

**Experiment Number:** 20007-03  
**Test Type:** 90-DAY  
**Route:** GAVAGE  
**Species/Strain:** Rat/F 344/N

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

**Test Compound:** Kava kava extract  
**CAS Number:** 9000-38-8

**Date Report Requested:** 10/17/2014  
**Time Report Requested:** 21:45:08  
**First Dose M/F:** NA / NA  
**Lab:** BAT

<b>C Number:</b>	C20007
<b>Lock Date:</b>	05/24/2004
<b>Cage Range:</b>	All
<b>Date Range:</b>	All
<b>Reasons For Removal:</b>	All
<b>Removal Date Range:</b>	All
<b>Treatment Groups:</b>	All
<b>Study Gender:</b>	Both
<b>PWG Approval Date</b>	NONE

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F 344/N Rat MALE	0 G/KG	0.125 G/KG	0.25 G/KG	0.5 G/KG	1.0 G/KG	2.0 G/KG
<b>Disposition Summary</b>						
Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Moribund Sacrifice			1			
Natural Death						3
Survivors						
Terminal Sacrifice	10	10	9	10	10	7
Animals Examined Microscopically	10	10	10	10	10	10
<b>ALIMENTARY SYSTEM</b>						
Esophagus	(10)	(0)	(1)	(0)	(0)	(10)
Intestine Large, Cecum	(10)	(0)	(1)	(0)	(0)	(10)
Intestine Large, Colon	(10)	(0)	(1)	(0)	(0)	(10)
Intestine Large, Rectum	(10)	(0)	(1)	(0)	(0)	(10)
Intestine Small, Duodenum	(10)	(0)	(1)	(0)	(0)	(10)
Intestine Small, Ileum	(10)	(0)	(1)	(0)	(0)	(10)
Intestine Small, Jejunum	(10)	(0)	(1)	(0)	(0)	(10)
Liver	(10)	(10)	(10)	(10)	(10)	(10)
Bile Duct, Hyperplasia				1 [1.0]		
Hematopoietic Cell Proliferation	1 [1.0]	1 [1.0]				
Hepatocyte, Hypertrophy					1 [1.0]	
Hepatodiaphragmatic Nodule				1		
Infiltration Cellular, Mixed Cell						1 [1.0]
Infiltration Cellular, Mononuclear CI	9 [1.0]	7 [1.0]	5 [1.0]	5 [1.0]	5 [1.0]	5 [1.0]
Vacuolization Cytoplasmic	1 [1.0]			1 [1.0]		
Pancreas	(10)	(0)	(1)	(0)	(0)	(10)
Acinus, Atrophy	1 [1.0]					
Salivary Glands	(10)	(0)	(1)	(0)	(0)	(10)
Stomach, Forestomach	(10)	(0)	(1)	(0)	(0)	(10)

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

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

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F 344/N Rat MALE	0 G/KG	0.125 G/KG	0.25 G/KG	0.5 G/KG	1.0 G/KG	2.0 G/KG
Inflammation						1 [1.0]
Mineralization						1 [2.0]
Ulcer						1 [2.0]
Stomach, Glandular	(10)	(0)	(1)	(0)	(0)	(10)
<b>CARDIOVASCULAR SYSTEM</b>						
Blood Vessel	(10)	(0)	(1)	(0)	(0)	(10)
Heart	(10)	(0)	(1)	(0)	(0)	(10)
Cardiomyopathy	9 [1.3]					8 [1.0]
<b>ENDOCRINE SYSTEM</b>						
Adrenal Cortex	(10)	(0)	(1)	(0)	(0)	(10)
Adrenal Medulla	(10)	(0)	(1)	(0)	(0)	(10)
Islets, Pancreatic	(10)	(0)	(1)	(0)	(0)	(10)
Parathyroid Gland	(10)	(0)	(1)	(0)	(0)	(9)
Pituitary Gland	(10)	(0)	(1)	(0)	(0)	(10)
Pars Distalis, Hypertrophy	1 [1.0]					
Thyroid Gland	(10)	(0)	(1)	(0)	(0)	(10)
Cyst	2					1
<b>GENERAL BODY SYSTEM</b>						
None						
<b>GENITAL SYSTEM</b>						
Epididymis	(10)	(0)	(1)	(0)	(0)	(10)
Inflammation	1 [1.0]					
Preputial Gland	(10)	(0)	(1)	(0)	(0)	(10)
Inflammation						1 [1.0]
Prostate	(10)	(0)	(1)	(0)	(0)	(10)
Seminal Vesicle	(10)	(0)	(1)	(0)	(0)	(10)
Atrophy						1 [3.0]

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F 344/N Rat MALE	0 G/KG	0.125 G/KG	0.25 G/KG	0.5 G/KG	1.0 G/KG	2.0 G/KG
Testes	(10)	(0)	(1)	(0)	(0)	(10)
<b>HEMATOPOIETIC SYSTEM</b>						
Bone Marrow	(10)	(10)	(10)	(10)	(10)	(10)
Lymph Node, Mesenteric	(10)	(0)	(1)	(0)	(0)	(10)
Spleen	(10)	(10)	(10)	(10)	(10)	(10)
Atrophy						3 [1.7]
Hematopoietic Cell Proliferation					1 [2.0]	
Thymus	(10)	(10)	(10)	(10)	(10)	(10)
Necrosis						1 [2.0]
<b>INTEGUMENTARY SYSTEM</b>						
Mammary Gland	(7)	(0)	(1)	(0)	(0)	(9)
Skin	(10)	(0)	(1)	(0)	(0)	(10)
<b>MUSCULOSKELETAL SYSTEM</b>						
Bone	(10)	(0)	(1)	(0)	(0)	(10)
<b>NERVOUS SYSTEM</b>						
Brain	(10)	(0)	(1)	(0)	(0)	(10)
<b>RESPIRATORY SYSTEM</b>						
Lung	(10)	(0)	(1)	(0)	(0)	(10)
Alveolus, Infiltration Cellular, Histiocyte Inflammation	2 [1.0]					3 [1.0]
Inflammation, Granulomatous						2 [1.0]
Interstitial, Infiltration Cellular, Mononuclear Cl	3 [1.0]					4 [1.0]
Interstitial, Inflammation, Chronic	1 [1.0]					1 [1.0]
Metaplasia, Osseous	1 [1.0]					1 [1.0]
Metaplasia, Osseous, Focal	1 [1.0]					
Nose	(10)	(0)	(1)	(0)	(0)	(10)

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Lab: BAT

F 344/N Rat MALE	0 G/KG	0.125 G/KG	0.25 G/KG	0.5 G/KG	1.0 G/KG	2.0 G/KG
Inflammation						1 [1.0]
Inflammation, Acute						1 [1.0]
Inflammation, Suppurative	1 [1.0]					
Squam Epithel, Hyperplasia, Squamous	1 [1.0]					
Trachea	(10)	(0)	(1)	(0)	(0)	(10)
SPECIAL SENSES SYSTEM						
Eye	(10)	(0)	(1)	(0)	(0)	(10)
Harderian Gland	(10)	(0)	(1)	(0)	(0)	(10)
Infiltration Cellular, Mononuclear Cl	1 [1.0]					
URINARY SYSTEM						
Kidney	(10)	(0)	(1)	(0)	(0)	(10)
Accumulation, Hyaline Droplet	2 [2.0]					1 [2.0]
Casts Protein	1 [1.0]					
Infiltration Cellular, Mononuclear Cl	1 [1.0]					
Mineralization	4 [1.0]					3 [1.0]
Nephropathy	7 [1.0]					7 [1.0]
Urinary Bladder	(10)	(0)	(1)	(0)	(0)	(10)

\*\*\*END OF MALE DATA\*\*\*

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F 344/N Rat FEMALE	0 G/KG	0.125 G/KG	0.25 G/KG	0.5 G/KG	1.0 G/KG	2.0 G/KG
<b>Disposition Summary</b>						
Animals Initially In Study	10	10	10	10	10	10
Early Deaths						
Moribund Sacrifice	1					
Natural Death					1	4
Survivors						
Terminal Sacrifice	9	10	10	10	9	6
Animals Examined Microscopically	10	10	10	10	10	10
<b>ALIMENTARY SYSTEM</b>						
Esophagus	(10)	(0)	(0)	(0)	(1)	(10)
Intestine Large, Cecum	(10)	(0)	(0)	(0)	(1)	(10)
Intestine Large, Colon	(10)	(0)	(0)	(0)	(1)	(10)
Intestine Large, Rectum	(10)	(0)	(0)	(0)	(1)	(10)
Intestine Small, Duodenum	(10)	(0)	(0)	(0)	(1)	(10)
Intestine Small, Ileum	(10)	(0)	(0)	(0)	(1)	(10)
Intestine Small, Jejunum	(10)	(0)	(0)	(0)	(1)	(10)
Liver	(10)	(10)	(10)	(10)	(10)	(10)
Congestion					1 [2.0]	
Hepatocyte, Hypertrophy				3 [1.0]	3 [1.3]	10 [1.7]
Hepatodiaphragmatic Nodule	2	1		1		
Infiltration Cellular, Mononuclear CI	8 [1.0]	8 [1.0]	4 [1.0]	7 [1.0]	8 [1.0]	2 [1.0]
Inflammation	1 [1.0]				1 [1.0]	
Mesentery	(1)	(0)	(0)	(1)	(0)	(0)
Necrosis, Fatty				1 [2.0]		
Necrosis, Focal	1 [2.0]					
Pancreas	(10)	(0)	(0)	(0)	(1)	(10)
Acinus, Atrophy						1 [1.0]
Salivary Glands	(10)	(0)	(0)	(0)	(1)	(10)

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F 344/N Rat FEMALE	0 G/KG	0.125 G/KG	0.25 G/KG	0.5 G/KG	1.0 G/KG	2.0 G/KG
Stomach, Forestomach	(10)	(0)	(0)	(0)	(1)	(10)
Inflammation						1 [1.0]
Mineralization						1 [1.0]
Ulcer						1 [2.0]
Stomach, Glandular	(10)	(0)	(0)	(0)	(1)	(10)
<b>CARDIOVASCULAR SYSTEM</b>						
Blood Vessel	(10)	(0)	(0)	(0)	(1)	(10)
Heart	(10)	(0)	(0)	(0)	(1)	(10)
Cardiomyopathy	5 [1.0]					2 [1.0]
<b>ENDOCRINE SYSTEM</b>						
Adrenal Cortex	(10)	(0)	(0)	(0)	(1)	(10)
Adrenal Medulla	(10)	(0)	(0)	(0)	(1)	(10)
Islets, Pancreatic	(10)	(0)	(0)	(0)	(1)	(10)
Parathyroid Gland	(10)	(0)	(0)	(0)	(1)	(10)
Pituitary Gland	(10)	(0)	(0)	(0)	(1)	(10)
Thyroid Gland	(10)	(0)	(0)	(0)	(1)	(9)
Cyst	2					1
<b>GENERAL BODY SYSTEM</b>						
None						
<b>GENITAL SYSTEM</b>						
Clitoral Gland	(10)	(0)	(0)	(0)	(1)	(10)
Ovary	(10)	(0)	(0)	(0)	(1)	(10)
Uterus	(10)	(0)	(0)	(0)	(1)	(10)
<b>HEMATOPOIETIC SYSTEM</b>						
Bone Marrow	(10)	(10)	(10)	(10)	(10)	(10)
Lymph Node, Mesenteric	(10)	(0)	(0)	(0)	(1)	(10)
Spleen	(10)	(10)	(10)	(10)	(10)	(10)

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F 344/N Rat FEMALE	0 G/KG	0.125 G/KG	0.25 G/KG	0.5 G/KG	1.0 G/KG	2.0 G/KG
Atrophy	1 [2.0]					3 [2.0]
Thymus	(10)	(10)	(10)	(10)	(10)	(10)
Necrosis	1 [2.0]					3 [2.0]
<b>INTEGUMENTARY SYSTEM</b>						
Mammary Gland	(10)	(0)	(0)	(0)	(1)	(10)
Skin	(10)	(0)	(0)	(0)	(1)	(10)
<b>MUSCULOSKELETAL SYSTEM</b>						
Bone	(10)	(0)	(0)	(0)	(1)	(10)
<b>NERVOUS SYSTEM</b>						
Brain	(10)	(0)	(0)	(0)	(1)	(9)
Brain, Cerebrum	(0)	(0)	(0)	(0)	(0)	(1)
Hemorrhage						1 [2.0]
<b>RESPIRATORY SYSTEM</b>						
Lung	(10)	(0)	(0)	(0)	(1)	(10)
Alveolus, Infiltration Cellular, Histiocyte	1 [1.0]					4 [1.0]
Congestion, Acute, Diffuse						1 [2.0]
Inflammation						1 [1.0]
Inflammation, Chronic	1 [1.0]					
Interstitial, Infiltration Cellular, Mononuclear Cl	3 [1.0]				1 [1.0]	3 [1.0]
Metaplasia, Osseous	1 [1.0]					
Nose	(10)	(0)	(0)	(0)	(1)	(10)
Trachea	(10)	(0)	(0)	(0)	(1)	(10)
<b>SPECIAL SENSES SYSTEM</b>						
Eye	(10)	(0)	(0)	(0)	(1)	(10)
Cornea, Neovascularization						2 [2.0]
Harderian Gland	(10)	(0)	(0)	(0)	(1)	(10)

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F 344/N Rat FEMALE	0 G/KG	0.125 G/KG	0.25 G/KG	0.5 G/KG	1.0 G/KG	2.0 G/KG
Infiltration Cellular, Mononuclear CI						1 [2.0]
URINARY SYSTEM						
Kidney	(10)	(0)	(0)	(0)	(1)	(10)
Mineralization	8 [1.0]				1 [1.0]	3 [1.0]
Urinary Bladder	(10)	(0)	(0)	(0)	(1)	(10)

\*\* END OF REPORT \*\*

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

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