
thyroid	ectopic thymic tissue	<26>				<27>				<25>				<23>			
		0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
[Reproductive system]																	
ovary	thrombus	<26>				<27>				<25>				<23>			
		1	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0
		( 4)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)
	cyst	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 12)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)
	inflammatory infiltration	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 22

		Group Name	Control				400 ppm				2000 ppm				10000 ppm			
		No. of Animals on Study	26				27				25				23			
Organ	Findings	Grade	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
[Reproductive system]																		
uterus	thrombus		<26>				<27>				<25>				<23>			
			0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )
	cystic endometrial hyperplasia		<26>				<27>				<25>				<23>			
			9 <sup>2</sup>	10 <sup>2</sup>	0	0	2 <sup>3</sup>	14 <sup>2</sup>	0	0 *	5 <sup>3</sup>	12 <sup>4</sup>	0	0	9 <sup>4</sup>	9 <sup>5</sup>	0	0
			( 35 )	( 38 )	( 0 )	( 0 )	( 7 )	( 52 )	( 0 )	( 0 )	( 20 )	( 48 )	( 0 )	( 0 )	( 39 )	( 39 )	( 0 )	( 0 )
mammary gl	hyperplasia		<26>				<27>				<25>				<23>			
			0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	atypical hyperplasia		0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
	galactoceles		0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0
			( 0 )	( 0 )	( 0 )	( 0 )	( 4 )	( 0 )	( 0 )	( 0 )	( 4 )	( 4 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )	( 0 )
[Nervous system]																		
brain	mineralization		<26>				<27>				<25>				<23>			
			10	0	0	0	9	0	0	0	5	0	0	0	9	0	0	0
		( 38 )	( 0 )	( 0 )	( 0 )	( 33 )	( 0 )	( 0 )	( 0 )	( 20 )	( 0 )	( 0 )	( 0 )	( 39 )	( 0 )	( 0 )	( 0 )	

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe  
< a > a : Number of animals examined at the site  
b : Number of animals with lesion  
( c ) c : b / a \* 100  
Significant difference ; \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS :NON-NEOPLASTIC LESIONS (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 23

Organ	Findings	Control No. of Animals on Study Grade				400 ppm 27				2000 ppm 25				10000 ppm 23			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)

[Special sense organs/appandage]

Harder gl	hyperplasia	<26>				<27>				<25>				<23>			
		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)

[Body cavities]

peritoneum	inflammation	<26>				<27>				<25>				<23>			
		0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)

adipose	granulation	<26>				<27>				<25>				<23>			
		0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 0)	( 4)	( 0)	( 0)	( 0)

Grade 1 : Slight 2 : Moderate 3 : Marked 4 : Severe

< a > a : Number of animals examined at the site

b b : Number of animals with lesion

( c ) c : b / a \* 100

Significant difference : \* : P ≤ 0.05 \*\* : P ≤ 0.01 Test of Chi Square

(HPT150)

BAIS2

APPENDIX M 1

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS-TIME RELATED

RAT : MALE

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : MALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 1

Time-related Weeks	Items	Group Name	Control	400 ppm	2000 ppm	10000 ppm
0 - 52	NO. OF EXAMINED ANIMALS		0	0	0	0
	NO. OF ANIMALS WITH TUMORS		0	0	0	0
	NO. OF ANIMALS WITH SINGLE TUMORS		0	0	0	0
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	0	0	0
	NO. OF BENIGN TUMORS		0	0	0	0
	NO. OF MALIGNANT TUMORS		0	0	0	0
	NO. OF TOTAL TUMORS		0	0	0	0
53 - 78	NO. OF EXAMINED ANIMALS		1	2	1	0
	NO. OF ANIMALS WITH TUMORS		0	2	1	0
	NO. OF ANIMALS WITH SINGLE TUMORS		0	1	0	0
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	1	1	0
	NO. OF BENIGN TUMORS		0	1	1	0
	NO. OF MALIGNANT TUMORS		0	2	1	0
	NO. OF TOTAL TUMORS		0	3	2	0
79 - 104	NO. OF EXAMINED ANIMALS		5	8	13	11
	NO. OF ANIMALS WITH TUMORS		5	8	13	11
	NO. OF ANIMALS WITH SINGLE TUMORS		1	4	2	2
	NO. OF ANIMALS WITH MULTIPLE TUMORS		4	4	11	9
	NO. OF BENIGN TUMORS		9	11	19	16
	NO. OF MALIGNANT TUMORS		2	5	13	8
	NO. OF TOTAL TUMORS		11	16	32	24
105 - 105	NO. OF EXAMINED ANIMALS		44	40	36	39
	NO. OF ANIMALS WITH TUMORS		43	40	36	39
	NO. OF ANIMALS WITH SINGLE TUMORS		14	10	9	14
	NO. OF ANIMALS WITH MULTIPLE TUMORS		29	30	27	25
	NO. OF BENIGN TUMORS		90	75	80	73
	NO. OF MALIGNANT TUMORS		5	7	7	11
	NO. OF TOTAL TUMORS		95	82	87	84

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 2

Time-related Weeks	Items	Group Name	Control	400 ppm	2000 ppm	10000 ppm
0 - 105	NO. OF EXAMINED ANIMALS		50	50	50	50
	NO. OF ANIMALS WITH TUMORS		48	50	50	50
	NO. OF ANIMALS WITH SINGLE TUMORS		15	15	11	16
	NO. OF ANIMALS WITH MULTIPLE TUMORS		33	35	39	34
	NO. OF BENIGN TUMORS		99	87	100	89
	NO. OF MALIGNANT TUMORS		7	14	21	19
	NO. OF TOTAL TUMORS		106	101	121	108

(HPT070)

BAIS2

APPENDIX M 2

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS-TIME RELATED

RAT : FEMALE

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 3

Time-related Weeks	Items	Group Name	Control	400 ppm	2000 ppm	10000 ppm
0 - 52	NO. OF EXAMINED ANIMALS		1	0	0	0
	NO. OF ANIMALS WITH TUMORS		1	0	0	0
	NO. OF ANIMALS WITH SINGLE TUMORS		1	0	0	0
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	0	0	0
	NO. OF BENIGN TUMORS		0	0	0	0
	NO. OF MALIGNANT TUMORS		1	0	0	0
	NO. OF TOTAL TUMORS		1	0	0	0
53 - 78	NO. OF EXAMINED ANIMALS		0	1	2	2
	NO. OF ANIMALS WITH TUMORS		0	1	2	2
	NO. OF ANIMALS WITH SINGLE TUMORS		0	1	1	2
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	0	1	0
	NO. OF BENIGN TUMORS		0	1	1	1
	NO. OF MALIGNANT TUMORS		0	0	2	1
	NO. OF TOTAL TUMORS		0	1	3	2
79 - 104	NO. OF EXAMINED ANIMALS		8	9	7	11
	NO. OF ANIMALS WITH TUMORS		8	9	7	10
	NO. OF ANIMALS WITH SINGLE TUMORS		7	3	2	7
	NO. OF ANIMALS WITH MULTIPLE TUMORS		1	6	5	3
	NO. OF BENIGN TUMORS		3	12	10	10
	NO. OF MALIGNANT TUMORS		6	6	4	8
	NO. OF TOTAL TUMORS		9	18	14	18
105 - 105	NO. OF EXAMINED ANIMALS		41	40	41	37
	NO. OF ANIMALS WITH TUMORS		25	24	29	28
	NO. OF ANIMALS WITH SINGLE TUMORS		15	14	17	17
	NO. OF ANIMALS WITH MULTIPLE TUMORS		10	10	12	11
	NO. OF BENIGN TUMORS		31	31	34	30
	NO. OF MALIGNANT TUMORS		4	4	11	11
	NO. OF TOTAL TUMORS		35	35	45	41



STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 4

Time-related Weeks	Items	Group Name	Control	400 ppm	2000 ppm	10000 ppm
0 - 105	NO. OF EXAMINED ANIMALS		50	50	50	50
	NO. OF ANIMALS WITH TUMORS		34	34	38	40
	NO. OF ANIMALS WITH SINGLE TUMORS		23	18	20	26
	NO. OF ANIMALS WITH MULTIPLE TUMORS		11	16	18	14
	NO. OF BENIGN TUMORS		34	44	45	41
	NO. OF MALIGNANT TUMORS		11	10	17	20
	NO. OF TOTAL TUMORS		45	54	62	61
(HPT070)			BAIS2			

APPENDIX M 3

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS-TIME RELATED

MOUSE : MALE

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 1

Time-related Weeks	Items	Group Name	Control	400 ppm	2000 ppm	10000 ppm
0 - 52	NO. OF EXAMINED ANIMALS		2	0	1	1
	NO. OF ANIMALS WITH TUMORS		0	0	0	1
	NO. OF ANIMALS WITH SINGLE TUMORS		0	0	0	1
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	0	0	0
	NO. OF BENIGN TUMORS		0	0	0	0
	NO. OF MALIGNANT TUMORS		0	0	0	1
	NO. OF TOTAL TUMORS		0	0	0	1
53 - 78	NO. OF EXAMINED ANIMALS		6	2	1	2
	NO. OF ANIMALS WITH TUMORS		4	2	1	2
	NO. OF ANIMALS WITH SINGLE TUMORS		3	2	1	2
	NO. OF ANIMALS WITH MULTIPLE TUMORS		1	0	0	0
	NO. OF BENIGN TUMORS		2	0	0	0
	NO. OF MALIGNANT TUMORS		6	2	1	2
	NO. OF TOTAL TUMORS		8	2	1	2
79 - 104	NO. OF EXAMINED ANIMALS		7	6	10	14
	NO. OF ANIMALS WITH TUMORS		6	6	10	12
	NO. OF ANIMALS WITH SINGLE TUMORS		3	3	5	7
	NO. OF ANIMALS WITH MULTIPLE TUMORS		3	3	5	5
	NO. OF BENIGN TUMORS		3	2	3	3
	NO. OF MALIGNANT TUMORS		7	7	13	17
	NO. OF TOTAL TUMORS		10	9	16	20
105 - 105	NO. OF EXAMINED ANIMALS		35	42	38	33
	NO. OF ANIMALS WITH TUMORS		24	24	27	25
	NO. OF ANIMALS WITH SINGLE TUMORS		15	16	18	13
	NO. OF ANIMALS WITH MULTIPLE TUMORS		9	8	9	12
	NO. OF BENIGN TUMORS		10	14	17	15
	NO. OF MALIGNANT TUMORS		27	24	21	26
	NO. OF TOTAL TUMORS		37	38	38	41

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 2

Time-related Weeks	Items	Group Name	Control	400 ppm	2000 ppm	10000 ppm
0 - 105	NO. OF EXAMINED ANIMALS		50	50	50	50
	NO. OF ANIMALS WITH TUMORS		34	32	38	40
	NO. OF ANIMALS WITH SINGLE TUMORS		21	21	24	23
	NO. OF ANIMALS WITH MULTIPLE TUMORS		13	11	14	17
	NO. OF BENIGN TUMORS		15	16	20	18
	NO. OF MALIGNANT TUMORS		40	33	35	46
	NO. OF TOTAL TUMORS		55	49	55	64

(HPT070)

BAIS2

APPENDIX M 4

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS-TIME RELATED

MOUSE: FEMALE

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 3

Time-related Weeks	Items	Group Name	Control	400 ppm	2000 ppm	10000 ppm
0 - 52	NO. OF EXAMINED ANIMALS		0	2	0	2
	NO. OF ANIMALS WITH TUMORS		0	1	0	1
	NO. OF ANIMALS WITH SINGLE TUMORS		0	1	0	1
	NO. OF ANIMALS WITH MULTIPLE TUMORS		0	0	0	0
	NO. OF BENIGN TUMORS		0	0	0	0
	NO. OF MALIGNANT TUMORS		0	1	0	1
	NO. OF TOTAL TUMORS		0	1	0	1
53 - 78	NO. OF EXAMINED ANIMALS		7	7	4	6
	NO. OF ANIMALS WITH TUMORS		6	6	2	5
	NO. OF ANIMALS WITH SINGLE TUMORS		4	6	2	5
	NO. OF ANIMALS WITH MULTIPLE TUMORS		2	0	0	0
	NO. OF BENIGN TUMORS		1	1	0	0
	NO. OF MALIGNANT TUMORS		7	5	2	5
	NO. OF TOTAL TUMORS		8	6	2	5
79 - 104	NO. OF EXAMINED ANIMALS		17	14	21	18
	NO. OF ANIMALS WITH TUMORS		17	14	19	17
	NO. OF ANIMALS WITH SINGLE TUMORS		13	10	14	11
	NO. OF ANIMALS WITH MULTIPLE TUMORS		4	4	5	6
	NO. OF BENIGN TUMORS		6	3	3	1
	NO. OF MALIGNANT TUMORS		16	20	22	23
	NO. OF TOTAL TUMORS		22	23	25	24
105 - 105	NO. OF EXAMINED ANIMALS		26	27	25	23
	NO. OF ANIMALS WITH TUMORS		15	18	17	20
	NO. OF ANIMALS WITH SINGLE TUMORS		8	11	9	9
	NO. OF ANIMALS WITH MULTIPLE TUMORS		7	7	8	11
	NO. OF BENIGN TUMORS		11	16	19	18
	NO. OF MALIGNANT TUMORS		14	12	11	22
	NO. OF TOTAL TUMORS		25	28	30	40

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

NUMBER OF ANIMALS WITH TUMORS AND NUMBER OF TUMORS - TIME RELATED

PAGE : 4

Time-related Weeks	Items	Group Name	Control	400 ppm	2000 ppm	10000 ppm
0 - 105	NO. OF EXAMINED ANIMALS		50	50	50	49
	NO. OF ANIMALS WITH TUMORS		38	39	38	43
	NO. OF ANIMALS WITH SINGLE TUMORS		25	28	25	26
	NO. OF ANIMALS WITH MULTIPLE TUMORS		13	11	13	17
	NO. OF BENIGN TUMORS		18	20	22	19
	NO. OF MALIGNANT TUMORS		37	38	35	51
	NO. OF TOTAL TUMORS		55	58	57	70

(HPT070)

BAIS2

APPENDIX N 1

NEOPLASTIC LESIONS - INCIDENCE AND TUMOR OCCURRENCE

RAT : MALE :

(2-YEAR STUDY)



STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 1

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Integumentary system/appandage]						
skin/app			<50>	<50>	<50>	<50>
	squamous cell papilloma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	trichoepithelioma		1 ( 2%)	0 ( 0%)	1 ( 2%)	1 ( 2%)
	keratoacanthoma		3 ( 6%)	2 ( 4%)	4 ( 8%)	1 ( 2%)
	calcifying epithelioma		0 ( 0%)	0 ( 0%)	0 ( 0%)	2 ( 4%)
	sebaceous adenoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	1 ( 2%)
subcutis	schwannoma:malignant		0 ( 0%)	1 ( 2%)	0 ( 0%)	1 ( 2%)
			<50>	<50>	<50>	<50>
	fibroma		3 ( 6%)	4 ( 8%)	8 ( 16%)	3 ( 6%)
	lipoma		1 ( 2%)	0 ( 0%)	3 ( 6%)	0 ( 0%)
	fibrosarcoma		0 ( 0%)	1 ( 2%)	1 ( 2%)	2 ( 4%)
	schwannoma:malignant		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
	histiocytic sarcoma		0 ( 0%)	0 ( 0%)	2 ( 4%)	0 ( 0%)
	tumor:malignant:NOS		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
[Respiratory system]	sarcoma:NOS		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
			<50>	<50>	<50>	<50>
larynx			<50>	<50>	<50>	<50>
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
< a > a : Number of animals examined at the site b ( c ) b : Number of animals with neoplasm c : b / a * 100						

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 2

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Respiratory system]						
Lung	bronchiolar-alveolar adenoma		<50> 3 ( 6%)	<50> 1 ( 2%)	<50> 3 ( 6%)	<50> 1 ( 2%)
[Hematopoietic system]						
Lymph node	malignant lymphoma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)
Spleen	mononuclear cell leukemia		<50> 3 ( 6%)	<50> 5 ( 10%)	<49> 7 ( 14%)	<50> 4 ( 8%)
	hemangiosarcoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
[Digestive system]						
oral cavity	squamous cell papilloma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 2 ( 4%)
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	5 ( 10%)
tongue	osteosarcoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<49> 1 ( 2%)
stomach	squamous cell papilloma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)
	keratoacanthoma		2 ( 4%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
small intes	adenocarcinoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
large intes	neuroendocrine cell tumor:benign		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
liver	histiocytic sarcoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 2 ( 4%)	<50> 0 ( 0%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 3

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Digestive system]						
liver			<50>	<50>	<50>	<50>
	hepatocellular carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
[Endocrine system]						
pituitary			<50>	<50>	<50>	<50>
	adenoma		19 ( 38%)	16 ( 32%)	14 ( 28%)	11 ( 22%)
	adenocarcinoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
thyroid			<50>	<49>	<49>	<49>
	C-cell adenoma		7 ( 14%)	9 ( 18%)	3 ( 6%)	7 ( 14%)
	follicular adenoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	1 ( 2%)
	C-cell carcinoma		1 ( 2%)	2 ( 4%)	2 ( 4%)	0 ( 0%)
	follicular adenocarcinoma		0 ( 0%)	2 ( 4%)	0 ( 0%)	0 ( 0%)
panc islet			<50>	<50>	<50>	<50>
	islet cell adenoma		6 ( 12%)	5 ( 10%)	4 ( 8%)	3 ( 6%)
adrenal			<50>	<50>	<50>	<50>
	pheochromocytoma		8 ( 16%)	4 ( 8%)	9 ( 18%)	7 ( 14%)
	cortical adenoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
	pheochromocytoma:malignant		1 ( 2%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
[Reproductive system]						
testis			<50>	<50>	<50>	<50>
	interstitial cell tumor		42 ( 84%)	40 ( 80%)	44 ( 88%)	47 ( 94%)
mammary gl			<50>	<50>	<50>	<50>
	adenoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	0 ( 0%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 4

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Reproductive system]						
mammary gl	fibroadenoma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 2 ( 4%)	<50> 0 ( 0%)
prep/cli gl	adenoma		<50> 1 ( 2%)	<50> 2 ( 4%)	<50> 2 ( 4%)	<50> 0 ( 0%)
[Nervous system]						
brain	meningioma:benign		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)
	malignant reticulosis		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
	glioma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
[Special sense organs/appandage]						
Zymbal gl	sebaceous adenoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
[Musculoskeletal system]						
muscle	sarcoma:NOS		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)
bone	osteosarcoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
vertebra	sarcoma:NOS		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
[Body cavities]						
peritoneum	mesothelioma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 1 ( 2%)

< a > a : Number of animals examined at the site  
 b ( c ) b : Number of animals with neoplasm c : b / a \* 100

## APPENDIX N 2

### NEOPLASTIC LESIONS - INCIDENCE AND TUMOR OCCURRENCE

RAT : FEMALE :

(2-YEAR STUDY)

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Integumentary system/appandage]						
skin/app	trichoepithelioma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)
	keratoacanthoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	schwannoma:malignant		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
subcutis	fibroma		<50> 1 ( 2%)	<50> 2 ( 4%)	<50> 0 ( 0%)	<50> 1 ( 2%)
	fibrosarcoma		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
	histiocytic sarcoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
	sarcoma:NOS		1 ( 2%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
[Respiratory system]						
lung	bronchiolar-alveolar adenoma		<50> 1 ( 2%)	<50> 1 ( 2%)	<50> 1 ( 2%)	<50> 1 ( 2%)
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
[Hematopoietic system]						
bone marrow	malignant histiocytosis		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
spleen	fibrosarcoma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)
	mononuclear cell leukemia		4 ( 8%)	5 ( 10%)	8 ( 16%)	7 ( 14%)
[Digestive system]						
oral cavity	squamous cell carcinoma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 1 ( 2%)	<50> 3 ( 6%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 6

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Digestive system]						
esophagus	squamous cell carcinoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)
stomach	neuroendocrine cell tumor:malignant		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
liver	histiocytic sarcoma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 1 ( 2%)
[Endocrine system]						
pituitary	adenoma		<50> 8 ( 16%)	<50> 11 ( 22%)	<50> 9 ( 18%)	<50> 14 ( 28%)
	adenocarcinoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
thyroid	C-cell adenoma		<50> 2 ( 4%)	<50> 7 ( 14%)	<50> 8 ( 16%)	<50> 5 ( 10%)
	C-cell carcinoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	2 ( 4%)
panc islet	islet cell adenoma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 3 ( 6%)	<50> 1 ( 2%)
adrenal	pheochromocytoma		<50> 4 ( 8%)	<50> 1 ( 2%)	<50> 1 ( 2%)	<50> 2 ( 4%)
	cortical adenoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	cortical adenocarcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
[Reproductive system]						
ovary	granulosa-theca cell tumor		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)
uterus	hemangioma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 1 ( 2%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 7

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Reproductive system]						
uterus	endometrial stromal polyp		<50> 5 ( 10%)	<50> 5 ( 10%)	<50> 10 ( 20%)	<50> 4 ( 8%)
	adenocarcinoma		1 ( 2%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	leiomyosarcoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
	endometrial stromal sarcoma		1 ( 2%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
vagina	squamous cell papilloma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)
mammary gl	adenoma		<50> 1 ( 2%)	<50> 3 ( 6%)	<50> 0 ( 0%)	<50> 1 ( 2%)
	fibroadenoma		9 ( 18%)	10 ( 20%)	8 ( 16%)	9 ( 18%)
	adenocarcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	3 ( 6%)
prep/cli gl	adenoma		<50> 2 ( 4%)	<50> 0 ( 0%)	<50> 3 ( 6%)	<50> 1 ( 2%)
[Nervous system]						
brain	glioma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)
[Special sense organs/appandage]						
Zymbal gl	squamous cell carcinoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
[Body cavities]						
retroperit	sarcoma:NOS		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100



APPENDIX N 3

NEOPLASTIC LESIONS - INCIDENCE AND TUMOR OCCURRENCE

MOUSE: MALE

(2-YEAR STUDY)

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105#)

PAGE : 1

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Integumentary system/appandage]						
subcutis			<50>	<50>	<50>	<50>
	xanthoma		2 ( 4%)	1 ( 2%)	1 ( 2%)	0 ( 0%)
	mastcytoma:benign		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
	hemangioma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	hemangiosarcoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
[Respiratory system]						
larynx			<50>	<50>	<50>	<50>
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	2 ( 4%)
lung			<50>	<50>	<50>	<50>
	bronchiolar-alveolar adenoma		3 ( 6%)	3 ( 6%)	4 ( 8%)	3 ( 6%)
	bronchiolar-alveolar carcinoma		7 ( 14%)	3 ( 6%)	5 ( 10%)	2 ( 4%)
[Hematopoietic system]						
bone marrow			<50>	<50>	<50>	<49>
	hemangioma		2 ( 4%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
lymph node			<50>	<50>	<50>	<50>
	malignant lymphoma		5 ( 10%)	6 ( 12%)	6 ( 12%)	3 ( 6%)
	mastcytoma:malignant		0 ( 0%)	1 ( 2%)	0 ( 0%)	1 ( 2%)
spleen			<50>	<50>	<50>	<50>
	hemangioma		1 ( 2%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	malignant lymphoma		1 ( 2%)	1 ( 2%)	2 ( 4%)	0 ( 0%)
	hemangiosarcoma		2 ( 4%)	1 ( 2%)	4 ( 8%)	0 ( 0%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 2

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Circulatory system]						
heart	hemangioma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)
[Digestive system]						
oral cavity	squamous cell papilloma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 4 ( 8%)
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	13 ( 26%)
esophagus	squamous cell carcinoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 7 ( 14%)
stomach	squamous cell papilloma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 2 ( 4%)
	adenoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	squamous cell carcinoma		1 ( 2%)	0 ( 0%)	0 ( 0%)	7 ( 14%)
	mastocytoma:malignant		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
liver	hepatocellular adenoma		<50> 2 ( 4%)	<50> 6 ( 12%)	<50> 4 ( 8%)	<50> 3 ( 6%)
	angiomyolipoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
	histiocytic sarcoma		0 ( 0%)	2 ( 4%)	0 ( 0%)	1 ( 2%)
	hemangiosarcoma		4 ( 8%)	5 ( 10%)	5 ( 10%)	4 ( 8%)
	hepatocellular carcinoma		13 ( 26%)	10 ( 20%)	9 ( 18%)	4 ( 8%)
[Urinary system]						
urin bladd	histiocytic sarcoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)

< a > a : Number of animals examined at the site  
 b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 3

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Endocrine system]						
pituitary	adenoma		<49> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)
	adenocarcinoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
thyroid	follicular adenoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
	cortical adenoma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 1 ( 2%)	<50> 0 ( 0%)
[Reproductive system]						
epididymis	histiocytic sarcoma		<50> 1 ( 2%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 1 ( 2%)
	fibrosarcoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
prostate	adenoma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)
[Nervous system]						
periph nerv	histiocytic sarcoma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)
[Special sense organs/appandage]						
Harder gl	adenoma		<50> 3 ( 6%)	<50> 4 ( 8%)	<50> 6 ( 12%)	<50> 2 ( 4%)
	adenocarcinoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
[Musculoskeletal system]						
muscle	hemangiosarcoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 4

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 50
[Musculoskeletal system]						
bone	osteoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<49> 1 ( 2%)
[Body cavities]						
mediastinum	hemangiosarcoma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)
peritoneum	hemangiosarcoma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)
retroperit	hemangiosarcoma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)
<hr/>						
< a >	a : Number of animals examined at the site					
b ( c )	b : Number of animals with neoplasm		c : b / a * 100			

(IPT085)

BA1S2

APPENDIX N 4

NEOPLASTIC LESIONS - INCIDENCE AND TUMOR OCCURRENCE

MOUSE: FEMALE

(2-YEAR STUDY)

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 49
[Integumentary system/appandage]						
skin/app			<50>	<50>	<50>	<49>
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
subcutis			<50>	<50>	<50>	<49>
	xanthoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
	hemangiosarcoma		1 ( 2%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
[Respiratory system]						
nasal cavit			<50>	<50>	<50>	<49>
	histiocytic sarcoma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
larynx			<50>	<50>	<50>	<49>
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	1 ( 2%)
lung			<50>	<50>	<50>	<49>
	bronchiolar-alveolar adenoma		1 ( 2%)	3 ( 6%)	1 ( 2%)	2 ( 4%)
	bronchiolar-alveolar carcinoma		2 ( 4%)	3 ( 6%)	1 ( 2%)	1 ( 2%)
[Hematopoietic system]						
bone marrow			<49>	<50>	<50>	<49>
	hemangioma		0 ( 0%)	1 ( 2%)	0 ( 0%)	0 ( 0%)
	mastcytoma:malignant		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
	hemangiosarcoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
Lymph node			<50>	<50>	<50>	<49>
	mastcytoma:benign		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
	malignant lymphoma		11 ( 22%)	10 ( 20%)	17 ( 34%)	10 ( 20%)
	mastcytoma:malignant		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 6

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 49
[Hematopoietic system]						
thymus	malignant lymphoma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<49> 0 ( 0%)
spleen	malignant lymphoma		<50> 0 ( 0%)	<50> 5 ( 10%)	<50> 1 ( 2%)	<49> 1 ( 2%)
	hemangiosarcoma		1 ( 2%)	1 ( 2%)	1 ( 2%)	0 ( 0%)
[Digestive system]						
oral cavity	squamous cell papilloma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<49> 3 ( 6%)
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	15 ( 31%)
tongue	squamous cell papilloma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<49> 1 ( 2%)
	squamous cell carcinoma		2 ( 4%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
salivary gl	adenocarcinoma		<50> 1 ( 2%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<49> 0 ( 0%)
esophagus	squamous cell papilloma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<49> 0 ( 0%)
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
stomach	squamous cell papilloma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<49> 1 ( 2%)
	mastcytoma:benign		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
	squamous cell carcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	3 ( 6%)
small intes	hemangiosarcoma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<49> 0 ( 0%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100



STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
 ALL ANIMALS (0-105W)

PAGE : 7

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 49
[Digestive system]						
Liver	hemangioma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<49> 1 ( 2%)
	hepatocellular adenoma		3 ( 6%)	1 ( 2%)	4 ( 8%)	0 ( 0%)
	histiocytic sarcoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	hemangiosarcoma		3 ( 6%)	3 ( 6%)	0 ( 0%)	1 ( 2%)
	hepatocellular carcinoma		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)
[Endocrine system]						
pituitary	adenoma		<50> 10 ( 20%)	<49> 6 ( 12%)	<49> 8 ( 16%)	<49> 7 ( 14%)
	adenocarcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
adrenal	pheochromocytoma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<49> 0 ( 0%)
	cortical adenoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
[Reproductive system]						
ovary	cystadenoma		<50> 2 ( 4%)	<50> 0 ( 0%)	<50> 2 ( 4%)	<49> 0 ( 0%)
	hemangioma		1 ( 2%)	0 ( 0%)	1 ( 2%)	1 ( 2%)
	cystadenocarcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
uterus	fibroma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<48> 0 ( 0%)

< a > a : Number of animals examined at the site  
 b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 8

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 49
[Reproductive system]						
uterus	endometrial stromal polyp		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<48> 0 ( 0%)
	leiomyosarcoma		0 ( 0%)	0 ( 0%)	1 ( 2%)	0 ( 0%)
	histiocytic sarcoma		10 ( 20%)	11 ( 22%)	8 ( 16%)	10 ( 21%)
	hemangioendothelioma		1 ( 2%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
mammary gl	adenoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<49> 0 ( 0%)
	adenocarcinoma		2 ( 4%)	1 ( 2%)	2 ( 4%)	0 ( 0%)
[Nervous system]						
periph nerv	histiocytic sarcoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 0 ( 0%)	<49> 1 ( 2%)
[Special sense organs/appandage]						
Harder gl	adenoma		<50> 0 ( 0%)	<50> 4 ( 8%)	<50> 3 ( 6%)	<49> 0 ( 0%)
	adenocarcinoma		0 ( 0%)	0 ( 0%)	0 ( 0%)	1 ( 2%)
[Musculoskeletal system]						
muscle	hemangiosarcoma		<50> 0 ( 0%)	<50> 0 ( 0%)	<50> 1 ( 2%)	<49> 0 ( 0%)
bone	osteoma		<49> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<49> 1 ( 2%)
	osteosarcoma		1 ( 2%)	0 ( 0%)	0 ( 0%)	0 ( 0%)

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : NEOPLASTIC LESIONS (SUMMARY)  
ALL ANIMALS (0-105W)

PAGE : 9

Organ	Findings	Group Name No. of animals on Study	Control 50	400 ppm 50	2000 ppm 50	10000 ppm 49
-------	----------	---------------------------------------	---------------	---------------	----------------	-----------------

[Body cavities]

peritoneum	hemangioma		<50> 0 ( 0%)	<50> 1 ( 2%)	<50> 0 ( 0%)	<49> 0 ( 0%)
------------	------------	--	-----------------	-----------------	-----------------	-----------------

< a > a : Number of animals examined at the site  
b ( c ) b : Number of animals with neoplasm c : b / a \* 100

(HPT085)

BAIS2

APPENDIX O 1

NEOPLASTIC LESIONS - INCIDENCE AND STATISTICAL ANIMALS

RAT : MALE

(2-YEAR STUDY)

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 1

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : skin/appendage TUMOR : keratoacanthoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	2/50( 4.0)	4/50( 8.0)	1/50( 2.0)
Adjusted rates(b)	6.82	5.00	10.53	2.56
Terminal rates(c)	3/44( 6.8)	2/40( 5.0)	3/36( 8.3)	1/39( 2.6)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.8230			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.3288			
Fisher Exact test(e)		P = 0.4809	P = 0.4895	P = 0.3235
SITE : subcutis TUMOR : fibroma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	4/50( 8.0)	8/50( 16.0)	3/50( 6.0)
Adjusted rates(b)	6.82	10.00	19.44	5.13
Terminal rates(c)	3/44( 6.8)	4/40( 10.0)	7/36( 19.4)	2/39( 5.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1883			
Prevalence method(d)	P = 0.7841			
Combined analysis(d)	P = 0.6457			
Cochran-Armitage test(e)	P = 0.6172			
Fisher Exact test(e)		P = 0.4895	P = 0.1322	P = 0.3392
SITE : subcutis TUMOR : lipoma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	0/50( 0.0)	3/50( 6.0)	0/50( 0.0)
Adjusted rates(b)	2.27	0.0	8.33	0.0
Terminal rates(c)	1/44( 2.3)	0/40( 0.0)	3/36( 8.3)	0/39( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.7438			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.4252			
Fisher Exact test(e)		P = 0.4950	P = 0.3235	P = 0.4950

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 2

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : subcutis TUMOR : fibroma, fibrosarcoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	5/50( 10.0)	9/50( 18.0)	5/50( 10.0)
Adjusted rates(b)	6.82	10.00	22.22	10.26
Terminal rates(c)	3/44( 6.8)	4/40( 10.0)	8/36( 22.2)	4/39( 10.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3122			
Prevalence method(d)	P = 0.4746			
Combined analysis(d)	P = 0.4113			
Cochran-Armitage test(e)	P = 0.9201			
Fisher Exact test(e)		P = 0.3790	P = 0.0899	P = 0.3790
SITE : lung TUMOR : bronchiolar-alveolar adenoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	1/50( 2.0)	3/50( 6.0)	1/50( 2.0)
Adjusted rates(b)	6.82	2.50	6.82	2.56
Terminal rates(c)	3/44( 6.8)	1/40( 2.5)	2/36( 5.6)	1/39( 2.6)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.7670			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.4546			
Fisher Exact test(e)		P = 0.3235	P = 0.3392	P = 0.3235
SITE : spleen TUMOR : mononuclear cell leukemia				
Tumor rate				
Overall rates(a)	3/50( 6.0)	5/50( 10.0)	7/49( 14.3)	4/50( 8.0)
Adjusted rates(b)	4.55	7.50	11.43	2.56
Terminal rates(c)	2/44( 4.5)	3/40( 7.5)	4/35( 11.4)	1/39( 2.6)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.2447			
Prevalence method(d)	P = 0.8011			
Combined analysis(d)	P = 0.5418			
Cochran-Armitage test(e)	P = 0.8584			
Fisher Exact test(e)		P = 0.3790	P = 0.1836	P = 0.4895

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 3

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : oral cavity TUMOR : squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	5/50( 10.0)
Adjusted rates(b)	0.0	0.0	0.0	7.69
Terminal rates(c)	0/44( 0.0)	0/40( 0.0)	0/36( 0.0)	3/39( 7.7)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.0161* ?			
Prevalence method(d)	P = 0.0019**?			
Combined analysis(d)	P = 0.0001**?			
Cochran-Armitage test(e)	P = 0.0001**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.0360*
SITE : oral cavity TUMOR : squamous cell papilloma,squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	7/50( 14.0)
Adjusted rates(b)	0.0	0.0	0.0	12.82
Terminal rates(c)	0/44( 0.0)	0/40( 0.0)	0/36( 0.0)	5/39( 12.8)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.0161* ?			
Prevalence method(d)	P < 0.0001**?			
Combined analysis(d)	P < 0.0001**?			
Cochran-Armitage test(e)	P < 0.0001**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.0101*
SITE : pituitary gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	19/50( 38.0)	16/50( 32.0)	14/50( 28.0)	11/50( 22.0)
Adjusted rates(b)	36.36	30.95	27.78	23.26
Terminal rates(c)	16/44( 36.4)	12/40( 30.0)	10/36( 27.8)	8/39( 20.5)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.8020			
Prevalence method(d)	P = 0.9032			
Combined analysis(d)	P = 0.9418			
Cochran-Armitage test(e)	P = 0.1133			
Fisher Exact test(e)		P = 0.4055	P = 0.2902	P = 0.1411

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 4

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : pituitary gland TUMOR : adenoma,adenocarcinoma				
Tumor rate				
Overall rates(a)	19/50( 38.0)	16/50( 32.0)	15/50( 30.0)	11/50( 22.0)
Adjusted rates(b)	36.36	30.95	29.73	23.26
Terminal rates(c)	16/44( 36.4)	12/40( 30.0)	10/36( 27.8)	8/39( 20.5)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.8020			
Prevalence method(d)	P = 0.9091			
Combined analysis(d)	P = 0.9453			
Cochran-Armitage test(e)	P = 0.1057			
Fisher Exact test(e)		P = 0.4055	P = 0.3472	P = 0.1411
SITE : thyroid TUMOR : C-cell adenoma				
Tumor rate				
Overall rates(a)	7/50( 14.0)	9/49( 18.4)	3/49( 6.1)	7/49( 14.3)
Adjusted rates(b)	15.22	22.50	8.33	17.95
Terminal rates(c)	6/44( 13.6)	9/40( 22.5)	2/35( 5.7)	7/39( 17.9)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.4844			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.9755			
Fisher Exact test(e)		P = 0.4089	P = 0.2004	P = 0.4019
SITE : thyroid TUMOR : C-cell adenoma,C-cell carcinoma				
Tumor rate				
Overall rates(a)	8/50( 16.0)	11/49( 22.4)	5/49( 10.2)	7/49( 14.3)
Adjusted rates(b)	17.39	27.50	11.90	17.95
Terminal rates(c)	7/44( 15.9)	11/40( 27.5)	3/35( 8.6)	7/39( 17.9)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.7025			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.5880			
Fisher Exact test(e)		P = 0.3379	P = 0.3267	P = 0.4706



STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 5

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : thyroid TUMOR : follicular adenoma, follicular adenocarcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	3/49( 6.1)	0/49( 0.0)	1/49( 2.0)
Adjusted rates(b)	0.0	6.38	0.0	2.56
Terminal rates(c)	0/44( 0.0)	2/40( 5.0)	0/35( 0.0)	1/39( 2.6)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.5241			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.8872			
Fisher Exact test(e)		P = 0.1287	P = 0.5000	P = 0.5000
SITE : pancreas islet TUMOR : islet cell adenoma				
Tumor rate				
Overall rates(a)	6/50( 12.0)	5/50( 10.0)	4/50( 8.0)	3/50( 6.0)
Adjusted rates(b)	13.04	12.50	11.11	6.12
Terminal rates(c)	5/44( 11.4)	5/40( 12.5)	4/36( 11.1)	2/39( 5.1)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.8427			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.3355			
Fisher Exact test(e)		P = 0.4872	P = 0.3944	P = 0.2728
SITE : adrenal gland TUMOR : pheochromocytoma				
Tumor rate				
Overall rates(a)	8/50( 16.0)	4/50( 8.0)	9/50( 18.0)	7/50( 14.0)
Adjusted rates(b)	17.78	10.00	23.68	15.38
Terminal rates(c)	7/44( 15.9)	4/40( 10.0)	8/38( 22.2)	6/39( 15.4)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.4493			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.8881			
Fisher Exact test(e)		P = 0.2169	P = 0.4846	P = 0.4854

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : MALE

# NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 6

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : adrenal gland TUMOR : pheochromocytoma, pheochromocytoma:malignant				
Tumor rate				
Overall rates(a)	9/50( 18.0)	4/50( 8.0)	10/50( 20.0)	7/50( 14.0)
Adjusted rates(b)	20.00	10.00	23.81	15.38
Terminal rates(c)	8/44( 18.2)	4/40( 10.0)	8/36( 22.2)	6/39( 15.4)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.5452			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.9455			
Fisher Exact test(e)		P = 0.1562	P = 0.4839	P = 0.4234
SITE : testis TUMOR : interstitial cell tumor				
Tumor rate				
Overall rates(a)	42/50( 84.0)	40/50( 80.0)	44/50( 88.0)	47/50( 94.0)
Adjusted rates(b)	88.89	86.05	94.59	100.00
Terminal rates(c)	39/44( 88.6)	34/40( 85.0)	34/36( 94.4)	39/39(100.0)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.0188*			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.0543			
Fisher Exact test(e)		P = 0.4942	P = 0.4956	P = 0.4053

(HPT360A)

BA1S2

- (a): Number of tumor-bearing animals/number of animals examined at the site.  
(b): Kaplan-Meire estimated tumor incidence at the end of the study after adjusting for intercurrent mortality.  
(c): Observed tumor incidence at terminal kill.  
(d): Beneath the control incidence are the P-values associated with the trend test.  
Standard method : Death analysis  
Prevalence method : Incidental tumor test  
Combined analysis : Death analysis + Incidental tumor test  
(e): The Cochran-Armitage and Fisher exact test compare directly the overall incidence rates.  
? : The conditional probabilities of the largest and smallest possible out comes can not estimated or this P-value is beyond the estimated P-value.  
----- : There is no data which should be statistical analysis.  
Significant difference : \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$

APPENDIX O 2

NEOPLASTIC LESIONS - INCIDENCE AND STATISTICAL ANIMALS

RAT : FEMALE

(2-YEAR STUDY)

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 7

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : spleen TUMOR : mononuclear cell leukemia				
Tumor rate				
Overall rates(a)	4/50( 8.0)	5/50( 10.0)	8/50( 16.0)	7/50( 14.0)
Adjusted rates(b)	4.88	6.88	12.20	8.11
Terminal rates(c)	2/41( 4.9)	2/40( 5.0)	5/41( 12.2)	3/37( 8.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1657			
Prevalence method(d)	P = 0.4001			
Combined analysis(d)	P = 0.2003			
Cochran-Armitage test(e)	P = 0.4653			
Fisher Exact test(e)		P = 0.4883	P = 0.2169	P = 0.2958
SITE : oral cavity TUMOR : squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	1/50( 2.0)	1/50( 2.0)	3/50( 6.0)
Adjusted rates(b)	0.0	2.50	2.44	8.11
Terminal rates(c)	0/41( 0.0)	1/40( 2.5)	1/41( 2.4)	3/37( 8.1)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.0342*			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.0590			
Fisher Exact test(e)		P = 0.4950	P = 0.4950	P = 0.1325
SITE : oral cavity TUMOR : squamous cell papilloma,squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	1/50( 2.0)	1/50( 2.0)	3/50( 6.0)
Adjusted rates(b)	0.0	2.50	2.44	8.11
Terminal rates(c)	0/41( 0.0)	1/40( 2.5)	1/41( 2.4)	3/37( 8.1)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.0342*			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.0590			
Fisher Exact test(e)		P = 0.4950	P = 0.4950	P = 0.1325

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 8

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : pituitary gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	8/50( 16.0)	11/50( 22.0)	9/50( 18.0)	14/50( 28.0)
Adjusted rates(b)	17.07	12.50	17.39	27.50
Terminal rates(c)	7/41( 17.1)	5/40( 12.5)	7/41( 17.1)	10/37( 27.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.4575			
Prevalence method(d)	P = 0.0586			
Combined analysis(d)	P = 0.0890			
Cochran-Armitage test(e)	P = 0.1679			
Fisher Exact test(e)		P = 0.3526	P = 0.4846	P = 0.1781
SITE : pituitary gland TUMOR : adenoma,adenocarcinoma				
Tumor rate				
Overall rates(a)	8/50( 16.0)	12/50( 24.0)	9/50( 18.0)	14/50( 28.0)
Adjusted rates(b)	17.07	15.00	17.39	27.50
Terminal rates(c)	7/41( 17.1)	6/40( 15.0)	7/41( 17.1)	10/37( 27.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.4575			
Prevalence method(d)	P = 0.0766			
Combined analysis(d)	P = 0.1086			
Cochran-Armitage test(e)	P = 0.2103			
Fisher Exact test(e)		P = 0.2846	P = 0.4846	P = 0.1781
SITE : thyroid TUMOR : C-cell adenoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	7/50( 14.0)	8/50( 16.0)	5/50( 10.0)
Adjusted rates(b)	4.88	15.00	18.18	12.82
Terminal rates(c)	2/41( 4.9)	6/40( 15.0)	7/41( 17.1)	4/37( 10.8)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.4601			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.9733			
Fisher Exact test(e)		P = 0.1045	P = 0.0671	P = 0.2425

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 9

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : thyroid TUMOR : C-cell adenoma,C-cell carcinoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	7/50( 14.0)	9/50( 18.0)	6/50( 12.0)
Adjusted rates(b)	4.88	15.00	20.45	15.38
Terminal rates(c)	2/41( 4.9)	6/40( 15.0)	8/41( 19.5)	5/37( 13.5)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.3422			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.7312			
Fisher Exact test(e)		P = 0.1045	P = 0.0427*	P = 0.1606
SITE : pancreas islet TUMOR : islet cell adenoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	1/50( 2.0)	3/50( 6.0)	1/50( 2.0)
Adjusted rates(b)	0.0	2.50	6.82	2.70
Terminal rates(c)	0/41( 0.0)	1/40( 2.5)	2/41( 4.9)	1/37( 2.7)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.4189			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.9199			
Fisher Exact test(e)		P = 0.4950	P = 0.1325	P = 0.4950
SITE : adrenal gland TUMOR : pheochromocytoma				
Tumor rate				
Overall rates(a)	4/50( 8.0)	1/50( 2.0)	1/50( 2.0)	2/50( 4.0)
Adjusted rates(b)	9.76	2.50	2.44	5.13
Terminal rates(c)	4/41( 9.8)	1/40( 2.5)	1/41( 2.4)	1/37( 2.7)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.5314			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.8308			
Fisher Exact test(e)		P = 0.1998	P = 0.1998	P = 0.3574

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 10

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : adrenal gland TUMOR : pheochromocytoma,pheochromocytoma:malignant				
Tumor rate				
Overall rates(a)	4/50( 8.0)	1/50( 2.0)	1/50( 2.0)	2/50( 4.0)
Adjusted rates(b)	9.76	2.50	2.44	5.13
Terminal rates(c)	4/41( 9.8)	1/40( 2.5)	1/41( 2.4)	1/37( 2.7)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.5314			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.8308			
Fisher Exact test(e)		P = 0.1998	P = 0.1998	P = 0.3574
SITE : uterus TUMOR : endometrial stromal polyp				
Tumor rate				
Overall rates(a)	5/50( 10.0)	5/50( 10.0)	10/50( 20.0)	4/50( 8.0)
Adjusted rates(b)	10.64	10.64	20.45	9.76
Terminal rates(c)	4/41( 9.8)	3/40( 7.5)	7/41( 17.1)	1/37( 2.7)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3209			
Prevalence method(d)	P = 0.7098			
Combined analysis(d)	P = 0.7255			
Cochran-Armitage test(e)	P = 0.5056			
Fisher Exact test(e)		P = 0.3710	P = 0.1771	P = 0.4883
SITE : uterus TUMOR : endometrial stromal polyp,endometrial stromal sarcoma				
Tumor rate				
Overall rates(a)	6/50( 12.0)	5/50( 10.0)	11/50( 22.0)	4/50( 8.0)
Adjusted rates(b)	10.87	10.64	20.45	9.76
Terminal rates(c)	4/41( 9.8)	3/40( 7.5)	7/41( 17.1)	1/37( 2.7)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.7320			
Prevalence method(d)	P = 0.7167			
Combined analysis(d)	P = 0.7912			
Cochran-Armitage test(e)	P = 0.3892			
Fisher Exact test(e)		P = 0.4872	P = 0.1955	P = 0.3944

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 11

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : mammary gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	3/50( 6.0)	0/50( 0.0)	1/50( 2.0)
Adjusted rates(b)	2.44	6.67	0.0	2.70
Terminal rates(c)	1/41( 2.4)	2/40( 5.0)	0/41( 0.0)	1/37( 2.7)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.6475			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.6309			
Fisher Exact test(e)		P = 0.3235	P = 0.4950	P = 0.2475
SITE : mammary gland TUMOR : fibroadenoma				
Tumor rate				
Overall rates(a)	9/50( 18.0)	10/50( 20.0)	8/50( 16.0)	9/50( 18.0)
Adjusted rates(b)	19.51	25.00	18.18	21.62
Terminal rates(c)	8/41( 19.5)	10/40( 25.0)	7/41( 17.1)	8/37( 21.6)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.2456			
Prevalence method(d)	P = 0.5360			
Combined analysis(d)	P = 0.4628			
Cochran-Armitage test(e)	P = 0.9421			
Fisher Exact test(e)		P = 0.4839	P = 0.4846	P = 0.3993
SITE : mammary gland TUMOR : adenocarcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	3/50( 6.0)
Adjusted rates(b)	0.0	0.0	0.0	5.41
Terminal rates(c)	0/41( 0.0)	0/40( 0.0)	0/41( 0.0)	2/37( 5.4)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1723			
Prevalence method(d)	P = 0.0117* ?			
Combined analysis(d)	P = 0.0017**?			
Cochran-Armitage test(e)	P = 0.0030**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.1325



STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : FEMALE

NEOPLASTIC LESIONS--INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 12

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : mammary gland TUMOR : adenoma,fibroadenoma				
Tumor rate				
Overall rates(a)	10/50( 20.0)	12/50( 24.0)	8/50( 16.0)	10/50( 20.0)
Adjusted rates(b)	21.95	27.50	18.18	24.32
Terminal rates(c)	9/41( 22.0)	11/40( 27.5)	7/41( 17.1)	9/37( 24.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.2456			
Prevalence method(d)	P = 0.5619			
Combined analysis(d)	P = 0.4912			
Cochran-Armitage test(e)	P = 0.8890			
Fisher Exact test(e)		P = 0.4406	P = 0.4300	P = 0.4035
SITE : mammary gland TUMOR : adenoma,adenocarcinoma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	3/50( 6.0)	0/50( 0.0)	4/50( 8.0)
Adjusted rates(b)	2.44	6.67	0.0	8.11
Terminal rates(c)	1/41( 2.4)	2/40( 5.0)	0/41( 0.0)	3/37( 8.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1723			
Prevalence method(d)	P = 0.1852			
Combined analysis(d)	P = 0.0832			
Cochran-Armitage test(e)	P = 0.1443			
Fisher Exact test(e)		P = 0.3235	P = 0.4950	P = 0.1998
SITE : mammary gland TUMOR : adenoma,adenocarcinoma,fibroadenoma				
Tumor rate				
Overall rates(a)	10/50( 20.0)	12/50( 24.0)	8/50( 16.0)	13/50( 26.0)
Adjusted rates(b)	21.95	27.50	18.18	29.73
Terminal rates(c)	9/41( 22.0)	11/40( 27.5)	7/41( 17.1)	11/37( 29.7)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.0860			
Prevalence method(d)	P = 0.3179			
Combined analysis(d)	P = 0.1829			
Cochran-Armitage test(e)	P = 0.4574			
Fisher Exact test(e)		P = 0.4406	P = 0.4300	P = 0.3703

STUDY No. : 0162  
ANIMAL : RAT F344  
SEX : FEMALE

# NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 13

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : preputial/clitoral gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	0/50( 0.0)	3/50( 6.0)	1/50( 2.0)
Adjusted rates(b)	4.88	0.0	2.44	2.70
Terminal rates(c)	2/41( 4.9)	0/40( 0.0)	1/41( 2.4)	1/37( 2.7)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.5477			
Prevalence method(d)	P = 0.4433			
Combined analysis(d)	P = 0.5405			
Cochran-Armitage test(e)	P = 0.7903			
Fisher Exact test(e)		P = 0.2574	P = 0.4909	P = 0.4926

(IPT360A)

BAIS2

- (a): Number of tumor-bearing animals/number of animals examined at the site.  
(b): Kaplan-Meire estimated tumor incidence at the end of the study after adjusting for intercurrent mortality.  
(c): Observed tumor incidence at terminal kill.  
(d): Beneath the control incidence are the P-values associated with the trend test.  
Standard method : Death analysis  
Prevalence method : Incidental tumor test  
Combined analysis : Death analysis + Incidental tumor test  
(e): The Cochran-Armitage and Fisher exact test compare directly the overall incidence rates.  
? : The conditional probabilities of the largest and smallest possible out comes can not estimated or this P-value is beyond the estimated P-value.  
----- : There is no data which should be statistical analysis.  
Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$

APPENDIX O 3

NEOPLASTIC LESIONS - INCIDENCE AND STATISTICAL ANIMALS

MOSUE : MALE

(2-YEAR STUDY)

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 1

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : lung TUMOR : bronchiolar-alveolar adenoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	3/50( 6.0)	4/50( 8.0)	3/50( 6.0)
Adjusted rates(b)	8.57	6.38	10.53	8.82
Terminal rates(c)	3/35( 8.6)	2/42( 4.8)	4/38( 10.5)	2/33( 6.1)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.4681			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.9380			
Fisher Exact test(e)		P = 0.3392	P = 0.4895	P = 0.3392
SITE : lung TUMOR : bronchiolar-alveolar carcinoma				
Tumor rate				
Overall rates(a)	7/50( 14.0)	3/50( 6.0)	5/50( 10.0)	2/50( 4.0)
Adjusted rates(b)	17.14	7.14	7.89	3.03
Terminal rates(c)	6/35( 17.1)	3/42( 7.1)	3/38( 7.9)	1/33( 3.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3806			
Prevalence method(d)	P = 0.9399			
Combined analysis(d)	P = 0.8794			
Cochran-Armitage test(e)	P = 0.1787			
Fisher Exact test(e)		P = 0.1917	P = 0.4062	P = 0.1045
SITE : lung TUMOR : bronchiolar-alveolar adenoma,bronchiolar-alveolar carcinoma				
Tumor rate				
Overall rates(a)	10/50( 20.0)	6/50( 12.0)	9/50( 18.0)	5/50( 10.0)
Adjusted rates(b)	25.71	12.77	18.42	11.76
Terminal rates(c)	9/35( 25.7)	5/42( 11.9)	7/38( 18.4)	3/33( 9.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3806			
Prevalence method(d)	P = 0.8587			
Combined analysis(d)	P = 0.8134			
Cochran-Armitage test(e)	P = 0.2695			
Fisher Exact test(e)		P = 0.2557	P = 0.4839	P = 0.1771

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 2

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : lymph node TUMOR : malignant lymphoma				
Tumor rate				
Overall rates(a)	5/50( 10.0)	6/50( 12.0)	6/50( 12.0)	3/50( 6.0)
Adjusted rates(b)	11.43	7.14	7.89	6.06
Terminal rates(c)	4/35( 11.4)	3/42( 7.1)	3/38( 7.9)	2/33( 6.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.7299			
Prevalence method(d)	P = 0.6891			
Combined analysis(d)	P = 0.7977			
Cochran-Armitage test(e)	P = 0.3061			
Fisher Exact test(e)		P = 0.4872	P = 0.4872	P = 0.3790
SITE : spleen TUMOR : hemangiosarcoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	1/50( 2.0)	4/50( 8.0)	0/50( 0.0)
Adjusted rates(b)	0.0	2.38	6.52	0.0
Terminal rates(c)	0/35( 0.0)	1/42( 2.4)	1/38( 2.6)	0/33( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.8477			
Prevalence method(d)	P = 0.7584			
Combined analysis(d)	P = 0.9070			
Cochran-Armitage test(e)	P = 0.2068			
Fisher Exact test(e)		P = 0.4926	P = 0.3574	P = 0.2574
SITE : spleen TUMOR : hemangioma,hemangiosarcoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	1/50( 2.0)	5/50( 10.0)	0/50( 0.0)
Adjusted rates(b)	2.86	2.38	8.70	0.0
Terminal rates(c)	1/35( 2.9)	1/42( 2.4)	2/38( 5.3)	0/33( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.8477			
Prevalence method(d)	P = 0.8614			
Combined analysis(d)	P = 0.9439			
Cochran-Armitage test(e)	P = 0.1408			
Fisher Exact test(e)		P = 0.3235	P = 0.3790	P = 0.1325

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 3

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : oral cavity TUMOR : squamous cell papilloma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	4/50( 8.0)
Adjusted rates(b)	0.0	0.0	0.0	9.76
Terminal rates(c)	0/35( 0.0)	0/42( 0.0)	0/38( 0.0)	3/33( 9.1)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.0003**?			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.0006**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.0688
SITE : oral cavity TUMOR : squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	13/50( 26.0)
Adjusted rates(b)	0.0	0.0	0.0	17.07
Terminal rates(c)	0/35( 0.0)	0/42( 0.0)	0/38( 0.0)	4/33( 12.1)
Statistical analysis				
Peto test				
Standard method(d)	P < 0.0001**?			
Prevalence method(d)	P < 0.0001**?			
Combined analysis(d)	P < 0.0001**?			
Cochran-Armitage test(e)	P < 0.0001**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.0003**
SITE : oral cavity TUMOR : squamous cell papilloma,squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	16/50( 32.0)
Adjusted rates(b)	0.0	0.0	0.0	24.39
Terminal rates(c)	0/35( 0.0)	0/42( 0.0)	0/38( 0.0)	7/33( 21.2)
Statistical analysis				
Peto test				
Standard method(d)	P < 0.0001**?			
Prevalence method(d)	P < 0.0001**?			
Combined analysis(d)	P < 0.0001**?			
Cochran-Armitage test(e)	P < 0.0001**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P < 0.0001**

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 4

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : esophagus TUMOR : squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	7/50( 14.0)
Adjusted rates(b)	0.0	0.0	0.0	15.15
Terminal rates(c)	0/35( 0.0)	0/42( 0.0)	0/38( 0.0)	5/33( 15.2)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1801			
Prevalence method(d)	P < 0.0001**?			
Combined analysis(d)	P < 0.0001**?			
Cochran-Armitage test(e)	P < 0.0001**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.0101*
SITE : stomach TUMOR : squamous cell carcinoma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	0/50( 0.0)	0/50( 0.0)	7/50( 14.0)
Adjusted rates(b)	2.86	0.0	0.0	18.18
Terminal rates(c)	1/35( 2.9)	0/42( 0.0)	0/38( 0.0)	6/33( 18.2)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1821			
Prevalence method(d)	P = 0.0001**			
Combined analysis(d)	P < 0.0001**			
Cochran-Armitage test(e)	P = 0.0001**			
Fisher Exact test(e)		P = 0.4950	P = 0.4950	P = 0.0430*
SITE : stomach TUMOR : squamous cell papilloma,squamous cell carcinoma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	0/50( 0.0)	0/50( 0.0)	9/50( 18.0)
Adjusted rates(b)	2.86	0.0	0.0	24.24
Terminal rates(c)	1/35( 2.9)	0/42( 0.0)	0/38( 0.0)	8/33( 24.2)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1821			
Prevalence method(d)	P < 0.0001**			
Combined analysis(d)	P < 0.0001**			
Cochran-Armitage test(e)	P < 0.0001**			
Fisher Exact test(e)		P = 0.4950	P = 0.4950	P = 0.0150*

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 5

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : liver TUMOR : hepatocellular adenoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	6/50( 12.0)	4/50( 8.0)	3/50( 6.0)
Adjusted rates(b)	5.56	14.29	10.00	6.06
Terminal rates(c)	1/35( 2.9)	6/42( 14.3)	3/38( 7.9)	2/33( 6.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.1705			
Prevalence method(d)	P = 0.7427			
Combined analysis(d)	P = 0.5537			
Cochran-Armitage test(e)	P = 0.6862			
Fisher Exact test(e)		P = 0.1606	P = 0.3574	P = 0.4909
SITE : liver TUMOR : hemangiosarcoma				
Tumor rate				
Overall rates(a)	4/50( 8.0)	5/50( 10.0)	5/50( 10.0)	4/50( 8.0)
Adjusted rates(b)	9.09	9.52	7.89	9.09
Terminal rates(c)	2/35( 5.7)	4/42( 9.5)	3/38( 7.9)	3/33( 9.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3769			
Prevalence method(d)	P = 0.6249			
Combined analysis(d)	P = 0.5650			
Cochran-Armitage test(e)	P = 0.8168			
Fisher Exact test(e)		P = 0.4883	P = 0.4883	P = 0.3579
SITE : liver TUMOR : hepatocellular carcinoma				
Tumor rate				
Overall rates(a)	13/50( 26.0)	10/50( 20.0)	9/50( 18.0)	4/50( 8.0)
Adjusted rates(b)	31.43	23.26	23.68	11.76
Terminal rates(c)	11/35( 31.4)	9/42( 21.4)	9/38( 23.7)	3/33( 9.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 1.0000 ?			
Prevalence method(d)	P = 0.9783			
Combined analysis(d)	P = 0.9837			
Cochran-Armitage test(e)	P = 0.0243*			
Fisher Exact test(e)		P = 0.3703	P = 0.2965	P = 0.0371*



STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 6

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : Liver TUMOR : hemangioma,hemangiosarcoma				
Tumor rate				
Overall rates(a)	4/50( 8.0)	5/50( 10.0)	5/50( 10.0)	4/50( 8.0)
Adjusted rates(b)	9.09	9.52	7.89	9.09
Terminal rates(c)	2/35( 5.7)	4/42( 9.5)	3/38( 7.9)	3/33( 9.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3769			
Prevalence method(d)	P = 0.6249			
Combined analysis(d)	P = 0.5650			
Cochran-Armitage test(e)	P = 0.8168			
Fisher Exact test(e)		P = 0.4883	P = 0.4883	P = 0.3579
SITE : Liver TUMOR : hepatocellular adenoma,hepatocellular carcinoma				
Tumor rate				
Overall rates(a)	14/50( 28.0)	13/50( 26.0)	13/50( 26.0)	7/50( 14.0)
Adjusted rates(b)	34.29	30.23	32.50	17.65
Terminal rates(c)	12/35( 34.3)	12/42( 28.6)	12/38( 31.6)	5/33( 15.2)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.2361			
Prevalence method(d)	P = 0.9639			
Combined analysis(d)	P = 0.9400			
Cochran-Armitage test(e)	P = 0.0671			
Fisher Exact test(e)		P = 0.4815	P = 0.4815	P = 0.1246
SITE : Harderian gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	4/50( 8.0)	6/50( 12.0)	2/50( 4.0)
Adjusted rates(b)	8.57	8.51	14.29	6.06
Terminal rates(c)	3/35( 8.6)	3/42( 7.1)	4/38( 10.5)	2/33( 6.1)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.7794			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.3929			
Fisher Exact test(e)		P = 0.4895	P = 0.2728	P = 0.4909

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : MALE

# NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 7

Group Name	Control	400 ppm	2000 ppm	10000 ppm
	SITE : Harderian gland			
	TUMOR : adenoma,adenocarcinoma			
Tumor rate				
Overall rates(a)	4/50( 8.0)	5/50( 10.0)	6/50( 12.0)	2/50( 4.0)
Adjusted rates(b)	11.43	10.64	14.29	6.06
Terminal rates(c)	4/35( 11.4)	3/42( 7.1)	4/38( 10.5)	2/33( 6.1)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.8679			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.2421			
Fisher Exact test(e)		P = 0.4883	P = 0.3944	P = 0.3574

(HPT360A)

BAIS2

- (a): Number of tumor-bearing animals/number of animals examined at the site.  
(b): Kaplan-Meire estimated tumor incidence at the end of the study after adjusting for intercurrent mortality.  
(c): Observed tumor incidence at terminal kill.  
(d): Beneath the control incidence are the P-values associated with the trend test.  
Standard method : Death analysis  
Prevalence method : Incidental tumor test  
Combined analysis : Death analysis + Incidental tumor test  
(e): The Cochran-Armitage and Fisher exact test compare directly the overall incidence rates.  
? : The conditional probabilities of the largest and smallest possible outcomes can not be estimated or this P-value is beyond the estimated P-value.  
----- : There is no data which should be statistical analysis.  
Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : MALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 1

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : ALL SITE TUMOR : hemangioma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	0/50( 0.0)	2/50( 4.0)	0/50( 0.0)
Adjusted rates(b)	6.82	0.0	5.26	0.0
Terminal rates(c)	1/35( 2.9)	0/42( 0.0)	2/38( 5.3)	0/33( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.9182			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.1988			
Fisher Exact test(e)		P = 0.1325	P = 0.4909	P = 0.1325
SITE : ALL SITE TUMOR : malignant Lymphoma				
Tumor rate				
Overall rates(a)	6/50( 12.0)	7/50( 14.0)	8/50( 16.0)	3/50( 6.0)
Adjusted rates(b)	14.29	9.52	13.16	6.06
Terminal rates(c)	5/35( 14.3)	4/42( 9.5)	5/38( 13.2)	2/33( 6.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.7299			
Prevalence method(d)	P = 0.8266			
Combined analysis(d)	P = 0.8800			
Cochran-Armitage test(e)	P = 0.1694			
Fisher Exact test(e)		P = 0.4863	P = 0.4157	P = 0.2728

(HPT360A)

BA1S2

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : MALE

# NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 2

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : ALL SITE				
TUMOR : hemangiosarcoma				
Tumor rate				
Overall rates(a)	6/50( 12.0)	7/50( 14.0)	7/50( 14.0)	4/50( 8.0)
Adjusted rates(b)	8.57	11.90	7.89	9.09
Terminal rates(c)	3/35( 8.6)	5/42( 11.9)	3/38( 7.9)	3/33( 9.1)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.8258			
Prevalence method(d)	P = 0.5365			
Combined analysis(d)	P = 0.7672			
Cochran-Armitage test(e)	P = 0.3448			
Fisher Exact test(e)		P = 0.4863	P = 0.4863	P = 0.3944

(HPT360A)

BAIS2

- (a): Number of tumor-bearing animals/number of animals examined at the site.  
(b): Kaplan-Meire estimated tumor incidence at the end of the study after adjusting for intercurrent mortality.  
(c): Observed tumor incidence at terminal kill.  
(d): Beneath the control incidence are the P-values associated with the trend test.  
Standard method : Death analysis  
Prevalence method : Incidental tumor test  
Combined analysis : Death analysis + Incidental tumor test  
(e): The Cochran-Armitage and Fisher exact test compare directly the overall incidence rates.  
? : The conditional probabilities of the largest and smallest possible out comes can not estimated or this P-value is beyond the estimated P-value.  
----- : There is no data which should be statistical analysis.  
Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$

APPENDIX O 4

NEOPLASTIC LESIONS - INCIDENCE AND STATISTICAL ANIMALS

MOSUE :FEMALE

(2-YEAR STUDY)

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 8

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : lung TUMOR : bronchiolar-alveolar adenoma				
Tumor rate				
Overall rates(a)	1/50( 2.0)	3/50( 6.0)	1/50( 2.0)	2/49( 4.1)
Adjusted rates(b)	2.56	11.11	4.00	8.70
Terminal rates(c)	0/26( 0.0)	3/27( 11.1)	1/25( 4.0)	2/23( 8.7)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.3856			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.8680			
Fisher Exact test(e)		P = 0.3235	P = 0.2475	P = 0.5000
SITE : lung TUMOR : bronchiolar-alveolar carcinoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	3/50( 6.0)	1/50( 2.0)	1/49( 2.0)
Adjusted rates(b)	4.26	5.41	4.00	4.35
Terminal rates(c)	1/26( 3.8)	1/27( 3.7)	1/25( 4.0)	1/23( 4.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 1.0000 ?			
Prevalence method(d)	P = 0.6925			
Combined analysis(d)	P = 0.7720			
Cochran-Armitage test(e)	P = 0.4309			
Fisher Exact test(e)		P = 0.4909	P = 0.4926	P = 0.4851
SITE : lung TUMOR : bronchiolar-alveolar adenoma,bronchiolar-alveolar carcinoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	6/50( 12.0)	2/50( 4.0)	3/49( 6.1)
Adjusted rates(b)	6.38	14.81	8.00	13.04
Terminal rates(c)	1/26( 3.8)	4/27( 14.8)	2/25( 8.0)	3/23( 13.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 1.0000 ?			
Prevalence method(d)	P = 0.5740			
Combined analysis(d)	P = 0.6444			
Cochran-Armitage test(e)	P = 0.6544			
Fisher Exact test(e)		P = 0.2728	P = 0.4909	P = 0.3483

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 9

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : lymph node TUMOR : malignant lymphoma				
Tumor rate				
Overall rates(a)	11/50( 22.0)	10/50( 20.0)	17/50( 34.0)	10/49( 20.4)
Adjusted rates(b)	15.38	16.67	24.00	8.70
Terminal rates(c)	4/26( 15.4)	4/27( 14.8)	6/25( 24.0)	2/23( 8.7)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.3556			
Prevalence method(d)	P = 0.8661			
Combined analysis(d)	P = 0.6221			
Cochran-Armitage test(e)	P = 0.7075			
Fisher Exact test(e)		P = 0.4833	P = 0.2154	P = 0.4662
SITE : spleen TUMOR : malignant lymphoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	5/50( 10.0)	1/50( 2.0)	1/49( 2.0)
Adjusted rates(b)	0.0	7.41	4.00	4.35
Terminal rates(c)	0/26( 0.0)	2/27( 7.4)	1/25( 4.0)	1/23( 4.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.8889			
Prevalence method(d)	P = 0.3952			
Combined analysis(d)	P = 0.7198			
Cochran-Armitage test(e)	P = 0.4769			
Fisher Exact test(e)		P = 0.0360*	P = 0.4950	P = 0.5000
SITE : oral cavity TUMOR : squamous cell papilloma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	3/49( 6.1)
Adjusted rates(b)	0.0	0.0	0.0	12.50
Terminal rates(c)	0/26( 0.0)	0/27( 0.0)	0/25( 0.0)	2/23( 8.7)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.0014**?			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.0027**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.1287

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 10

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : oral cavity TUMOR : squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	15/49( 30.6)
Adjusted rates(b)	0.0	0.0	0.0	35.48
Terminal rates(c)	0/26( 0.0)	0/27( 0.0)	0/25( 0.0)	8/23( 34.8)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.0004**?			
Prevalence method(d)	P < 0.0001**?			
Combined analysis(d)	P < 0.0001**?			
Cochran-Armitage test(e)	P < 0.0001**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.0001**
SITE : oral cavity TUMOR : squamous cell papilloma,squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	18/49( 36.7)
Adjusted rates(b)	0.0	0.0	0.0	45.83
Terminal rates(c)	0/26( 0.0)	0/27( 0.0)	0/25( 0.0)	10/23( 43.5)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.0004**?			
Prevalence method(d)	P < 0.0001**?			
Combined analysis(d)	P < 0.0001**?			
Cochran-Armitage test(e)	P < 0.0001**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P < 0.0001**
SITE : stomach TUMOR : squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	3/49( 6.1)
Adjusted rates(b)	0.0	0.0	0.0	4.35
Terminal rates(c)	0/26( 0.0)	0/27( 0.0)	0/25( 0.0)	1/23( 4.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.0146* ?			
Prevalence method(d)	P = 0.1561			
Combined analysis(d)	P = 0.0019**?			
Cochran-Armitage test(e)	P = 0.0027**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.1287



STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 11

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : stomach TUMOR : squamous cell papilloma,squamous cell carcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	0/50( 0.0)	0/50( 0.0)	4/49( 8.2)
Adjusted rates(b)	0.0	0.0	0.0	8.70
Terminal rates(c)	0/26( 0.0)	0/27( 0.0)	0/25( 0.0)	2/23( 8.7)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.0146* ?			
Prevalence method(d)	P = 0.0103* ?			
Combined analysis(d)	P = 0.0002**?			
Cochran-Armitage test(e)	P = 0.0005**			
Fisher Exact test(e)		P = 0.5000	P = 0.5000	P = 0.0662
SITE : liver TUMOR : hepatocellular adenoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	1/50( 2.0)	4/50( 8.0)	0/49( 0.0)
Adjusted rates(b)	11.54	3.70	15.38	0.0
Terminal rates(c)	3/26( 11.5)	1/27( 3.7)	3/25( 12.0)	0/23( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.9402			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.1492			
Fisher Exact test(e)		P = 0.3235	P = 0.4895	P = 0.1364
SITE : liver TUMOR : hemangiosarcoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	3/50( 6.0)	0/50( 0.0)	1/49( 2.0)
Adjusted rates(b)	9.38	6.45	0.0	3.23
Terminal rates(c)	2/26( 7.7)	1/27( 3.7)	0/25( 0.0)	0/23( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 1.0000 ?			
Prevalence method(d)	P = 0.7676			
Combined analysis(d)	P = 0.8309			
Cochran-Armitage test(e)	P = 0.3279			
Fisher Exact test(e)		P = 0.3392	P = 0.1325	P = 0.3312

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 12

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : liver TUMOR : hemangioma,hemangiosarcoma				
Tumor rate				
Overall rates(a)	3/50( 6.0)	3/50( 6.0)	0/50( 0.0)	2/49( 4.1)
Adjusted rates(b)	9.38	6.45	0.0	6.45
Terminal rates(c)	2/26( 7.7)	1/27( 3.7)	0/25( 0.0)	1/23( 4.3)
Statistical analysis				
Peto test				
Standard method(d)	P = 1.0000 ?			
Prevalence method(d)	P = 0.4983			
Combined analysis(d)	P = 0.5906			
Cochran-Armitage test(e)	P = 0.7663			
Fisher Exact test(e)		P = 0.3392	P = 0.1325	P = 0.4816
SITE : liver TUMOR : hepatocellular adenoma,hepatocellular carcinoma				
Tumor rate				
Overall rates(a)	4/50( 8.0)	1/50( 2.0)	4/50( 8.0)	0/49( 0.0)
Adjusted rates(b)	15.38	3.70	15.38	0.0
Terminal rates(c)	4/26( 15.4)	1/27( 3.7)	3/25( 12.0)	0/23( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.9635			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.1047			
Fisher Exact test(e)		P = 0.1998	P = 0.3579	P = 0.0715
SITE : pituitary gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	10/50( 20.0)	6/49( 12.2)	8/49( 16.3)	7/49( 14.3)
Adjusted rates(b)	22.86	18.52	29.17	30.43
Terminal rates(c)	5/26( 19.2)	5/27( 18.5)	7/24( 29.2)	7/23( 30.4)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.8435			
Prevalence method(d)	P = 0.4523			
Combined analysis(d)	P = 0.5960			
Cochran-Armitage test(e)	P = 0.7275			
Fisher Exact test(e)		P = 0.2683	P = 0.4459	P = 0.3564

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 13

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : pituitary gland TUMOR : adenoma,adenocarcinoma				
Tumor rate				
Overall rates(a)	10/50( 20.0)	6/49( 12.2)	8/49( 16.3)	8/49( 16.3)
Adjusted rates(b)	22.86	18.52	29.17	30.43
Terminal rates(c)	5/26( 19.2)	5/27( 18.5)	7/24( 29.2)	7/23( 30.4)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.4700			
Prevalence method(d)	P = 0.4523			
Combined analysis(d)	P = 0.4612			
Cochran-Armitage test(e)	P = 0.9887			
Fisher Exact test(e)		P = 0.2683	P = 0.4459	P = 0.4459
SITE : uterus TUMOR : histiocytic sarcoma				
Tumor rate				
Overall rates(a)	10/50( 20.0)	11/50( 22.0)	8/50( 16.0)	10/48( 20.8)
Adjusted rates(b)	7.69	10.81	4.00	23.08
Terminal rates(c)	2/26( 7.7)	2/27( 7.4)	1/25( 4.0)	5/23( 21.7)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.8738			
Prevalence method(d)	P = 0.0656			
Combined analysis(d)	P = 0.5100			
Cochran-Armitage test(e)	P = 0.9213			
Fisher Exact test(e)		P = 0.4833	P = 0.4300	P = 0.4361
SITE : mammary gland TUMOR : adenoma,adenocarcinoma				
Tumor rate				
Overall rates(a)	2/50( 4.0)	1/50( 2.0)	3/50( 6.0)	0/49( 0.0)
Adjusted rates(b)	3.85	0.0	8.00	0.0
Terminal rates(c)	1/26( 3.8)	0/27( 0.0)	2/25( 8.0)	0/23( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.8447			
Prevalence method(d)	P = 0.7509			
Combined analysis(d)	P = 0.8959			
Cochran-Armitage test(e)	P = 0.2178			
Fisher Exact test(e)		P = 0.4926	P = 0.4909	P = 0.2626

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 14

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : Harderian gland TUMOR : adenoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	4/50( 8.0)	3/50( 6.0)	0/49( 0.0)
Adjusted rates(b)	0.0	12.90	12.00	0.0
Terminal rates(c)	0/26( 0.0)	3/27( 11.1)	3/25( 12.0)	0/23( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.9268			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.1862			
Fisher Exact test(e)		P = 0.0688	P = 0.1325	P = 0.5000
SITE : Harderian gland TUMOR : adenoma,adenocarcinoma				
Tumor rate				
Overall rates(a)	0/50( 0.0)	4/50( 8.0)	3/50( 6.0)	1/49( 2.0)
Adjusted rates(b)	0.0	12.90	12.00	4.35
Terminal rates(c)	0/26( 0.0)	3/27( 11.1)	3/25( 12.0)	1/23( 4.3)
Statistical analysis				
Peto test				
Standard method(d)	P = -----			
Prevalence method(d)	P = 0.7267			
Combined analysis(d)	P = -----			
Cochran-Armitage test(e)	P = 0.5357			
Fisher Exact test(e)		P = 0.0688	P = 0.1325	P = 0.5000

(HPT360A)

BAIS2

- (a): Number of tumor-bearing animals/number of animals examined at the site.  
 (b): Kaplan-Meire estimated tumor incidence at the end of the study after adjusting for intercurrent mortality.  
 (c): Observed tumor incidence at terminal kill.  
 (d): Beneath the control incidence are the P-values associated with the trend test.  
     Standard method : Death analysis  
     Prevalence method : Incidental tumor test  
     Combined analysis : Death analysis + Incidental tumor test  
 (e): The Cochran-Armitage and Fisher exact test compare directly the overall incidence rates.  
 ? : The conditional probabilities of the largest and smallest possible outcomes can not be estimated or this P-value is beyond the estimated P-value.  
 ----- : There is no data which should be statistical analysis.  
 Significant difference ; \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$

STUDY No. : 0163  
ANIMAL : MOUSE BDF1  
SEX : FEMALE

NEOPLASTIC LESIONS-INCIDENCE AND STATISTICAL ANALYSIS

PAGE : 3

Group Name	Control	400 ppm	2000 ppm	10000 ppm
SITE : ALL SITE TUMOR : malignant lymphoma				
Tumor rate				
Overall rates(a)	11/50( 22.0)	16/50( 32.0)	18/50( 36.0)	11/49( 22.4)
Adjusted rates(b)	15.38	24.14	28.00	13.04
Terminal rates(c)	4/26( 15.4)	6/27( 22.2)	7/25( 28.0)	3/23( 13.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.5370			
Prevalence method(d)	P = 0.8304			
Combined analysis(d)	P = 0.7371			
Cochran-Armitage test(e)	P = 0.4517			
Fisher Exact test(e)		P = 0.2625	P = 0.1751	P = 0.4239
SITE : ALL SITE TUMOR : hemangiosarcoma				
Tumor rate				
Overall rates(a)	4/50( 8.0)	5/50( 10.0)	1/50( 2.0)	1/49( 2.0)
Adjusted rates(b)	12.50	9.68	0.0	3.23
Terminal rates(c)	2/26( 7.7)	2/27( 7.4)	0/25( 0.0)	0/23( 0.0)
Statistical analysis				
Peto test				
Standard method(d)	P = 0.7972			
Prevalence method(d)	P = 0.8907			
Combined analysis(d)	P = 0.9444			
Cochran-Armitage test(e)	P = 0.1294			
Fisher Exact test(e)		P = 0.4883	P = 0.1998	P = 0.2063

(HPT360A)

BAIS2

- (a): Number of tumor-bearing animals/number of animals examined at the site.  
(b): Kaplan-Meire estimated tumor incidence at the end of the study after adjusting for intercurrent mortality.  
(c): Observed tumor incidence at terminal kill.  
(d): Beneath the control incidence are the P-values associated with the trend test.  
Standard method : Death analysis  
Prevalence method : Incidental tumor test  
Combined analysis : Death analysis + Incidental tumor test  
(e): The Cochran-Armitage and Fisher exact test compare directly the overall incidence rates.  
? : The conditional probabilities of the largest and smallest possible outcomes can not be estimated or this P-value is beyond the estimated P-value.  
----- : There is no data which should be statistical analysis.  
Significant difference : \* :  $P \leq 0.05$  \*\* :  $P \leq 0.01$

APPENDIX P 1

HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR : SUMMARY

RAT: MALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 1

Organ	Findings	Group Name No. of Animals on Study	Control 6	400 ppm 10	2000 ppm 14	10000 ppm 11
[Respiratory system]						
nasal cavit		< 6>		<10>	<14>	<11>
	leukemic cell infiltration	0	0	0	2	
lung		< 6>		<10>	<14>	<11>
	leukemic cell infiltration	1	3	3	3	
	metastasis:liver tumor	0	0	1	0	
	metastasis:subcutis tumor	1	1	0	1	
	metastasis:skin/appendage tumor	0	1	0	0	
[Hematopoietic system]						
bone marrow		< 6>		<10>	<14>	<11>
	leukemic cell infiltration	0	2	2	3	
	metastasis:liver tumor	0	0	1	0	
lymph node		< 6>		<10>	<14>	<11>
	leukemic cell infiltration	1	0	0	1	
	metastasis:liver tumor	0	0	1	0	
	metastasis:skin/appendage tumor	0	1	0	0	
spleen		< 6>		<10>	<14>	<11>
	metastasis:liver tumor	0	0	1	0	
[Circulatory system]						
heart		< 6>		<10>	<14>	<11>
	leukemic cell infiltration	1	0	0	0	
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 2

Group Name No. of Animals on Study		Control 6	400 ppm 10	2000 ppm 14	10000 ppm 11
Organ	Findings				
[Digestive system]					
tongue	leukemic cell infiltration	< 6> 0	<10> 0	<14> 0	<10> 1
	metastasis:oral cavity tumor	0	0	0	1
stomach	leukemic cell infiltration	< 6> 0	<10> 1	<14> 0	<11> 0
	leukemic cell infiltration	< 6> 0	<10> 1	<14> 0	<11> 0
large intes	leukemic cell infiltration	< 6> 0	<10> 1	<14> 0	<11> 0
	leukemic cell infiltration	< 6> 1	<10> 3	<14> 3	<11> 3
liver	metastasis:subcutis tumor	0	1	0	0
	leukemic cell infiltration	< 6> 1	<10> 1	<14> 0	<11> 1
pancreas	metastasis:liver tumor	0	0	1	0
	leukemic cell infiltration	< 6> 1	<10> 1	<14> 0	<11> 1
[Urinary system]					
kidney	leukemic cell infiltration	< 6> 0	<10> 0	<14> 3	<11> 3
	metastasis:liver tumor	0	0	1	0
[Endocrine system]					
pituitary	leukemic cell infiltration	< 6> 1	<10> 0	<14> 0	<11> 0
	leukemic cell infiltration	< 6> 1	<10> 1	<14> 2	<11> 2
adrenal	leukemic cell infiltration	< 6> 1	<10> 1	<14> 2	<11> 2
	leukemic cell infiltration	< 6> 1	<10> 1	<14> 2	<11> 2
< a >	a : Number of animals examined at the site				
b	b : Number of animals with lesion				



STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 3

Organ	Findings	Group Name No. of Animals on Study	Control 6	400 ppm 10	2000 ppm 14	10000 ppm 11
[Endocrine system]						
adrenal	metastasis:liver tumor		< 6> 0	<10> 0	<14> 1	<11> 0
[Reproductive system]						
epididymis	leukemic cell infiltration		< 6> 0	<10> 0	<14> 0	<11> 1
semin ves	leukemic cell infiltration		< 6> 0	<10> 1	<14> 0	<11> 0
prostate	leukemic cell infiltration		< 6> 0	<10> 1	<14> 0	<11> 1
[Special sense organs/appandage]						
eye	leukemic cell infiltration		< 6> 0	<10> 0	<14> 0	<11> 1
Harder gl	leukemic cell infiltration		< 6> 0	<10> 0	<14> 0	<11> 1
[Musculoskeletal system]						
muscle	metastasis:liver tumor		< 6> 0	<10> 0	<14> 1	<11> 0
[Body cavities]						
pleura	metastasis:liver tumor		< 6> 0	<10> 0	<14> 1	<11> 0

< a > a : Number of animals examined at the site  
b b : Number of animals with lesion

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

Organ	Findings	Group Name No. of Animals on Study	Control 6	400 ppm 10	2000 ppm 14	10000 ppm 11
[Body cavities]						
mediastinum			< 6>	<10>	<14>	<11>
	metastasis:liver tumor		0	0	1	0
peritoneum			< 6>	<10>	<14>	<11>
	metastasis:liver tumor		0	0	1	0
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					
(JPT150)						

APPENDIX P 2

HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR : SUMMARY

RAT: FEMALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 5

Organ	Findings	Group Name No. of Animals on Study	Control 9	400 ppm 10	2000 ppm 9	10000 ppm 13
[Integumentary system/appendage]						
skin/app	leukemic cell infiltration		< 9> 1	<10> 0	< 9> 0	<13> 0
	metastasis:subcutis tumor		1	0	0	0
subcutis	leukemic cell infiltration		< 9> 1	<10> 0	< 9> 0	<13> 0
[Respiratory system]						
nasal cavit	leukemic cell infiltration		< 9> 1	<10> 0	< 9> 0	<13> 0
	metastasis:subcutis tumor		< 9> 1	<10> 0	< 9> 0	<13> 0
lung	leukemic cell infiltration		< 9> 2	<10> 3	< 9> 3	<13> 4
	metastasis:liver tumor		0	1	0	1
	metastasis:uterus tumor		0	0	1	0
[Hematopoietic system]						
bone marrow	leukemic cell infiltration		< 9> 1	<10> 2	< 9> 2	<13> 1
	metastasis:liver tumor		0	0	0	1
lymph node	leukemic cell infiltration		< 9> 2	<10> 1	< 9> 1	<13> 3
	metastasis:subcutis tumor		1	0	0	0
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 6

Organ	Findings	Group Name No. of Animals on Study	Control 9	400 ppm 10	2000 ppm 9	10000 ppm 13
[Hematopoietic system]						
lymph node	metastasis:bone marrow tumor		< 9> 0	<10> 0	< 9> 1	<13> 0
spleen	metastasis:liver tumor		< 9> 0	<10> 0	< 9> 0	<13> 1
	metastasis:bone marrow tumor		0	0	1	0
[Circulatory system]						
heart	leukemic cell infiltration		< 9> 0	<10> 0	< 9> 0	<13> 1
	metastasis:liver tumor		0	1	0	0
[Digestive system]						
salivary gl	leukemic cell infiltration		< 9> 1	<10> 0	< 9> 0	<13> 0
stomach	leukemic cell infiltration		< 9> 1	<10> 0	< 9> 0	<13> 0
	metastasis:subcutis tumor		1	0	0	0
liver	leukemic cell infiltration		< 9> 2	<10> 3	< 9> 3	<13> 4
	metastasis:uterus tumor		0	0	1	0
	metastasis:bone marrow tumor		0	0	1	0
pancreas	leukemic cell infiltration		< 9> 1	<10> 2	< 9> 0	<13> 0

< a > a : Number of animals examined at the site  
b b : Number of animals with lesion

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 7

Group Name No. of Animals on Study		Control 9	400 ppm 10	2000 ppm 9	10000 ppm 13
Organ	Findings				
[Digestive system]					
pancreas	metastasis:uterus tumor	< 9> 0	<10> 0	< 9> 1	<13> 0
	metastasis:subcutis tumor	1	0	0	0
[Urinary system]					
kidney	leukemic cell infiltration	< 9> 1	<10> 1	< 9> 0	<13> 3
	metastasis:uterus tumor	0	0	1	0
urin bladd	leukemic cell infiltration	< 9> 0	<10> 0	< 9> 0	<13> 1
[Endocrine system]					
adrenal	leukemic cell infiltration	< 9> 1	<10> 0	< 9> 1	<13> 0
[Reproductive system]					
ovary	leukemic cell infiltration	< 9> 1	<10> 1	< 9> 1	<13> 0
	metastasis:uterus tumor	0	1	0	0
uterus	leukemic cell infiltration	< 9> 1	<10> 0	< 9> 0	<13> 1
	leukemic cell infiltration	< 9> 1	<10> 0	< 9> 0	<13> 0
< a > b		a : Number of animals examined at the site b : Number of animals with lesion			

STUDY NO. : 0162  
 ANIMAL : RAT F344  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 8

Group Name No. of Animals on Study		Control 9	400 ppm 10	2000 ppm 9	10000 ppm 13
Organ	Findings				
[Special sense organs/appandage]					
eye		< 9>	<10>	< 9>	<13>
	leukemic cell infiltration	1	0	0	0
Harder gl		< 9>	<10>	< 9>	<13>
	leukemic cell infiltration	1	1	0	0
[Musculoskeletal system]					
muscle		< 9>	<10>	< 9>	<13>
	leukemic cell infiltration	1	0	0	0
[Body cavities]					
peritoneum		< 9>	<10>	< 9>	<13>
	metastasis:uterus tumor	1	0	0	0
	metastasis:subcutis tumor	1	0	0	0
retroperit		< 9>	<10>	< 9>	<13>
	metastasis:uterus tumor	0	0	1	0
mesenterium		< 9>	<10>	< 9>	<13>
	metastasis:uterus tumor	1	0	0	0
< a > a : Number of animals examined at the site b b : Number of animals with lesion					

APPENDIX P 3

HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR : SUMMARY

RAT: MALE : SACRIFICED ANIMALS

(2-YEAR STUDY)



STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 2

Organ	Findings	Group Name No. of Animals on Study	Control 41	400 ppm 40	2000 ppm 41	10000 ppm 37
[Respiratory system]						
lung	leukemic cell infiltration		<41> 1	<40> 0	<41> 0	<37> 0
	metastasis:adrenal tumor		0	0	0	1
	metastasis:thyroid tumor		0	0	1	0
[Hematopoietic system]						
lymph node	metastasis:zymbal gland tumor		<41> 0	<40> 0	<41> 1	<37> 0
spleen	metastasis:bone marrow tumor		<41> 1	<40> 0	<41> 0	<37> 0
[Digestive system]						
salivary gl	metastasis:zymbal gland tumor		<41> 0	<40> 0	<41> 1	<37> 0
liver	leukemic cell infiltration		<41> 2	<40> 1	<41> 5	<37> 2
[Urinary system]						
kidney	leukemic cell infiltration		<41> 0	<40> 0	<41> 2	<37> 0
[Nervous system]						
brain	metastasis:pituitary tumor		<41> 0	<40> 1	<41> 0	<37> 0

< a > a : Number of animals examined at the site  
b b : Number of animals with lesion

APPENDIX P 4

HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR : SUMMARY

RAT: FEMALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0162  
ANIMAL : RAT F344  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 1

		Group Name No. of Animals on Study	Control 44	400 ppm 40	2000 ppm 36	10000 ppm 39
Organ	Findings					
[Respiratory system]						
trachea			<44>	<40>	<36>	<39>
	metastasis:thyroid tumor		1	0	0	0
lung			<44>	<40>	<36>	<39>
	leukemic cell infiltration		1	2	1	1
	metastasis:thyroid tumor		1	0	0	0
	metastasis:skin/appendage tumor		0	0	0	1
[Hematopoietic system]						
bone marrow			<44>	<40>	<36>	<39>
	leukemic cell infiltration		0	0	0	1
lymph node			<44>	<40>	<36>	<39>
	leukemic cell infiltration		0	1	1	0
	metastasis:thyroid tumor		1	0	0	0
[Digestive system]						
liver			<44>	<40>	<36>	<39>
	leukemic cell infiltration		1	2	4	1
[Urinary system]						
kidney			<44>	<40>	<36>	<39>
	leukemic cell infiltration		0	0	2	1
	metastasis:skin/appendage tumor		0	0	0	1
[Endocrine system]						
adrenal			<44>	<40>	<36>	<39>
	leukemic cell infiltration		0	1	0	0

< a > a : Number of animals examined at the site  
b b : Number of animals with lesion

APPENDIX P 5

HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR : SUMMARY

MOUSE: MALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 1

Group Name No. of Animals on Study		Control 15	400 ppm 8	2000 ppm 12	10000 ppm 17
Organ	Findings				
[Respiratory system]					
nasal cavit		<15>	< 8>	<12>	<17>
	metastasis:periferal nerve tumor	1	0	0	0
lung		<15>	< 8>	<12>	<17>
	leukemic cell infiltration	0	2	2	0
	metastasis:liver tumor	0	1	0	1
	metastasis:spleen tumor	0	0	1	0
	metastasis:oral cavity tumor	0	0	0	2
	metastasis:esophagus tumor	0	0	0	1
[Hematopoietic system]					
bone marrow		<15>	< 8>	<12>	<17>
	metastasis:liver tumor	0	0	0	1
lymph node		<15>	< 8>	<12>	<17>
	metastasis:liver tumor	0	1	0	0
	metastasis:oral cavity tumor	0	0	0	2
spleen	metastasis:epididymis tumor	0	1	0	0
		<15>	< 8>	<12>	<17>
	leukemic cell infiltration	1	2	3	1
	metastasis:liver tumor	0	1	0	0
[Circulatory system]					
heart		<15>	< 8>	<12>	<17>
	leukemic cell infiltration	1	0	1	0
< a >	a : Number of animals examined at the site				
b	b : Number of animals with lesion				

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 2

Organ	Findings	Group Name No. of Animals on Study	Control 15	400 ppm 8	2000 ppm 12	10000 ppm 17
[Circulatory system]						
heart	metastasis:liver tumor		<15> 0	< 8> 0	<12> 0	<17> 1
[Digestive system]						
oral cavity	leukemic cell infiltration		<15> 0	< 8> 0	<12> 1	<17> 0
tongue	leukemic cell infiltration		<15> 0	< 8> 0	<12> 1	<17> 0
salivary gl	leukemic cell infiltration		<15> 0	< 8> 0	<12> 2	<17> 0
stomach	leukemic cell infiltration		<15> 0	< 8> 1	<12> 2	<17> 0
	metastasis:epididymis tumor		0	1	0	0
	metastasis:seminal vesicle tumor		0	0	1	0
small intes	metastasis:epididymis tumor		<15> 0	< 8> 1	<12> 0	<17> 0
large intes	leukemic cell infiltration		<15> 0	< 8> 0	<12> 1	<17> 0
liver	leukemic cell infiltration		<15> 0	< 8> 2	<12> 3	<17> 0
	metastasis:epididymis tumor		0	1	0	0
gall bladd	leukemic cell infiltration		<15> 0	< 8> 1	<12> 0	<17> 0

< a > a : Number of animals examined at the site  
b b : Number of animals with lesion

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 3

Group Name No. of Animals on Study		Control 15	400 ppm 8	2000 ppm 12	10000 ppm 17
Organ	Findings				
[Digestive system]					
pancreas	leukemic cell infiltration	<15> 0	< 8> 1	<12> 2	<17> 0
	metastasis:epididymis tumor	0	1	0	0
[Urinary system]					
kidney	leukemic cell infiltration	<15> 0	< 8> 1	<12> 2	<17> 0
	metastasis:liver tumor	0	0	0	1
	metastasis:lung tumor	0	0	1	0
urin bladd	leukemic cell infiltration	<15> 0	< 8> 2	<12> 1	<17> 0
	metastasis:epididymis tumor	1	1	0	0
[Endocrine system]					
pituitary	metastasis:periferal nerve tumor	<15> 1	< 8> 0	<12> 0	<17> 0
	adrenal	<15> 0	< 8> 0	<12> 1	<17> 0
[Reproductive system]					
testis	leukemic cell infiltration	<15> 0	< 8> 1	<12> 0	<17> 0
	epididymis	<15> 0	< 8> 1	<12> 1	<17> 0

< a > a : Number of animals examined at the site  
 b b : Number of animals with lesion

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

Organ	Findings	Group Name No. of Animals on Study	Control 15	400 ppm 8	2000 ppm 12	10000 ppm 17
[Reproductive system]						
semin ves			<15>	< 8>	<12>	<17>
	leukemic cell infiltration		0	2	0	0
	metastasis:epididymis tumor		0	1	0	0
prostate			<15>	< 8>	<12>	<17>
	leukemic cell infiltration		0	1	2	0
	metastasis:epididymis tumor		1	1	0	1
[Nervous system]						
brain			<15>	< 8>	<12>	<17>
	leukemic cell infiltration		0	0	1	0
	metastasis:pituitary tumor		1	0	0	0
[Special sense organs/appandage]						
Harder gl			<15>	< 8>	<12>	<17>
	leukemic cell infiltration		0	0	2	0
	metastasis:pituitary tumor		1	0	0	0
[Musculoskeletal system]						
muscle			<15>	< 8>	<12>	<17>
	leukemic cell infiltration		0	0	1	0
	metastasis:epididymis tumor		0	1	0	0
[Body cavities]						
mediastinum			<15>	< 8>	<12>	<17>
	metastasis:liver tumor		0	0	0	1
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					



STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 5

		Group Name	Control	400 ppm	2000 ppm	10000 ppm
		No. of Animals on Study	15	8	12	17
Organ_____	Findings_____					
<hr/>						
[Body cavities]						
peritoneum			<15>	< 8>	<12>	<17>
	metastasis:seminal vesicle tumor		0	0	1	0
<hr/>						
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					
<hr/>						
(JPT150)						
BA1S						

APPENDIX P 6

HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR : SUMMARY

MOUSE: FEMALE : DEAD AND MORIBUND ANIMALS

(2-YEAR STUDY )

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 6

		Group Name No. of Animals on Study	Control 24	400 ppm 23	2000 ppm 25	10000 ppm 26
Organ	Findings					
[Integumentary system/appandage]						
skin/app			<24>	<23>	<25>	<26>
	leukemic cell infiltration		0	1	0	0
subcutis			<24>	<23>	<25>	<26>
	leukemic cell infiltration		0	2	0	0
[Respiratory system]						
nasal cavit			<24>	<23>	<25>	<26>
	leukemic cell infiltration		1	1	1	1
	metastasis:uterus tumor		3	2	1	0
larynx			<24>	<23>	<25>	<26>
	leukemic cell infiltration		0	0	1	0
trachea			<24>	<23>	<25>	<26>
	leukemic cell infiltration		0	0	0	1
lung			<24>	<23>	<25>	<26>
	leukemic cell infiltration		6	6	8	6
	metastasis:liver tumor		0	0	1	0
	metastasis:uterus tumor		6	6	2	3
	metastasis:oral cavity tumor		0	0	0	2
[Hematopoietic system]						
bone marrow			<24>	<23>	<25>	<26>
	leukemic cell infiltration		2	5	3	1
	metastasis:uterus tumor		1	1	1	1
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 7

		Group Name No. of Animals on Study	Control 24	400 ppm 23	2000 ppm 25	10000 ppm 26
Organ	Findings					
[Hematopoietic system]						
lymph node			<24>	<23>	<25>	<26>
	leukemic cell infiltration		0	2	0	0
	metastasis:liver tumor		0	0	1	0
	metastasis:uterus tumor		1	2	2	0
	metastasis:stomach tumor		0	0	0	1
	metastasis:oral cavity tumor		0	0	0	2
spleen			<24>	<23>	<25>	<26>
	leukemic cell infiltration		6	6	6	7
	metastasis:liver tumor		0	0	1	0
	metastasis:uterus tumor		1	1	0	0
[Circulatory system]						
heart			<24>	<23>	<25>	<26>
	leukemic cell infiltration		2	5	0	3
	metastasis:uterus tumor		1	0	0	0
[Digestive system]						
oral cavity			<24>	<23>	<25>	<26>
	leukemic cell infiltration		1	4	0	1
	metastasis:uterus tumor		0	1	2	0
tongue			<24>	<23>	<25>	<26>
	leukemic cell infiltration		0	3	0	1
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 8

Group Name No. of Animals on Study		Control 24	400 ppm 23	2000 ppm 25	10000 ppm 26
Organ	Findings				
[Digestive system]					
salivary gl		<24>	<23>	<25>	<26>
	leukemic cell infiltration	3	6	5	4
	metastasis:oral cavity tumor	0	0	0	1
stomach		<24>	<23>	<25>	<26>
	leukemic cell infiltration	3	4	2	2
	metastasis:uterus tumor	1	0	2	0
small intes		<24>	<23>	<25>	<26>
	metastasis:uterus tumor	0	1	1	0
liver		<24>	<23>	<25>	<26>
	leukemic cell infiltration	7	8	8	8
	metastasis:uterus tumor	7	7	6	5
	metastasis:subcutis tumor	0	1	0	0
	metastasis:stomach tumor	0	0	0	1
pancreas		<24>	<23>	<25>	<26>
	leukemic cell infiltration	2	3	5	6
	metastasis:uterus tumor	2	0	2	0
	metastasis:stomach tumor	0	0	0	1
[Urinary system]					
kidney		<24>	<23>	<25>	<26>
	leukemic cell infiltration	5	5	2	6
	metastasis:uterus tumor	1	2	2	1
< a >	a : Number of animals examined at the site				
b	b : Number of animals with lesion				

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 9

Group Name No. of Animals on Study		Control 24	400 ppm 23	2000 ppm 25	10000 ppm 26
Organ	Findings				
[Urinary system]					
kidney		<24>	<23>	<25>	<26>
	metastasis:stomach tumor	0	0	0	1
urin bladd		<24>	<23>	<25>	<25>
	leukemic cell infiltration	4	6	5	2
	metastasis:uterus tumor	1	0	1	0
[Endocrine system]					
pituitary		<24>	<23>	<25>	<26>
	leukemic cell infiltration	1	1	1	0
thyroid		<24>	<23>	<25>	<26>
	leukemic cell infiltration	0	2	0	0
adrenal		<24>	<23>	<25>	<26>
	leukemic cell infiltration	4	4	2	1
	metastasis:uterus tumor	1	0	0	1
[Reproductive system]					
ovary		<24>	<23>	<25>	<26>
	leukemic cell infiltration	6	7	7	5
	metastasis:uterus tumor	6	5	6	5
uterus		<24>	<23>	<25>	<26>
	leukemic cell infiltration	4	6	4	4
vagina		<24>	<23>	<25>	<26>
	leukemic cell infiltration	2	0	0	1

< a > a : Number of animals examined at the site  
 b b : Number of animals with lesion

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 DEAD AND MORIBUND ANIMALS (0-105W)

PAGE : 10

		Group Name No. of Animals on Study	Control 24	400 ppm 23	2000 ppm 25	10000 ppm 26
Organ	Findings					
[Reproductive system]						
mammary gl	leukemic cell infiltration		<24> 1	<23> 2	<25> 3	<26> 2
[Nervous system]						
brain	leukemic cell infiltration		<24> 1	<23> 0	<25> 1	<26> 1
spinal cord	leukemic cell infiltration		<24> 1	<23> 0	<25> 0	<26> 1
[Special sense organs/appandage]						
eye	leukemic cell infiltration		<24> 0	<23> 1	<25> 1	<26> 3
Harder gl	leukemic cell infiltration		<24> 3	<23> 3	<25> 2	<26> 2
[Musculoskeletal system]						
muscle	leukemic cell infiltration		<24> 0	<23> 3	<25> 0	<26> 3
[Body cavities]						
peritoneum	leukemic cell infiltration		<24> 0	<23> 1	<25> 1	<26> 0
	metastasis:uterus tumor		1	2	3	0

< a > a : Number of animals examined at the site  
 b b : Number of animals with lesion

APPENDIX P 7

HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR : SUMMARY

MOUSE: MALE : SACRIFICED ANIMALS

(2-YEAR STUDY)



STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 1

Organ	Findings	Group Name No. of Animals on Study	Control 35	400 ppm 42	2000 ppm 38	10000 ppm 33
[Integumentary system/appandage]						
subcutis	leukemic cell infiltration		<35> 0	<42> 1	<38> 0	<33> 0
[Respiratory system]						
nasal cavit	leukemic cell infiltration		<35> 1	<42> 0	<38> 1	<33> 0
lung	leukemic cell infiltration		<35> 0	<42> 1	<38> 2	<33> 0
	metastasis:liver tumor		1	0	3	0
[Hematopoietic system]						
bone marrow	leukemic cell infiltration		<35> 0	<42> 0	<38> 2	<32> 0
lymph node	leukemic cell infiltration		<35> 1	<42> 0	<38> 0	<33> 0
spleen	leukemic cell infiltration		<35> 3	<42> 2	<38> 2	<33> 3
[Circulatory system]						
heart	leukemic cell infiltration		<35> 0	<42> 0	<38> 1	<33> 0
[Digestive system]						
oral cavity	leukemic cell infiltration		<35> 0	<42> 0	<38> 1	<33> 0
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					

STUDY NO. : 0163  
ANIMAL : MOUSE BDF1  
REPORT TYPE : A1  
SEX : MALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
SACRIFICED ANIMALS (105W)

PAGE : 2

Organ	Findings	Group Name No. of Animals on Study	Control 35	400 ppm 42	2000 ppm 38	10000 ppm 33
[Digestive system]						
salivary gl			<35>	<42>	<38>	<33>
	leukemic cell infiltration		0	0	2	0
stomach			<35>	<42>	<38>	<33>
	leukemic cell infiltration		0	0	2	0
liver			<35>	<42>	<38>	<33>
	leukemic cell infiltration		1	0	3	1
	metastasis:stomach tumor		0	0	0	1
pancreas			<35>	<42>	<38>	<33>
	leukemic cell infiltration		1	1	2	1
[Urinary system]						
kidney			<35>	<42>	<38>	<33>
	leukemic cell infiltration		1	0	2	0
urin bladd			<35>	<42>	<38>	<33>
	leukemic cell infiltration		0	0	2	0
[Reproductive system]						
epididymis			<35>	<42>	<38>	<33>
	leukemic cell infiltration		0	0	2	0
semin ves			<35>	<42>	<38>	<33>
	leukemic cell infiltration		0	0	1	0
prostate			<35>	<42>	<38>	<33>
	leukemic cell infiltration		0	0	2	0
[Musculoskeletal system]						
muscle			<35>	<42>	<38>	<33>
	leukemic cell infiltration		0	0	1	0

< a > a : Number of animals examined at the site  
b b : Number of animals with lesion

APPENDIX P 8

HISTOLOGICAL FINDINGS :METASTASIS OF TUMOR : SUMMARY

MOUSE: FEMALE : SACRIFICED ANIMALS

(2-YEAR STUDY)

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 3

Group Name No. of Animals on Study		Control 26	400 ppm 27	2000 ppm 25	10000 ppm 23
Organ_____	Findings_____				
[Integumentary system/appandage]					
skin/app		<26>	<27>	<25>	<23>
	leukemic cell infiltration	0	0	1	0
[Respiratory system]					
nasal cavit		<26>	<27>	<25>	<23>
	leukemic cell infiltration	0	1	0	0
	metastasis:uterus tumor	0	0	0	1
lung		<26>	<27>	<25>	<23>
	leukemic cell infiltration	1	4	1	1
	metastasis:liver tumor	0	1	0	0
[Hematopoietic system]					
bone marrow		<26>	<27>	<25>	<23>
	leukemic cell infiltration	1	2	1	0
lymph node		<26>	<27>	<25>	<23>
	metastasis:uterus tumor	0	0	0	1
spleen		<26>	<27>	<25>	<23>
	leukemic cell infiltration	4	3	3	2
[Circulatory system]					
heart		<26>	<27>	<25>	<23>
	leukemic cell infiltration	0	2	1	0
[Digestive system]					
oral cavity		<26>	<27>	<25>	<23>
	leukemic cell infiltration	0	2	2	0

< a > a : Number of animals examined at the site  
 b b : Number of animals with lesion

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 4

		Group Name No. of Animals on Study	Control 26	400 ppm 27	2000 ppm 25	10000 ppm 23
Organ	Findings					
[Digestive system]						
tongue			<26>	<27>	<25>	<23>
	leukemic cell infiltration		0	1	1	0
salivary gl			<26>	<27>	<25>	<23>
	leukemic cell infiltration		0	3	0	0
stomach			<26>	<27>	<25>	<23>
	leukemic cell infiltration		0	1	1	0
small intes			<26>	<27>	<25>	<23>
	leukemic cell infiltration		0	1	0	0
liver			<26>	<27>	<25>	<23>
	leukemic cell infiltration		1	3	2	0
	metastasis:uterus tumor		1	1	0	2
pancreas			<26>	<27>	<25>	<23>
	leukemic cell infiltration		0	2	0	0
	metastasis:uterus tumor		1	0	0	0
[Urinary system]						
kidney			<26>	<27>	<25>	<23>
	leukemic cell infiltration		2	1	1	0
urin bladd			<26>	<27>	<25>	<23>
	leukemic cell infiltration		1	2	1	0
[Endocrine system]						
adrenal			<26>	<27>	<25>	<23>
	leukemic cell infiltration		0	1	0	0

< a > a : Number of animals examined at the site  
 b b : Number of animals with lesion

STUDY NO. : 0163  
 ANIMAL : MOUSE BDF1  
 REPORT TYPE : A1  
 SEX : FEMALE

HISTOLOGICAL FINDINGS : METASTASIS OF TUMOR (SUMMARY)  
 SACRIFICED ANIMALS (105W)

PAGE : 5

		Group Name No. of Animals on Study	Control 26	400 ppm 27	2000 ppm 25	10000 ppm 23
Organ	Findings					
[Reproductive system]						
ovary	leukemic cell infiltration		<26> 1	<27> 3	<25> 2	<23> 0
	metastasis:uterus tumor		1	0	0	2
uterus	leukemic cell infiltration		<26> 0	<27> 2	<25> 0	<23> 0
mammary gl	leukemic cell infiltration		<26> 0	<27> 0	<25> 1	<23> 0
[Special sense organs/appandage]						
eye	leukemic cell infiltration		<26> 0	<27> 1	<25> 1	<23> 0
Harder gl	leukemic cell infiltration		<26> 0	<27> 1	<25> 1	<23> 0
[Musculoskeletal system]						
muscle	leukemic cell infiltration		<26> 0	<27> 2	<25> 1	<23> 0
[Body cavities]						
mediastinum	leukemic cell infiltration		<26> 0	<27> 1	<25> 0	<23> 0
peritoneum	metastasis:uterus tumor		<26> 1	<27> 0	<25> 0	<23> 1
< a >	a : Number of animals examined at the site					
b	b : Number of animals with lesion					

APPENDIX Q 1

IDENTITY OF VINYL ACETATE

(2-YEAR STUDY)

# IDENTITY OF VINYL ACETATE(TWO-YEAR STUDIES)

A. Test Substance Lot No. SAG5318

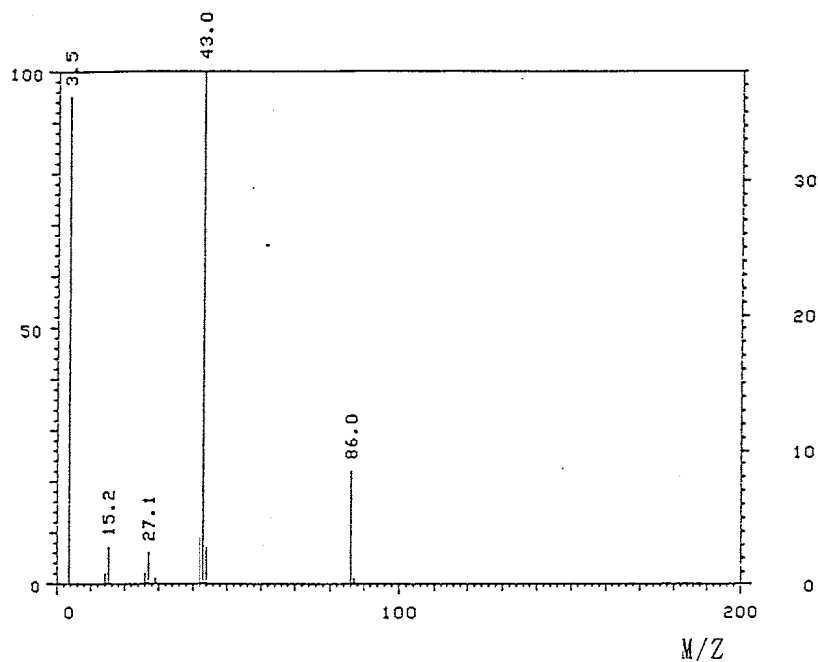
## 1. Spectral data

### (1) Mass Spectrometry

Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI(Electron Ionization)

Ionization Voltage : 70eV



Results: Determined

Molecular and Fragment Peak(M/Z)

Literature Value\*

Molecular and Fragment Peak(M/Z)

86.0

86

43.0

43

27.1

27

15.2

15

(\*EPA/NIH Mass Spectral  
Data Base (1978) V. 1,  
p. 41.)

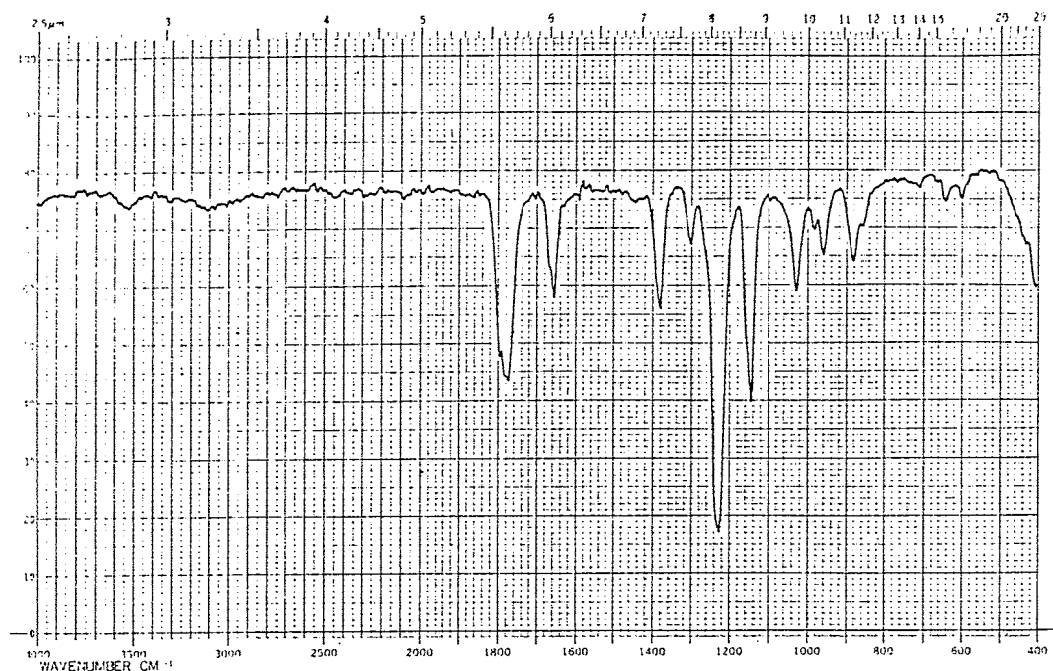


## (2) Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer

Cell : KBr

Slit : Medium



Infrared Spectrum of Test Substance

### Results

Determines  
Wave Number( $\text{cm}^{-1}$ )

Literature Values\*  
Wave Number( $\text{cm}^{-1}$ )

840~920  
940~1000  
1000~1060  
1120~1180  
1200~1260  
1280~1320  
1360~1410  
1630~1690  
1740~1820

830~910  
930~990  
1000~1060  
1110~1170  
1180~1260  
1280~1320  
1340~1400  
1630~1680  
1730~1820

(\*Performed by WAKO PURE  
CHEMICAL INDUSTRIES, LTD.)

2. Conclusions: The result of the mass spectrum and the infrared spectrum agreed with the literature values.

Consequently, the test substance was identified as Vinyl acetate.

B. Test Substance Lot No. LKP4386

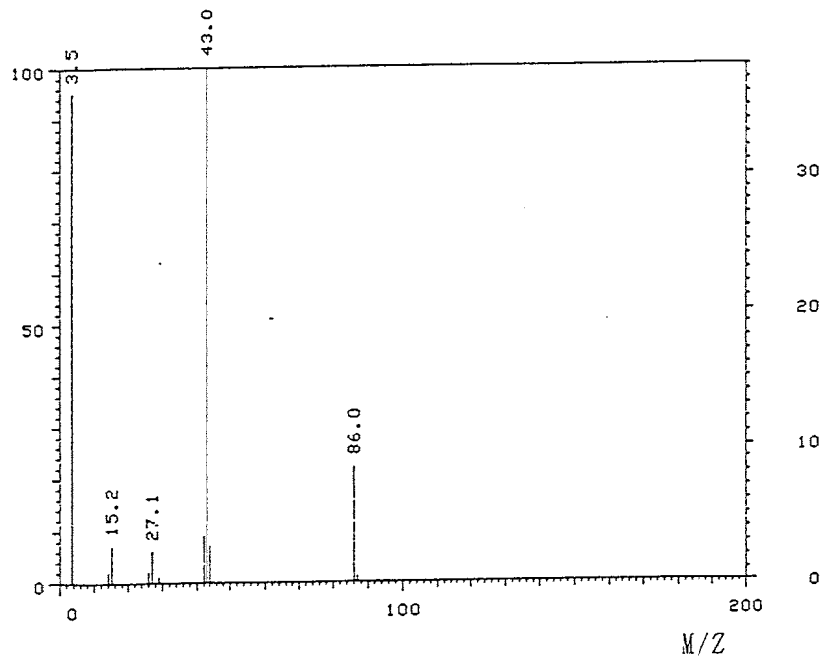
1. Spectral data

(1) Mass Spectrometry

Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI(Electron Ionization)

Ionization Voltage : 70eV



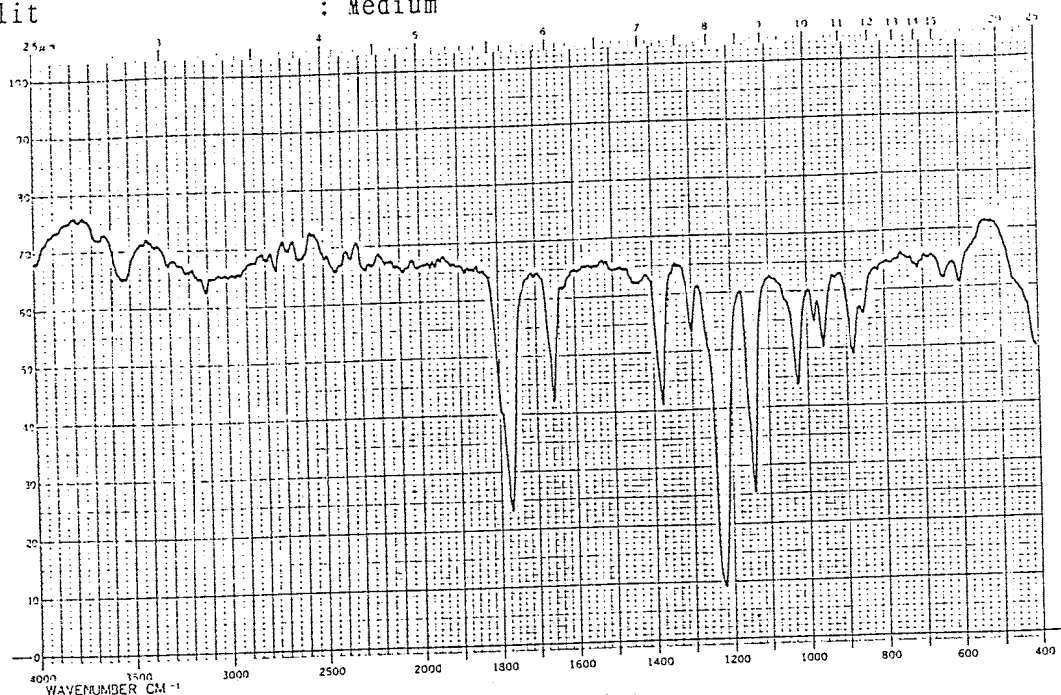
Results: <u>Determined</u>	<u>Literature Value*</u>
Molecular and Fragment Peak(M/Z)	Molecular and Fragment Peak(M/Z)
86.0	86
43.0	43
27.1	27
15.2	15
	(*EPA/NIH Mass Spectral Data Base (1978) V. 1, p. 41.)

## (2) Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer

Cell : KBr

Slit : Medium



Infrared Spectrum of Test Substance

### Results

Determines  
Wave Number( $\text{cm}^{-1}$ )

Literature Values\*  
Wave Number( $\text{cm}^{-1}$ )

840~920  
940~1000  
1000~1060  
1120~1180  
1200~1260  
1280~1320  
1360~1410  
1630~1690  
1740~1820

830~910  
930~990  
1000~1060  
1110~1170  
1180~1260  
1280~1320  
1340~1400  
1630~1680  
1730~1820

(\*Performed by WAKO PURE  
CHEMICAL INDUSTRIES, LTD.)

2. Conclusions: The result of the mass spectrum and the infrared spectrum agreed with the literature values.  
Consequently, the test substance was identified as Vinyl acetate.

C. Test Substance Lot No. WDP4895

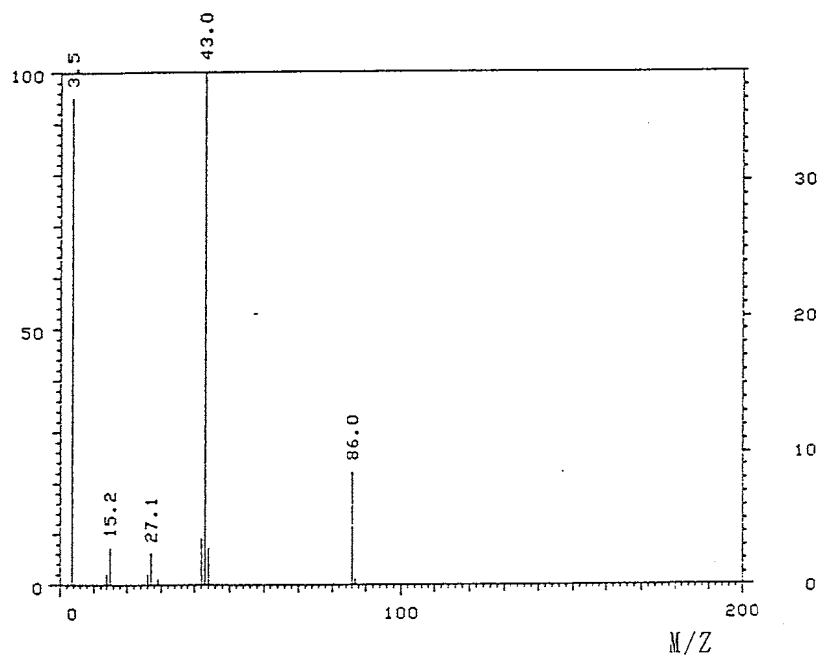
1. Spectral data

(1) Mass Spectrometry

Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI(Electron Ionization)

Ionization Voltage : 70eV



Mass Spectrum of Test Substance

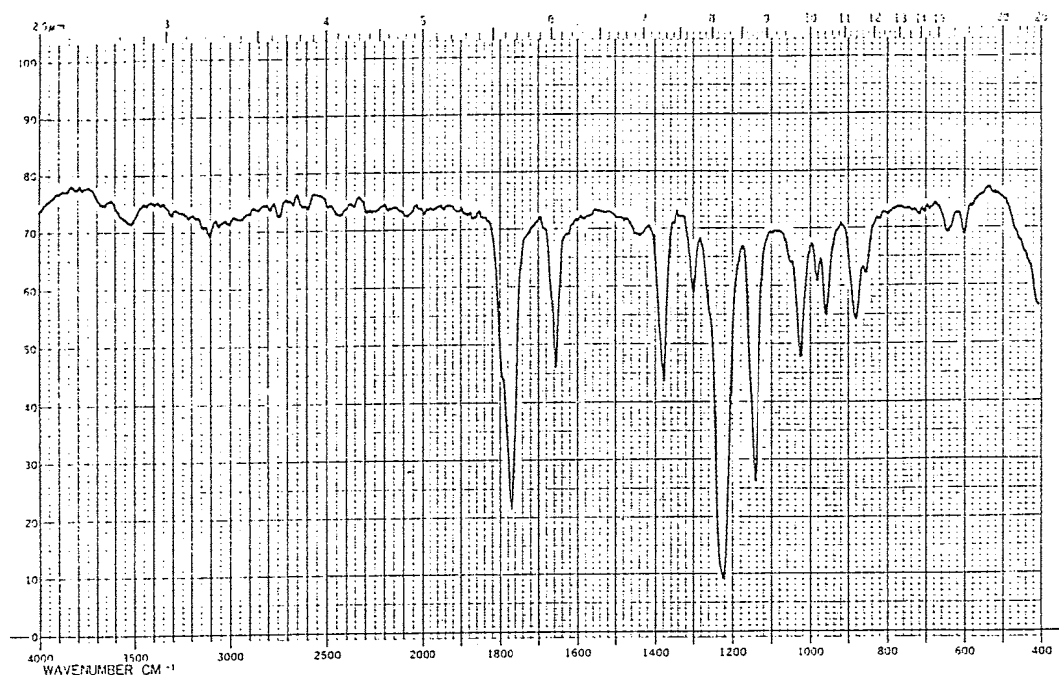
Results: <u>Determined</u>	<u>Literature Value*</u>
Molecular and Fragment Peak(M/Z)	Molecular and Fragment Peak(M/Z)
86.0	86
43.0	43
27.1	27
15.2	15
	(*EPA/NIH Mass Spectral Data Base (1978) V. 1, p. 41.)

## (2) Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer

Cell : KBr

Slit : Medium



Infrared Spectrum of Test Substance

### Results

Determines  
Wave Number( $\text{cm}^{-1}$ )

Literature Values\*  
Wave Number( $\text{cm}^{-1}$ )

840~920  
940~1000  
1000~1060  
1120~1180  
1200~1260  
1280~1320  
1360~1410  
1630~1690  
1740~1820

830~910  
930~990  
1000~1060  
1110~1170  
1180~1260  
1280~1320  
1340~1400  
1630~1680  
1730~1820

(\*Performed by WAKO PURE  
CHEMICAL INDUSTRIES, LTD.)

2. Conclusions: The result of the mass spectrum and the infrared spectrum agreed with the literature values.  
Consequently, the test substance was identified as Vinyl acetate.

D. Test Substance Lot No. WDP4894

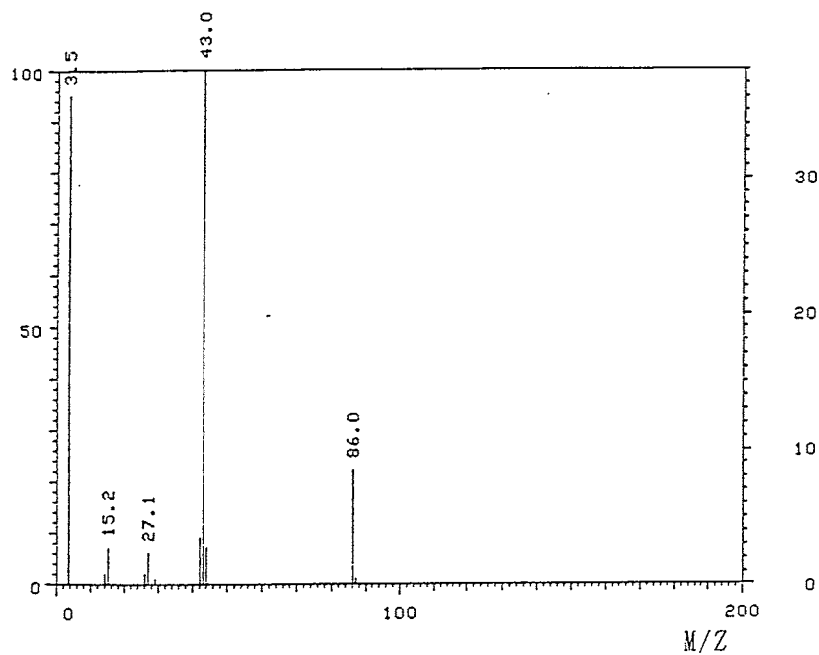
1. Spectral data

(1) Mass Spectrometry

Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI(Electron Ionization)

Ionization Voltage : 70eV



Mass Spectrum of Test Substance

Results: Determined

Molecular and Fragment Peak(M/Z)

Literature Value\*

Molecular and Fragment Peak(M/Z)

86.0

43.0

27.1

15.2

86

43

27

15

(\*EPA/NIH Mass Spectral  
Data Base (1978) V. 1.  
p. 41.)

(2) Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer

Cell : KBr

Slit : Medium



Infrared Spectrum of Test Substance

Results

Determines  
Wave Number( $\text{cm}^{-1}$ )

Literature Values\*  
Wave Number( $\text{cm}^{-1}$ )

840~920  
940~1000  
1000~1060  
1120~1180  
1200~1260  
1280~1320  
1360~1410  
1630~1690  
1740~1820

830~910  
930~990  
1000~1060  
1110~1170  
1180~1260  
1280~1320  
1340~1400  
1630~1680  
1730~1820

(\*Performed by WAKO PURE  
CHEMICAL INDUSTRIES, LTD.)

2. Conclusions: The result of the mass spectrum and the infrared spectrum agreed with the literature values.

Consequently, the test substance was identified as Vinyl acetate.

E. Test Substance Lot No. WDP4895

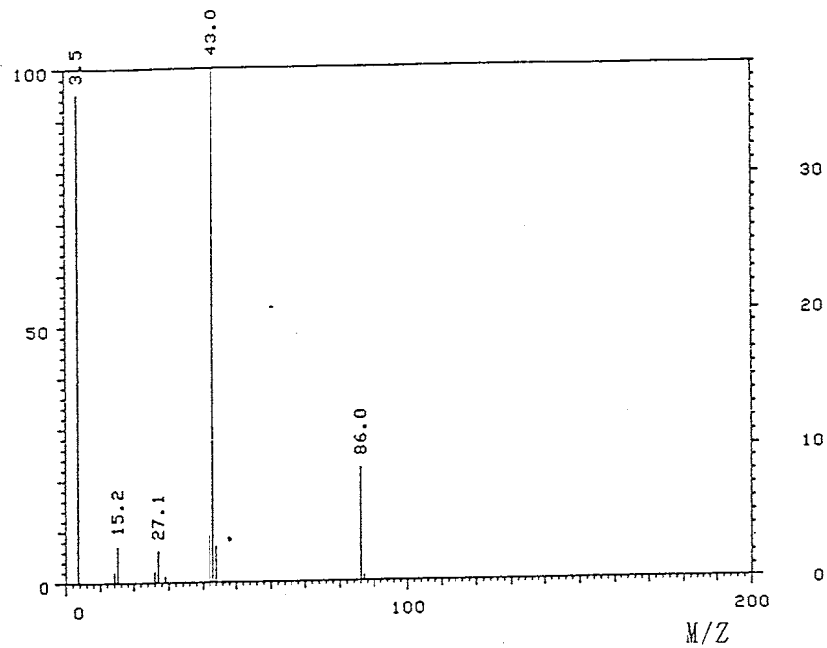
1. Spectral data

(1) Mass Spectrometry

Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI(Electron Ionization)

Ionization Voltage : 70eV



Results: Determined

Molecular and Fragment Peak(M/Z)

86.0

43.0

27.1

15.2

Literature Value\*

Molecular and Fragment Peak(M/Z)

86

43

27

15

(\*EPA/NIH Mass Spectral  
Data Base (1978) V. 1,  
p. 41.)

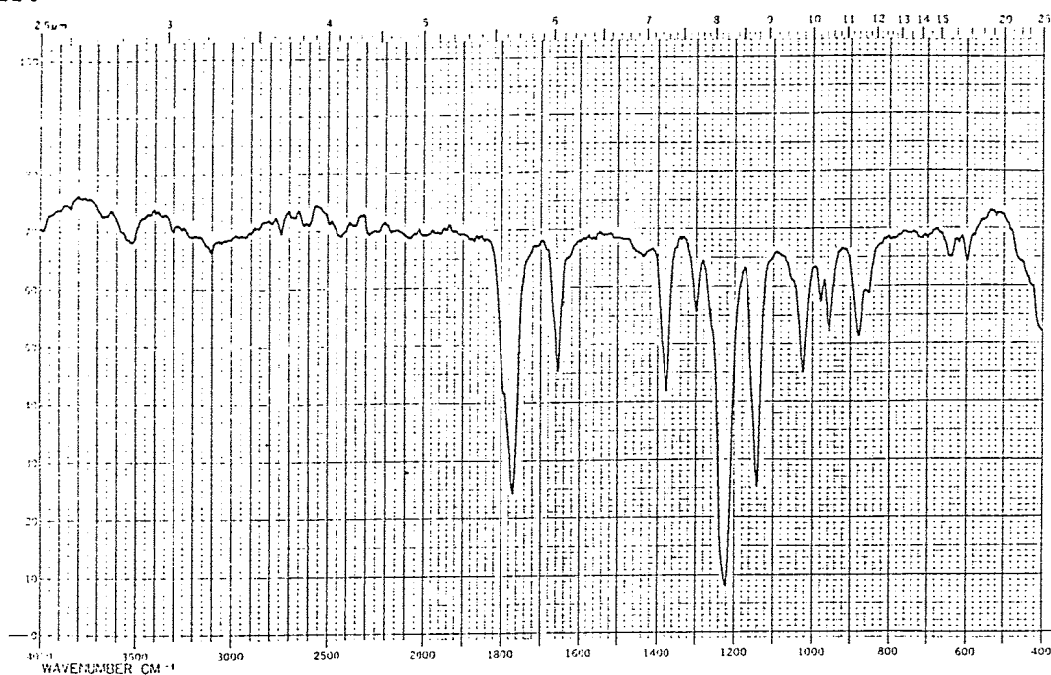


## (2) Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer

Cell : KBr

Slit : Medium



Infrared Spectrum of Test Substance

Results

Determines  
Wave Number( $\text{cm}^{-1}$ )

Literature Values\*  
Wave Number( $\text{cm}^{-1}$ )

840~920  
940~1000  
1000~1060  
1120~1180  
1200~1260  
1280~1320  
1360~1410  
1630~1690  
1740~1820

830~910  
930~990  
1000~1060  
1110~1170  
1180~1260  
1280~1320  
1340~1400  
1630~1680  
1730~1820

(\*Performed by WAKO PURE  
CHEMICAL INDUSTRIES, LTD.)

2. Conclusions: The result of the mass spectrum and the infrared spectrum agreed with the literature values.  
Consequently, the test substance was identified as Vinyl acetate.

F. Test Substance Lot No. WDM5220

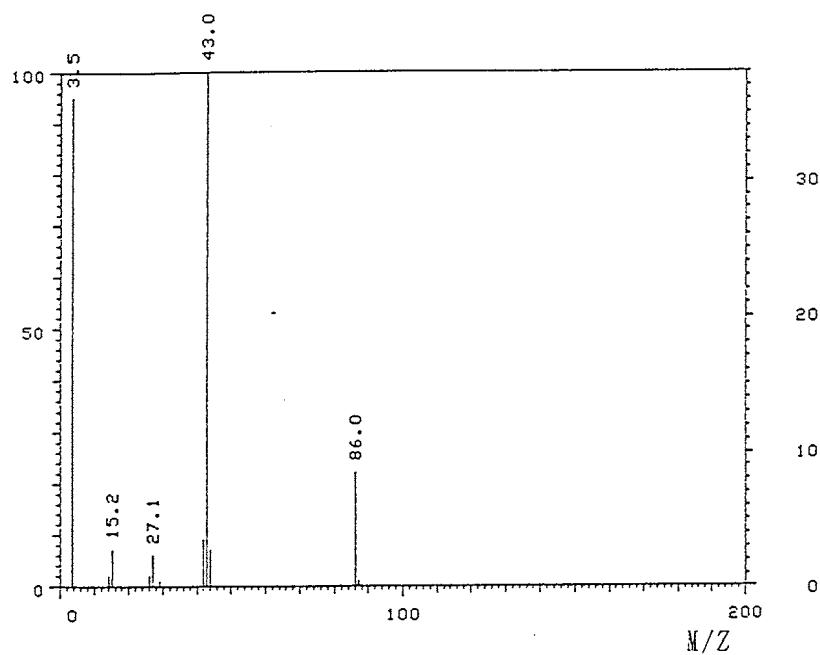
1. Spectral data

(1) Mass Spectrometry

Instrument : Hitachi M-80B Mass Spectrometer

Ionization : EI(Electron Ionization)

Ionization Voltage : 70eV



Mass Spectrum of Test Substance

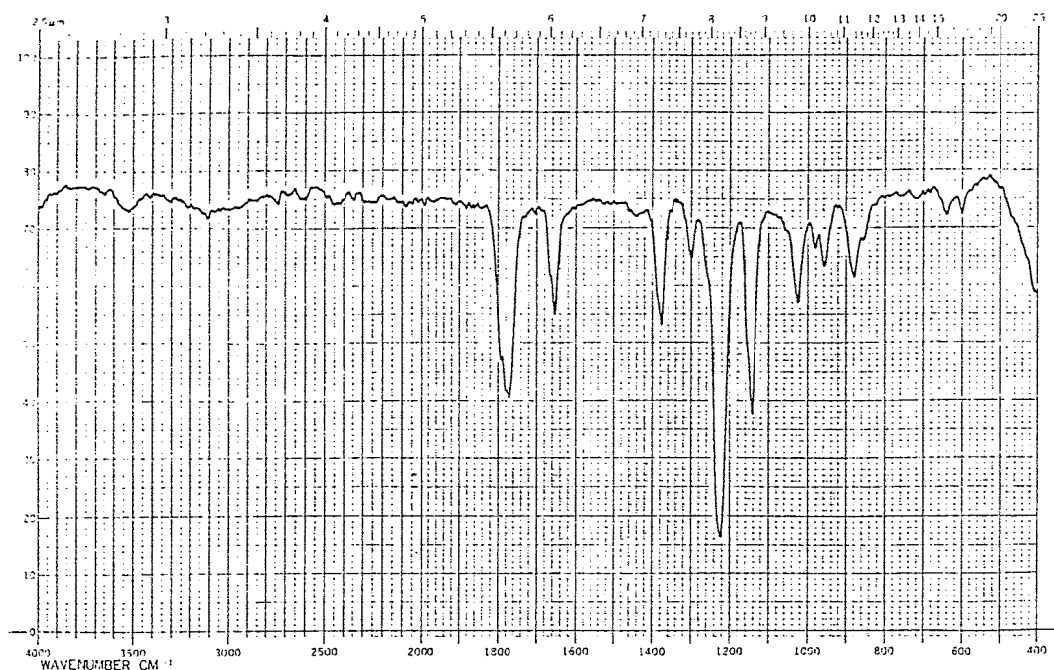
Results: <u>Determined</u>	<u>Literature Value*</u>
Molecular and Fragment Peak(M/Z)	Molecular and Fragment Peak(M/Z)
86.0	86
43.0	43
27.1	27
15.2	15
	(*EPA/NIH Mass Spectral Data Base (1978) V. 1, p. 41.)

## (2) Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer

Cell : KBr

Slit : Medium



Infrared Spectrum of Test Substance

Results	<u>Determines</u> Wave Number( $\text{cm}^{-1}$ )	<u>Literature Values*</u> Wave Number( $\text{cm}^{-1}$ )
---------	--	--

840~920	830~910
940~1000	930~990
1000~1060	1000~1060
1120~1180	1110~1170
1200~1260	1180~1260
1280~1320	1280~1320
1360~1410	1340~1400
1630~1690	1630~1680
1740~1820	1730~1820

(\*Performed by WAKO PURE  
CHEMICAL INDUSTRIES, LTD.)

2. Conclusions: The result of the mass spectrum and the infrared spectrum agreed with the literature values.

Consequently, the test substance was identified as Vinyl acetate.

## APPENDIX Q 2

### STABILITY OF VINYL ACETATE IN DRIKING WATER (2-YEAR STUDY)

# STABILITY OF VINYL ACETATE(TWO-YEAR STUDIES)

A. Test Substance Lot No. SAG5318

1. Sample storage: This lot was used from 1991.3.26 to 1991.7.19. Test substance was stored in the dark at 5°C.

## 2. Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer  
Cell : KBr  
Slit : Medium  
Results : The result of the infrared spectrum did not change when before and after studies.

<u>1991.02.15(date analyzed)</u>	<u>1991.07.19(date analyzed)</u>
Wave Number( $\text{cm}^{-1}$ )	Wave Number( $\text{cm}^{-1}$ )
840~920	840~920
940~1000	940~1000
1000~1060	1000~1060
1120~1180	1120~1180
1200~1260	1200~1260
1280~1320	1280~1320
1360~1410	1360~1410
1630~1690	1630~1690
1740~1820	1740~1820

## 3. Gas Chromatography

Instrument : Hewlett Packard 5890A Gass Chromatograph  
Column : Methyl Silicone(0.2mm  $\phi$   $\times$  38m)  
Column Temperature : 40°C  
Flow Rate : 1 ml/min  
Detector : FID(Flame Ionization Detector)  
Injection Volume : 1  $\mu$ l

Results: Chromatogram indicated one major peak analyzed at 1991.2.15 and one major peak analyzed at 1991.7.19. The new trace impurity peak in the test substance analyzed at 1991.7.19 was not detected.

Date	Retention Time(min)	AREA
1991.02.15 (date analyzed)	3.308	227600
1991.07.19 (date analyzed)	3.307	224462

4. Conclusions: The results indicated that the test substance did not change when stored in the dark at 5°C during this period(for about 5 months).

B. Test Substance Lot No. LKP4386

1. Sample storage: This lot was used from 1991.7.19 to 1992.3.31. Test substance was stored in the dark at 5°C.

2. Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer  
Cell : KBr  
Slit : Medium  
Results : The result of the infrared spectrum did not change when before and after studies.

<u>1991.07.19(date analyzed)</u>	<u>1992.03.31(date analyzed)</u>
Wave Number( $\text{cm}^{-1}$ )	Wave Number( $\text{cm}^{-1}$ )
840~920	840~920
940~1000	940~1000
1000~1060	1000~1060
1120~1180	1120~1180
1200~1260	1200~1260
1280~1320	1280~1320
1360~1410	1360~1410
1630~1690	1630~1690
1740~1820	1740~1820

3. Gas Chromatography

Instrument : Hewlett Packard 5890A Gass Chromatograph  
Column : Methyl Silicone(0.2mm $\phi$   $\times$  38m)  
Column Temperature : 40°C  
Flow Rate : 1 ml/min  
Detector : FID(Flame Ionization Detector)  
Injection Volume : 1  $\mu$ l

Results: Chromatogram indicated one major peak analyzed at 1991.7.19 and one major peak analyzed at 1992.3.31. The new trace impurity peak in the test substance analyzed at 1992.3.31 was not detected.

Date	Retention Time(min)	AREA
1991.07.19 (date analyzed)	3.3	227380
1992.03.31 (date analyzed)	3.3	227349

4. Conclusions: The results indicated that the test substance did not change when stored in the dark at 5°C during this period(for about 9 months).



C. Test Substance Lot No. WDP4895

1. Sample storage: This lot was used from 1992.3.31 to 1992.9.15. Test substance was stored in the dark at 5°C.

2. Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer  
Cell : KBr  
Slit : Medium  
Results : The result of the infrared spectrum did not change when before and after studies.

<u>1992.03.27(date analyzed)</u>	<u>1992.09.15(date analyzed)</u>
Wave Number( $\text{cm}^{-1}$ )	Wave Number( $\text{cm}^{-1}$ )
840~920	840~920
940~1000	940~1000
1000~1060	1000~1060
1120~1180	1120~1180
1200~1260	1200~1260
1280~1320	1280~1320
1360~1410	1360~1410
1630~1690	1630~1690
1740~1820	1740~1820

3. Gas Chromatography

Instrument : Hewlett Packard 5890A Gass Chromatograph  
Column : Methyl Silicone(0.2mm $\phi$  × 38m)  
Column Temperature : 40°C  
Flow Rate : 1 ml/min  
Detector : FID(Flame Ionization Detector)  
Injection Volume : 1  $\mu$ l

Results: Chromatogram indicated one major peak analyzed at 1992.3.27 and one major peak analyzed at 1992.9.15. The new trace impurity peak in the test substance analyzed at 1992.9.15 was not detected.

Date	Retention Time(min)	AREA
1992.03.27 (date analyzed)	3.305	230886
1992.09.15 (date analyzed)	3.307	230247

4. Conclusions: The results indicated that the test substance did not change when stored in the dark at 5°C during this period(for about 6 months).

D. Test Substance Lot No. WDP4894

1. Sample storage: This lot was used from 1992.9.15 to 1992.12.22. Test substance was stored in the dark at 5°C.

2. Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer

Cell : KBr

Slit : Medium

Results : The result of the infrared spectrum did not change when before and after studies.

<u>1992.09.01(date analyzed)</u>	<u>1992.12.22(date analyzed)</u>
Wave Number( $\text{cm}^{-1}$ )	Wave Number( $\text{cm}^{-1}$ )
840~920	840~920
940~1000	940~1000
1000~1060	1000~1060
1120~1180	1120~1180
1200~1260	1200~1260
1280~1320	1280~1320
1360~1410	1360~1410
1630~1690	1630~1690
1740~1820	1740~1820

3. Gas Chromatography

Instrument : Hewlett Packard 5890A Gas Chromatograph

Column : Methyl Silicone(0.2mm  $\phi$   $\times$  38m)

Column Temperature : 40°C

Flow Rate : 1 ml/min

Detector : FID(Flame Ionization Detector)

Injection Volume : 1  $\mu$ l

Results: Chromatogram indicated one major peak analyzed at 1992.9.1 and one major peak analyzed at 1992.12.22. The new trace impurity peak in the test substance analyzed at 1992.12.22 was not detected.

Date	Retention Time(min)	AREA
1992.09.01 (date analyzed)	3.3	230304
1992.12.22 (date analyzed)	3.3	229084

4. Conclusions: The results indicated that the test substance did not change when stored in the dark at 5°C during this period(for about 4 months).

E. Test Substance Lot No. WDP4895

1. Sample storage: This lot was used from 1992.12.22 to 1993.4.6. Test substance was stored in the dark at 5°C.

## 2. Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer

Cell : KBr

Slit : Medium

Results : The result of the infrared spectrum did not change when before and after studies.

<u>1992.09.15(date analyzed)</u>	<u>1993.04.06(date analyzed)</u>
Wave Number( $\text{cm}^{-1}$ )	Wave Number( $\text{cm}^{-1}$ )
840~920	840~920
940~1000	940~1000
1000~1060	1000~1060
1120~1180	1120~1180
1200~1260	1200~1260
1280~1320	1280~1320
1360~1410	1360~1410
1630~1690	1630~1690
1740~1820	1740~1820

## 3. Gas Chromatography

Instrument : Hewlett Packard 5890A Gass Chromatograph

Column : Methyl Silicone(0.2mm  $\phi$   $\times$  38m)

Column Temperature : 40°C

Flow Rate : 1 ml/min

Detector : FID(Flame Ionization Detector)

Injection Volume : 1  $\mu$ l

Results: Chromatogram indicated one major peak analyzed at 1992.9.1 and one major peak analyzed at 1993.4.6. The new trace impurity peak in the test substance analyzed at 1993.4.6 was not detected.

Date	Retention Time(min)	AREA
1992.09.01 (date analyzed)	3.3	230613
1993.04.06 (date analyzed)	3.3	230757

4. Conclusions: The results indicated that the test substance did not change when stored in the dark at 5°C during this period(for about 7 months).

F. Test Substance Lot No. WDM5220

1. Sample storage: This lot was used from 1993.4.6 to 1993.4.16. Test substance was stored in the dark at 5°C.

2. Infrared Spectrometry

Instrument : Hitachi 270-30 Infrared Spectrometer  
Cell : KBr  
Slit : Medium  
Results : The result of the infrared spectrum did not change when before and after studies.

<u>1993.03.01(date analyzed)</u>	<u>1993.04.16(date analyzed)</u>
Wave Number( $\text{cm}^{-1}$ )	Wave Number( $\text{cm}^{-1}$ )
840~920	840~920
940~1000	940~1000
1000~1060	1000~1060
1120~1180	1120~1180
1200~1260	1200~1260
1280~1320	1280~1320
1360~1410	1360~1410
1630~1690	1630~1690
1740~1820	1740~1820

3. Gas Chromatography

Instrument : Hewlett Packard 5890A Gass Chromatograph  
Column : Methyl Silicone(0.2mm  $\phi$   $\times$  38m)  
Column Temperature : 40°C  
Flow Rate : 1 ml/min  
Detector : FID(Flame Ionization Detector)  
Injection Volume : 1  $\mu$ l

Results: Chromatogram indicated one major peak analyzed at 1993.3.1 and one major peak analyzed at 1993.4.16. The new trace impurity peak in the test substance analyzed at 1993.4.16 was not detected.

Date	Retention Time(min)	AREA
1993.03.01 (date analyzed)	3.307	232010
1993.04.16 (date analyzed)	3.305	231946

4. Conclusions: The results indicated that the test substance did not change when stored in the dark at 5°C during this period(for about 6 weeks).



APPENDIX Q 3

CONCENTRATION OF VINYL ACETATE IN DRINKING WATER

(2-YEAR STUDY)

# CONCENTRATION OF VINYL ACETATE IN DRINKING WATER(TWO-YEAR STUDIES)

(Rat)

Date analyzed	Target Concentration(ppm)		
	400	2000	10000
1991.03.26	412.5(103.1)*	1910.5( 95.5)	9611.5( 96.1)
1991.07.05	430.2(107.5)	2038.4(101.9)	10254.8(102.5)
1991.10.11	370.1( 92.5)	1791.6( 89.6)	7137.3( 71.4)
1992.01.24	483.0(120.8)	1990.9( 99.5)	10519.4(105.2)
1992.04.03	398.0( 99.5)	2053.3(102.7)	10025.6(100.3)
1992.06.19	372.4( 93.1)	1998.3( 99.9)	10843.8(108.4)
1992.09.18	349.3( 87.3)	1779.4( 89.0)	9144.7( 91.4)
1992.12.18	409.3(102.3)	1953.1( 97.7)	11204.3(112.0)
1993.03.19	323.9( 81.0)	1826.4( 91.3)	9225.6( 92.3)

(\*) % of target concentration

Analytical method: The sample were analyzed by the GC.

Instrument	: Hewlett Packard 5890A	Flow Rate	: 1ml/min
Column	: METHYL SILICONE(0.2mm $\phi$ $\times$ 38m)	Detector	: FID(Flame Ionization)
Column Temperature:	40°C	Injection Volume	: 10 $\mu$ l
Carrier	: He		

# CONCENTRATION OF VINYL ACETATE IN DRINKING WATER(TWO-YEAR STUDIES)

(Mouse)

Date analyzed	Target Concentration(ppm)		
	400	2000	10000
1991.04.16	371.3( 92.8)*	1898.8( 94.9)	9881.1( 98.8)
1991.07.05	409.8(102.4)	1990.9( 99.5)	9791.5( 97.9)
1991.10.11	374.9( 93.7)	1911.3( 95.6)	7409.6( 74.1)
1992.01.24	453.1(113.3)	1899.1( 95.0)	9629.1( 96.3)
1992.04.03	352.2( 88.0)	1905.8( 95.3)	9410.1( 94.1)
1992.06.19	430.0(107.5)	2367.2(118.4)	11996.2(120.0)
1992.09.18	349.8( 87.5)	1767.2( 88.4)	9166.8( 91.7)
1992.12.18	399.1( 99.8)	1921.9( 96.1)	9950.1( 99.5)
1993.03.19	323.8( 81.0)	1791.0( 89.6)	9327.8( 93.3)

(\*) % of target concentration

Analytical method: The sample were analyzed by the GC.

Instrument	: Hewlett Packard 5890A	Flow Rate	: 1ml/min
Column	: METHYL SILICONE(0.2mm $\phi$ $\times$ 38m)	Detector	: FID(Flame Ionization)
Column Temperature:	40°C	Injection Volume	: 10 $\mu$ l
Carrier	: He		

## APPENDIX Q 4

STABILITY OF  $\beta$ -CHLOROPROPIONIC ACID IN DRINKING WATER

(2-YEAR STUDY)

# STABILITY OF VINYL ACETATE IN DRINKING WATER(TWO-YEAR STUDIES)

(Rat)

Date analyzed	Target Concentration(ppm)		
	400	2000	10000
1991.03.29(a)	369.6	1959.1	10083.4
1991.04.02(b)	318.5	1444.8	7391.3

(Mouse)

Date analyzed	Target Concentration(ppm)		
	400	2000	10000
1991.04.26(a)	433.1	1975.4	10274.3
1991.04.30(b)	374.6	1929.1	8608.8

(a) Date of preparation

(b) The stability of vinyl acetate in drinking water was established for 4 days when stored at 25°C.

Analytical method: The sample were analyzed by the GC.

Instrument	: Hewlett Packard 5890A	Flow Rate	: 1ml/min
Column	: METHYL SILICONE(0.2mm $\phi$ $\times$ 38m)	Detector	: FID(Flame Ionization)
Column Temperature:	40°C	Injection Volume	: 10 $\mu$ l
Carrier	: He		

## APPENDIX R 1

### METHODS FOR HEMATOLOGY, BIOCHEMISTRY AND URINALYSIS

# METHODS FOR HEMATOLOGY, BIOCHEMISTRY AND URINALYSIS

Item	Method	Unit
<b>Hematology</b>		
Red blood cell (RBC)	Light scattering method <sup>1)</sup>	$\times 10^6 / \mu l$
Hemoglobin (Hgb)	Cyanmethemoglobin method <sup>1)</sup>	g/dl
Hematocrit (Hct)	Calculated as $RBC \times MCV / 10$ <sup>1)</sup>	%
Mean corpuscular volume (MCV)	Light scattering method <sup>1)</sup>	fl
Mean corpuscular hemoglobin (MCH)	Calculated as $Hgb / RBC \times 10$ <sup>1)</sup>	pg
Mean corpuscular hemoglobin concentration (MCHC)	Calculated as $Hgb / Hct \times 10$ <sup>1)</sup>	g/dl
Platelet	Light scattering method <sup>1)</sup>	$\times 10^3 / \mu l$
White blood cell (WBC)	Light scattering method <sup>1)</sup>	$\times 10^3 / \mu l$
Differential WBC	Pattern recognition method <sup>2)</sup> (May-Grunwald-Giemsa staining)	%
<b>Biochemistry</b>		
Total protein (TP)	Biuret method <sup>3)</sup>	g/dl
Albumin (Alb)	BCG method <sup>3)</sup>	g/dl
A/G ratio	Calculated as $Alb / (TP - Alb)$ <sup>3)</sup>	
T-bilirubin	Michaelson method <sup>3)</sup>	mg/dl
Glucose	Enzymatic method (HK · G-6-PDH) <sup>3)</sup>	mg/dl
T-cholesterol	Enzymatic method (CEH · COD · POD) <sup>3)</sup>	mg/dl
Triglyceride	Enzymatic method (GK · GPO · POD) <sup>3)</sup>	mg/dl
Phospholipid	Enzymatic method (PLD · COD · POD) <sup>3)</sup>	mg/dl
Glutamic oxaloacetic transaminase (GOT)	Karmen method <sup>3)</sup>	IU/l
Glutamic pyruvic transaminase (GPT)	Karmen method <sup>3)</sup>	IU/l
Lactate dehydrogenase (LDH)	Wroblewski-LaDue method <sup>3)</sup>	IU/l
Alkaline phosphatase (ALP)	GSCC method <sup>3)</sup>	IU/l
$\gamma$ -Glutamyl transpeptidase (G-GTP)	L- $\gamma$ -Glutamyl-p-nitroanilide substrate method <sup>3)</sup>	IU/l
Creatine phosphokinase (CPK)	GSCC method <sup>3)</sup>	IU/l
Urea nitrogen	Enzymatic method (Urease · GLDH) <sup>3)</sup>	mg/dl
Creatinine	Jaffe method <sup>3)</sup>	mg/dl
Sodium	Flame photometry <sup>4)</sup>	mEq/l
Potassium	Flame photometry <sup>4)</sup>	mEq/l
Chloride	Coulometric titration <sup>4)</sup>	mEq/l
Calcium	OCPC method <sup>3)</sup>	mg/dl
Inorganic phosphorus	Enzymatic method (SPL · PGM · G-6-PDH) <sup>3)</sup>	mg/dl
<b>Urinalysis</b>		
pH, Protein, Glucose, Ketone body, Bilirubin, Occult Blood, Urobilinogen	Urinalysis reagent paper method <sup>5)</sup>	

1) Automatic blood cell analyzer (Technicon H-1 : Technicon Instruments Corporation, USA)

2) Automatic blood cell differential analyzer (Hitachi 8200 : Hitachi, Ltd., Japan)

3) Automatic analyzer (Hitachi 705 : Hitachi, Ltd., Japan)

4) Flame photometer (Hitachi 750 : Hitachi, Ltd., Japan)

5) Ames reagent strips for urinalysis (Multistix, Uro-Labstix : Miles Sankyo Co., Ltd., Japan)

## APPENDIX R 2

### UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY



## UNITS AND DECIMAL PLACE FOR HEMATOLOGY AND BIOCHEMISTRY

	TEST ITEM	DECIMAL PLACE	UNIT
HEMATOLOGY	Red blood cell	2	$10^6/\mu\text{l}$
	Hemoglobin	1	g/dl
	Hematocrit	1	%
	MCV	1	fl
	MCH	1	pg
	MCHC	1	g/dl
	Platelet	0	$\times 10^3/\mu\text{l}$
	White blood cell	2	$\times 10^3/\mu\text{l}$
	Differential WBC	0	%
BIOCHEMISTRY	Total protein	1	g/dl
	Albumin	1	g/dl
	A/G ratio	1	—
	T-bilirubin	2	mg/dl
	Glucose	0	mg/dl
	T-cholesterol	0	mg/dl
	Triglyceride	0	mg/dl
	Phospholipid	0	mg/dl
	GOT	0	IU/l
	GPT	0	IU/l
	LDH	0	IU/l
	ALP	0	IU/l
	$\gamma$ -GTP	0	IU/l
	CPK	0	IU/l
	Urea nitrogen	1	mg/dl
	Creatinine	1	mg/dl
	Sodium	0	mEq/l
	Potassium	1	mEq/l
	Chloride	0	mEq/l
	Calcium	1	mg/dl
	Inorganic phosphorus	1	mg/dl