

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Study Number: C20302B-03
Study Sex: Both
PWG Approval Date: See web page for date of PWG Approval
Version: v1.6.4

Male: Fertility Males																											
Harlan Sprague Dawley Rat Male 0 ppm	DAY ON TEST	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	*TOTAL
		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		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	
		6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	
ANIMAL ID	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	
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5		
	ALIMENTARY SYSTEM																										
NONE																											
CARDIOVASCULAR SYSTEM																											
NONE																											
ENDOCRINE SYSTEM																											
NONE																											
GENERAL BODY SYSTEM																											
NONE																											
HEMATOPOIETIC SYSTEM																											
NONE																											
HEPATOBIILIARY SYSTEM																											
NONE																											
IMMUNE SYSTEM																											
NONE																											
INTEGUMENTARY SYSTEM																											
NONE																											
MUSCULOSKELETAL SYSTEM																											
NONE																											
NERVOUS SYSTEM																											
NONE																											

Male: Fertility Males																											
Harlan Sprague Dawley Rat Male 0 ppm	DAY ON TEST	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	*TOTAL
		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		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	
		6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	
ANIMAL ID	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	
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		
	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2		
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5		
	REPRODUCTIVE SYSTEM																										
EPIDIDYMIS		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	25
TESTIS		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	25
RESPIRATORY SYSTEM																											
NONE																											
SPECIAL SENSES SYSTEM																											
NONE																											
URINARY SYSTEM																											
KIDNEY		+	+	+	+	+	+	+	+	+		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	10
URINARY BLADDER		+	+	+	+	+	+	+	+	+																	10

Male: Fertility Males																											
Harlan Sprague Dawley Rat Male 100 ppm	DAY ON TEST	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		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	
		6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	
ANIMAL ID		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	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
		2	2	2	2	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	5	
		6	7	8	9	0	1	2	R	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	*TOTALS

ALIMENTARY SYSTEM

NONE

CARDIOVASCULAR SYSTEM

NONE

ENDOCRINE SYSTEM

NONE

GENERAL BODY SYSTEM

NONE

HEMATOPOIETIC SYSTEM

NONE

HEPATOBIILIARY SYSTEM

NONE

IMMUNE SYSTEM

NONE

INTEGUMENTARY SYSTEM

NONE

MUSCULOSKELETAL SYSTEM

NONE

NERVOUS SYSTEM

NONE

Male: Fertility Males																											
Harlan Sprague Dawley Rat Male 100 ppm		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		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	
		6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	
DAY ON TEST		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	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
		2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	5	
		6	7	8	9	0	1	2	R	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	*TOTALS
ANIMAL ID		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	
		4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
		2	2	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	5	
		6	7	8	9	0	1	2	R	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	
REPRODUCTIVE SYSTEM																											
EPIDIDYMIS		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	25
TESTIS		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	25
RESPIRATORY SYSTEM																											
NONE																											
SPECIAL SENSES SYSTEM																											
NONE																											
URINARY SYSTEM																											
KIDNEY		+	+	+	+	+	+	+	+	+	N	N	N	N	N	N	N								N	N	10
URINARY BLADDER		+	+	+	+	+	+	+	+	+																	10

Male: Fertility Males																													
Harlan Sprague Dawley Rat Male 200 ppm	DAY ON TEST	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	*TOTAL	
		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D		
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
		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		
		6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8		
	ANIMAL ID	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
		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		4
		5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7		
		1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
		ALIMENTARY SYSTEM																											
NONE																													
CARDIOVASCULAR SYSTEM																													
NONE																													
ENDOCRINE SYSTEM																													
NONE																													
GENERAL BODY SYSTEM																													
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INTEGUMENTARY SYSTEM																													
NONE																													
MUSCULOSKELETAL SYSTEM																													
NONE																													
NERVOUS SYSTEM																													
NONE																													

Male: Fertility Males																											
Harlan Sprague Dawley Rat Male 200 ppm		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		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	
		6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	8	
DAY ON TEST		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	0	0	0	0	0	0	0	0	0	0	0	0	
		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
		5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	
		1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	*TOTALS
ANIMAL ID		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	0	0	0	0	0	0	0	0	0	0	0	0	
		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
		5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	7	
		1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	
REPRODUCTIVE SYSTEM																											
EPIDIDYMIS		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	25
TESTIS		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	25
RESPIRATORY SYSTEM																											
NONE																											
SPECIAL SENSES SYSTEM																											
NONE																											
URINARY SYSTEM																											
KIDNEY		+	+	+	+	+	+	+	+	+	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	10
URINARY BLADDER		+	+	+	+	+	+	+	+	+																	10

Male: Fertility Males																											
Harlan Sprague Dawley Rat Male 400 ppm	DAY ON TEST	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	*TOTAL
		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
		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	
		6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	7	8	8	8	8	8	8	8	8	
ANIMAL ID	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5		
	7	7	7	7	8	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	0		
	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0		
ALIMENTARY SYSTEM																											
NONE																											
CARDIOVASCULAR SYSTEM																											
NONE																											
ENDOCRINE SYSTEM																											
NONE																											
GENERAL BODY SYSTEM																											
NONE																											
HEMATOPOIETIC SYSTEM																											
NONE																											
HEPATOBIILIARY SYSTEM																											
NONE																											
IMMUNE SYSTEM																											
NONE																											
INTEGUMENTARY SYSTEM																											
NONE																											
MUSCULOSKELETAL SYSTEM																											
NONE																											
NERVOUS SYSTEM																											
NONE																											

Male: Fertility Males																											
Harlan Sprague Dawley Rat Male 400 ppm		DAY ON TEST	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	*TOTAL
			D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	
			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			6	6	6	6	6	6	6	6	6	6	7	7	7	7	7	7	8	8	8	8	8	8	8	8	
ANIMAL ID		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	0	0	0	0	0	0	0	0	0	0	0		
		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5		
		7	7	7	7	8	8	8	8	8	8	8	8	8	9	9	9	9	9	9	9	9	9	9	0		
		6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	
REPRODUCTIVE SYSTEM																											
EPIDIDYMIS		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	25	
TESTIS		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	25	
RESPIRATORY SYSTEM																											
NONE																											
SPECIAL SENSES SYSTEM																											
NONE																											
URINARY SYSTEM																											
KIDNEY		+	+	+	+	+	+	+	+	+	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	10	
URINARY BLADDER		+	+	+	+	+	+	+	+	+																10	

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Male: Core Animals

[illegible]

ALIMENTARY SYSTEM

[illegible]

CARDIOVASCULAR SYSTEM

[illegible]

			Male: Core Animals																																					
Harlan Sprague Dawley Rat Male 0 ppm																																								
			DAY ON TEST																																					
			ANIMAL ID																																					
			S D 7 0 9	S D 6 4 3	S D 7 3 1	S D 6 2 2	S D 7 1 7	S D 7 0 5	S D 7 2 1	S D 5 7 3	S D 7 1 4	S D 6 0 7	S D 6 1 8	S D 6 9 8	S D 6 1 7	S D 3 2 3	S D 5 6 7	S D 7 3 1	S D 7 3 0	S D 7 3 3	S D 7 3 1	S D 7 3 3	S D 7 3 0	S D 5 1 5	S D 6 7 0	S D 6 8 1	S D 7 3 3	S D 7 3 0	S D 6 1 4	S D 4 7 7	S D 7 3 0	S D 6 3 0	S D 7 1 2	S D 1 4 3	S D 7 3 4	S D 6 3 5	S D 6 9 8	S D 6 3 7	S D 7 3 1	
			0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 8	0 0 0 0 9	0 0 0 0 0	0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 8	0 0 0 0 9	0 0 0 0 0	0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 R	0 0 0 0 9	0 0 0 0 0	0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 R
ENDOCRINE SYSTEM																																								
ADRENAL GLAND			+ +																																					

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Male: Core Animals

Harlan Sprague Dawley Rat Male 0 ppm		DAY ON TEST		ANIMAL ID																																			
		S D 7 0 9	S D 6 4 3	S D 7 3 1	S D 6 2 2	S D 7 7 5	S D 7 1 0	S D 5 7 2	S D 7 3 1	S D 5 7 4	S D 7 1 0	S D 6 7 8	S D 6 9 8	S D 6 1 7	S D 3 2 3	S D 5 6 7	S D 7 3 1	S D 7 3 3	S D 7 3 3	S D 7 3 3	S D 7 3 3	S D 5 1 5	S D 6 7 0	S D 6 8 1	S D 7 3 1	S D 7 3 3	S D 6 1 4	S D 4 7 7	S D 7 3 0	S D 6 0 5	S D 7 3 1	S D 1 4 2	S D 7 3 0	S D 6 9 8	S D 6 3 7	S D 7 3 1			
0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 8	0 0 0 0 9	0 0 0 0 0	0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 8	0 0 0 0 9	0 0 0 0 0	0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 2 0 8	0 0 0 0 9	0 0 0 0 0	0 0 0 0 1	0 0 0 0 2	0 0 0 0 3	0 0 0 0 4	0 0 0 0 5	0 0 0 0 6	0 0 0 0 7	0 0 0 0 8	0 0 0 0 9	
HEMATOPOIETIC SYSTEM																																							
BONE MARROW		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
LYMPHOMA; MALIGNANT		X																																					
HEPATOBIILIARY SYSTEM																																							
LIVER		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
HEPATOCELLULAR ADENOMA																																							
LYMPHOMA; MALIGNANT		X																																					
IMMUNE SYSTEM																																							
LYMPH NODE, BRONCHIAL		N	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	+	+	N	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
LYMPHOMA; MALIGNANT		X																																					
LYMPH NODE, MANDIBULAR		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
LYMPHOMA; MALIGNANT		X																																					
LYMPH NODE, MEDIASTINAL		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N
LYMPH NODE, MESENTERIC		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
HEMANGIOSARCOMA																																							
LYMPHOMA; MALIGNANT		X																																					
SPLEEN		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
LYMPHOMA; MALIGNANT		X																																					
THYMUS		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
LYMPHOMA; MALIGNANT		X																																					
INTEGUMENTARY SYSTEM																																							
SKIN		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
BASAL CELL CARCINOMA		X																																					
FIBROSARCOMA		X																																					

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Male: Core Animals

[illegible]

MUSCULOSKELETAL SYSTEM

[illegible]

NERVOUS SYSTEM

[illegible]

REPRODUCTIVE SYSTEM

[illegible]

Lab: Battelle with EPL

Male: Core Animals															
Harlan Sprague Dawley Rat Male 0 ppm	DAY ON TEST	S	S	S	S	S	S	S	S	S	S	S	S	S	*TOTALS
		D	D	D	D	D	D	D	D	D	D	D	D	D	
		7	7	6	7	7	7	5	7	6	7	7	7	6	
		3	3	0	1	3	3	7	0	8	3	3	3	1	
		0	1	5	5	1	0	2	8	3	0	0	1	3	
ANIMAL ID	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	0	0	0	0	
	3	3	4	4	4	4	4	4	4	4	4	4	5	0	
	8	9	0	1	2	3	4	5	6	7	8	9	0		
ALIMENTARY SYSTEM															
ESOPHAGUS	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
INTESTINE, LARGE, CECUM	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
INTESTINE, LARGE, COLON	+	+	+	+	+	+	+	+	+	+	+	+	+	49	
INTESTINE, LARGE, RECTUM	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
INTESTINE, SMALL, DUODENUM	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
INTESTINE, SMALL, ILEUM	+	+	+	+	+	+	+	+	+	+	+	+	+	49	
INTESTINE, SMALL, JEJUNUM	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
ADENOCARCINOMA															1
MESENTERY															1
PANCREAS	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
ACINUS; ADENOMA															1
PHARYNX															1
SQUAMOUS CELL CARCINOMA															1
SALIVARY GLAND	+	+	+	+	+	+	+	+	+	+	+	+	+	49	
STOMACH, FORESTOMACH	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
STOMACH, GLANDULAR	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
TONGUE															1
FIBROSARCOMA															1
CARDIOVASCULAR SYSTEM															
AORTA	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
HEART	+	+	+	+	+	+	+	+	+	+	+	+	+	50	
LYMPHOMA; MALIGNANT															1

Male: Core Animals															
Harlan Sprague Dawley Rat Male 0 ppm	DAY ON TEST	S	S	S	S	S	S	S	S	S	S	S	S	S	*TOTALS
		D	D	D	D	D	D	D	D	D	D	D	D	D	
		7	7	6	7	7	7	5	7	6	7	7	7	6	
		3	3	0	1	3	3	7	0	8	3	3	3	1	
		0	1	5	5	1	0	2	8	3	0	0	1	3	
ANIMAL ID	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	0	0	0	0	
	3	3	4	4	4	4	4	4	4	4	4	4	5		
	8	9	0		1	2	3	4	5	6	7	8	9	0	
ENDOCRINE SYSTEM															
ADRENAL GLAND		+	+	+	+	+	+	+	+	+	+	+	+	+	50
CORTEX; ADENOMA							X								1
BILATERAL; LYMPHOMA; MALIGNANT															1
LYMPHOMA; MALIGNANT															1
PHEOCHROMOCYTOMA; BENIGN		X		X			X								6
PHEOCHROMOCYTOMA; MALIGNANT											X				6
PANCREATIC ISLET							+								1
ADENOMA							X								1
PARATHYROID GLAND		+	+	+	+	N	+	+	+	+	+	+	+	+	45
PINEAL GLAND															1
PITUITARY GLAND		+	+	+	+	+	+	+	+	+	+	+	+	+	49
PARS DISTALIS; ADENOMA					X	X	X					X	X		11
PARS INTERMEDIA; ADENOMA															1
PARS DISTALIS; CARCINOMA															1
LYMPHOMA; MALIGNANT															1
THYROID GLAND		+	+	+	+	+	+	+	+	+	+	+	+	+	50
C-CELL, BILATERAL; ADENOMA											X				1
C-CELL; ADENOMA							X					X			6
C-CELL; CARCINOMA															1
GENERAL BODY SYSTEM															
NONE															

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Male: Core Animals

Harlan Sprague Dawley Rat Male
0 ppm

DAY ON TEST

ANIMAL ID

S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
7	7	6	7	7	7	5	7	6	7	7	7	7	6	
3	3	0	1	3	3	7	0	8	3	3	3	3	1	
0	1	5	5	1	0	2	8	3	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	
3	3	4	4	4	4	4	4	4	4	4	4	4	5	
8	9	0	1	2	3	4	5	6	7	8	9	0		

*TOTALS

HEMATOPOIETIC SYSTEM

+ + + + + + + + + + + + + 50

BONE MARROW

LYMPHOMA; MALIGNANT

1

HEPATOBIILIARY SYSTEM

+ + + + + + + + + + + + + 50

LIVER

HEPATOCELLULAR ADENOMA

1

LYMPHOMA; MALIGNANT

2

IMMUNE SYSTEM

+ + + + + + + + N + + + + 45

LYMPH NODE, BRONCHIAL

LYMPHOMA; MALIGNANT

2

LYMPH NODE, MANDIBULAR

LYMPHOMA; MALIGNANT

2

LYMPH NODE, MEDIASTINAL

+ + + + + + + + + + + + + 49

LYMPH NODE, MESENTERIC

+ + + + + + + + + + + + + 50

HEMANGIOSARCOMA

1

LYMPHOMA; MALIGNANT

1

SPLEEN

+ + + + + + + + + + + + + 50

LYMPHOMA; MALIGNANT

2

THYMUS

+ + + + + + + + + + + + + 50

LYMPHOMA; MALIGNANT

1

INTEGUMENTARY SYSTEM

+ + + + + + + + + + + + + 50

SKIN

BASAL CELL CARCINOMA

1

FIBROSARCOMA

X

5

| Male: Core Animals | | | | | | | | | | | | | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male
0 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | *TOTALS |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 7 | 6 | 7 | 7 | 7 | 5 | 7 | 6 | 7 | 7 | 7 | 6 | |
| | | 3 | 3 | 0 | 1 | 3 | 3 | 7 | 0 | 8 | 3 | 3 | 3 | 1 | |
| | | 0 | 1 | 5 | 5 | 1 | 0 | 2 | 8 | 3 | 0 | 0 | 1 | 3 | |
| ANIMAL ID | 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 | 0 | 0 | 0 | 0 | |
| | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | | |
| | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | |
| BONE | | | | | | | | | | | | | | | 1 |
| HEMANGIOSARCOMA | | | | | | | | | | | | | | | 1 |
| BONE, FEMUR | | | | | | | | | | | | | | | 50 |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | |
| BRAIN | | | | | | | | | | | | | | | 49 |
| ASTROCYTOMA | | | | | | | | | | | | | | | 1 |
| GLIOMA | | | | | | | | | | | | | | | 1 |
| GRANULAR CELL TUMOR; BENIGN | | | | | | | | | | | | | | | 1 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |
| REPRODUCTIVE SYSTEM | | | | | | | | | | | | | | | |
| EPIDIDYMIS | | | | | | | | | | | | | | | 50 |
| MAMMARY GLAND | | | | | | | | | | | | | | | 50 |
| FIBROADENOMA | | | | | | | | | | | | | | | 1 |
| PREPUTIAL GLAND | | | | | | | | | | | | | | | 50 |
| SQUAMOUS CELL CARCINOMA | | | | | | | | | | | | | | | 1 |
| PROSTATE | | | | | | | | | | | | | | | 50 |
| ADENOMA | | | | | | | | | | | | | | | 1 |
| SEMINAL VESICLE | | | | | | | | | | | | | | | 50 |
| TESTIS | | | | | | | | | | | | | | | 50 |
| LEYDIG CELL ADENOMA | | | | | | | | | | | | | | | 1 |
| ARTERIOLE, BILATERAL; LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |

| Male: Core Animals | | | | | | | | | | | | | | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|---|
| Harlan Sprague Dawley Rat Male
0 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | | |
| | | 7 | 7 | 6 | 7 | 7 | 7 | 5 | 7 | 6 | 7 | 7 | 7 | 6 | | |
| | | 3 | 3 | 0 | 1 | 3 | 3 | 7 | 0 | 8 | 3 | 3 | 3 | 1 | | |
| | ANIMAL ID | 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 | 0 | 0 | 0 | 0 | | |
| 3 | | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 0 | | |
| | | | | | | | | | | | | | | | *TOTALS | |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | | |
| LARYNX | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| LUNG | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | | 1 |
| NOSE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| TRACHEA | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | | |
| EYE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | | 1 |
| HARDERIAN GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| ZYMBAL'S GLAND | | | | | | | | | | | + | | | | 1 | |
| CARCINOMA | | | | | | | | | | | X | | | | 1 | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | |
| KIDNEY | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| URINARY BLADDER | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | | |
| Multiple Organ | | | | | | | | | | | | | | | | 4 |
| HEMANGIOSARCOMA | | | | | | | | | | | | | | | | 2 |
| LYMPHOMA | | | | | | | | | | | | | | | | 2 |

| | | | Male: Core Animals | |
|--|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
50 ppm | DAY ON TEST | ANIMAL ID | S | S | |
| | | | D | D | |
| | | | 7 | 4 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 6 | 7 | 7 | 6 | 5 | 6 | 5 | 6 | 6 | 7 | 7 | 7 | 6 | 3 | 7 | 7 | 6 | 3 | 7 |
| | | | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 8 | 3 | 3 | 7 | 9 | 0 | 3 | 0 | 6 | 3 | 3 | 9 | 5 | 9 | 3 | 0 | 4 | 3 | 2 | 3 | 3 | 5 | 3 | 3 | 0 | 8 | 3 |
| | | | 0 | 0 | |
| | | | 0 | 0 | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | |
| ALIMENTARY SYSTEM | | | |
| ESOPHAGUS | | | + | + | | |
| INTESTINE, LARGE, CECUM | | | + | + | |
| ADENOCARCINOMA | | | |
| INTESTINE, LARGE, COLON | | | + | + | |
| INTESTINE, LARGE, RECTUM | | | + | + | |
| INTESTINE, SMALL, DUODENUM | | | + | + | |
| INTESTINE, SMALL, ILEUM | | | + | + | |
| INTESTINE, SMALL, JEJUNUM | | | + | + | |
| ADENOCARCINOMA | | | X | | | | | | X | |
| ORAL CAVITY | | | |
| PANCREAS | | | + | + | |
| ACINUS; ADENOMA | | | X | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| SALIVARY GLAND | | | + | + | |
| STOMACH, FORESTOMACH | | | + | + | |
| STOMACH, GLANDULAR | | | + | + | |
| TOOTH | | | |
| CARDIOVASCULAR SYSTEM | | | |
| AORTA | | | + | + | | |
| HEART | | | + | + | |

| | | | Male: Core Animals | |
|--|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
50 ppm | DAY ON TEST | ANIMAL ID | S | S | |
| | | | D | D | |
| | | | 7 | 4 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 6 | 7 | 7 | 6 | 5 | 6 | 5 | 6 | 6 | 7 | 7 | 7 | 6 | 6 | 7 | 7 | 7 | 7 |
| | | | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 8 | 3 | 3 | 7 | 9 | 0 | 3 | 0 | 6 | 3 | 3 | 9 | 5 | 9 | 3 | 0 | 4 | 3 | 2 | 3 | 5 | 3 | 3 | 0 | 5 | 3 |
| | | | 0 | 0 | |
| | | | 0 | 0 | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | |
| ENDOCRINE SYSTEM | | | |
| ADRENAL GLAND | | | + | + | | |
| CORTEX; ADENOMA | | | X |
| BILATERAL; PHEOCHROMOCYTOMA;
BENIGN | | | X |
| PHEOCHROMOCYTOMA; BENIGN | | | X |
| PHEOCHROMOCYTOMA; MALIGNANT | | | X | X | |
| PANCREATIC ISLET | | | |
| CARCINOMA | | | + |
| PARATHYROID GLAND | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | | |
| PITUITARY GLAND | | | + | + | | |
| PARS DISTALIS; ADENOMA | | | X |
| THYROID GLAND | | | + | + | | |
| C-CELL; ADENOMA | | | X |
| GENERAL BODY SYSTEM | | | |
| NONE | | | |
| HEMATOPOIETIC SYSTEM | | | |
| BONE MARROW | | | + | + | | | |
| HEPATOBIILIARY SYSTEM | | | |
| LIVER | | | + | + | | | |
| HEPATOCELLULAR ADENOMA | | | X |

| Male: Core Animals | | | | | | |
|---|---|---|-------------|-----------|---|--|
| Harlan Sprague Dawley Rat Male
50 ppm | | | | | | |
| | | | | | | |
| | | | DAY ON TEST | | | |
| | | | | ANIMAL ID | | |
| S | S | S | S | S | S | |
| D | D | D | D | D | D | |
| 7 | 4 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 6 | 7 | 7 | 6 | 5 | 6 | 5 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | |
| 3 | 2 | 1 | 3 | 1 | 3 | 3 | 3 | 8 | 3 | 3 | 7 | 9 | 0 | 3 | 0 | 6 | 3 | 3 | 9 | 5 | 9 | 3 | 0 | 4 | 3 | 5 | 3 | 3 | 3 | |
| 0 | 7 | 7 | 0 | 5 | 1 | 1 | 1 | 6 | 0 | 1 | 1 | 5 | 7 | 0 | 5 | 6 | 6 | 0 | 0 | 2 | 2 | 7 | 3 | 5 | 1 | 7 | 1 | 8 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | |
| 0 | 0 | 0 | 0 | 0 | 0 | |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| IMMUNE SYSTEM | | | | | | |
| LYMPH NODE | | | + | | | |
| LYMPH NODE, BRONCHIAL | | | + | + | + | + | N | + | + | + | + | N | + | + | + | + | N | + | + | + | + | + | + | + | N | + | + | + | + | |
| LYMPH NODE, MANDIBULAR | | | + | + | + | |
| LYMPH NODE, MEDIASTINAL | | | + | + | + | + | + | + | + | N | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| LYMPH NODE, MESENTERIC
CARCINOMA; METASTATIC | | | + | + | + | + | + | + | + | + | + | + | + | + | A | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| SPLEEN | | | + | + | + | |
| THYMUS | | | + | + | + | + | + | + | + | N | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| INTEGUMENTARY SYSTEM | | | | | | |
| SKIN | | | + | + | + | |
| SEBACEOUS GLAND; ADENOMA | | | X | | | |
| FIBROMA | | | | | | |
| FIBROSARCOMA | | | | | | |
| KERATOACANTHOMA | | | | | | |
| LIPOSARCOMA | | | | | | |
| PAPILLOMA | | | | | | |
| PLEOMORPHIC FIBROSARCOMA | | | | | | |
| SCHWANNOMA; MALIGNANT | | | X | | | |
| MUSCULOSKELETAL SYSTEM | | | | | | |
| BONE, FEMUR | | | + | + | + | |
| SKELETAL MUSCLE | | | | | | |
| FIBROSARCOMA | | | | | | |

| | | | Male: Core Animals | |
|--|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
50 ppm | DAY ON TEST | ANIMAL ID | S | S | |
| | | | D | D |
| | | | 7 | 4 | 7 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 6 | 5 | 6 | 5 | 6 | 6 | 7 | 7 | 6 | 7 | 7 | 6 | 3 | 7 |
| | | | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 8 | 3 | 3 | 7 | 9 | 0 | 3 | 0 | 6 | 3 | 3 | 9 | 5 | 9 | 3 | 0 | 4 | 3 | 2 | 3 | 5 | 3 | 3 |
| | | | 0 | 7 | 7 | 0 | 5 | 1 | 1 | 6 | 0 | 1 | 1 | 5 | 7 | 0 | 5 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 0 | 0 |
| | | | 0 | 0 |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 7 | |
| NERVOUS SYSTEM | | | |
| BRAIN | | | + | + | |
| ASTROCYTOMA | | | |
| HEMANGIOSARCOMA | | | |
| REPRODUCTIVE SYSTEM | | | |
| EPIDIDYMIS | | | + | + | |
| MAMMARY GLAND | | | + | + | |
| PREPUTIAL GLAND | | | + | + | |
| PROSTATE | | | + | + | |
| ADENOMA | | | |
| SEMINAL VESICLE | | | + | + | |
| TESTIS | | | + | + | |
| RESPIRATORY SYSTEM | | | |
| LARYNX | | | + | + | |
| LUNG | | | + | + | |
| CYSTIC KERATINIZING EPITHELIOMA | | | |
| NOSE | | | + | + | |
| TRACHEA | | | + | + | |
| SPECIAL SENSES SYSTEM | | | |
| EYE | | | + | + | |
| HARDERIAN GLAND | | | + | + | |

| | | | Male: Core Animals | |
|--|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
50 ppm | DAY ON TEST | ANIMAL ID | S | S | | | |
| | | | D | D | | |
| | | | 7 | 4 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 6 | 7 | 7 | 6 | 5 | 6 | 5 | 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 6 | 3 | 7 | 7 | 7 | 4 | 7 |
| | | | 3 | 2 | 1 | 3 | 1 | 3 | 3 | 8 | 3 | 3 | 7 | 9 | 0 | 3 | 0 | 6 | 3 | 3 | 9 | 5 | 9 | 3 | 0 | 4 | 3 | 2 | 3 | 3 | 5 | 3 | 3 | 0 | 8 | 3 | 3 | 3 | 4 |
| | | | 0 | 7 | 7 | 0 | 5 | 1 | 1 | 6 | 0 | 1 | 1 | 5 | 7 | 0 | 5 | 6 | 3 | 0 | 2 | 2 | 7 | 3 | 5 | 1 | 7 | 1 | 8 | 0 | 0 | 5 | 3 | 1 | 1 | 0 | 0 | 0 | |
| | | | 0 | 0 | |
| | | | 0 | 0 | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| URINARY SYSTEM | | | |
| KIDNEY | | | + | + | | |
| AMPHOPHILIC-VACUOLAR ADENOMA | | | X |
| URINARY BLADDER | | | + | + | | |
| SYSTEMIC LESIONS | | | |
| Multiple Organ | | | + |
| HEMANGIOSARCOMA | | | X |

| Male: Core Animals | | | | | | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|----|---------|
| Harlan Sprague Dawley Rat Male
50 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | *TOTALS |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 5 | 7 | 7 | 6 | 6 | 4 | 6 | 6 | 6 | 7 | 5 | 6 | 5 | |
| | | 8 | 3 | 2 | 4 | 2 | 9 | 5 | 3 | 8 | 3 | 7 | 8 | 7 | |
| | | 9 | 1 | 2 | 8 | 4 | 3 | 5 | 7 | 1 | 1 | 2 | 8 | 2 | |
| ANIMAL ID | 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 | 0 | 0 | 1 | | |
| | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | | |
| | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |
| ALIMENTARY SYSTEM | | | | | | | | | | | | | | | |
| ESOPHAGUS | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| INTESTINE, LARGE, CECUM | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| ADENOCARCINOMA | | X | | | | | | | | | | | | 1 | |
| INTESTINE, LARGE, COLON | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| INTESTINE, LARGE, RECTUM | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| INTESTINE, SMALL, DUODENUM | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| INTESTINE, SMALL, ILEUM | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| INTESTINE, SMALL, JEJUNUM | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| ADENOCARCINOMA | | | | | | | | | | | | | | 2 | |
| ORAL CAVITY | | | | | | | | | | | | | | 1 | |
| PANCREAS | | + | + | | + | + | + | + | + | + | + | + | + | 48 | |
| ACINUS; ADENOMA | | X | | | | | | | | | | | | 3 | |
| SALIVARY GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| STOMACH, FORESTOMACH | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| STOMACH, GLANDULAR | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| TOOTH | | | | | | | | | | | | | | 1 | |
| CARDIOVASCULAR SYSTEM | | | | | | | | | | | | | | | |
| AORTA | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| HEART | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |

| Male: Core Animals | | | | | | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male
50 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | *TOTALS |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 5 | 7 | 7 | 6 | 6 | 4 | 6 | 6 | 6 | 7 | 5 | 6 | 5 | |
| | | 8 | 3 | 2 | 4 | 2 | 9 | 5 | 3 | 8 | 3 | 7 | 8 | 7 | |
| | | 9 | 1 | 2 | 8 | 4 | 3 | 5 | 7 | 1 | 1 | 2 | 8 | 2 | |
| ANIMAL ID | 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 | 0 | 0 | 1 | | |
| | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | | |
| | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |
| ENDOCRINE SYSTEM | | | | | | | | | | | | | | | |
| ADRENAL GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CORTEX; ADENOMA | | X | | | | | | | | | | | | | 2 |
| BILATERAL; PHEOCHROMOCYTOMA;
BENIGN | | | | | | | | | | | | | | | 1 |
| PHEOCHROMOCYTOMA; BENIGN | | | | | X | | | | | | | X | | | 10 |
| PHEOCHROMOCYTOMA; MALIGNANT | | | | | | | X | | | | X | | X | | 6 |
| PANCREATIC ISLET | | | | + | | | | | | | | | | | 2 |
| CARCINOMA | | | | X | | | | | | | | | | | 2 |
| PARATHYROID GLAND | | + | + | + | + | + | N | + | + | + | + | + | + | + | 48 |
| PITUITARY GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| PARS DISTALIS; ADENOMA | | | | | X | | | | | | | X | | | 11 |
| THYROID GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| C-CELL; ADENOMA | | | | | | | | | | | X | | X | | 6 |
| GENERAL BODY SYSTEM | | | | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | | | | |
| HEMATOPOIETIC SYSTEM | | | | | | | | | | | | | | | |
| BONE MARROW | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HEPATOBIILIARY SYSTEM | | | | | | | | | | | | | | | |
| LIVER | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HEPATOCELLULAR ADENOMA | | | | X | | | | | | | | | | | 2 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| | | | | | | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male
50 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 5 | 7 | 7 | 6 | 6 | 4 | 6 | 6 | 7 | 5 | 6 | 5 | | |
| | | 8 | 3 | 2 | 4 | 2 | 9 | 5 | 3 | 8 | 3 | 7 | 8 | 7 | |
| | | 9 | 1 | 2 | 8 | 4 | 3 | 5 | 7 | 1 | 1 | 2 | 8 | 2 | |
| ANIMAL ID | | 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 | 1 | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |

| | |
|-------------------------|------------------------------|
| IMMUNE SYSTEM | |
| LYMPH NODE | 1 |
| LYMPH NODE, BRONCHIAL | N + + + + + + N + + + N + 42 |
| LYMPH NODE, MANDIBULAR | + + + + + + + + + + + + 50 |
| LYMPH NODE, MEDIASTINAL | + + + + + + + + + + N + + 47 |
| LYMPH NODE, MESENTERIC | + + + + + + + + + + + + 49 |
| CARCINOMA; METASTATIC | X 1 |
| SPLEEN | + + + + + + + + + + + + 50 |
| THYMUS | + + + + + + + + + + + + 48 |

| | |
|--------------------------|----------------------------|
| INTEGUMENTARY SYSTEM | |
| SKIN | + + + + + + + + + + + + 50 |
| SEBACEOUS GLAND; ADENOMA | 1 |
| FIBROMA | X 1 |
| FIBROSARCOMA | 6 |
| KERATOACANTHOMA | X X 4 |
| LIPOSARCOMA | 1 |
| PAPILLOMA | 1 |
| PLEOMORPHIC FIBROSARCOMA | 1 |
| SCHWANNOMA; MALIGNANT | 1 |

| | |
|------------------------|----------------------------|
| MUSCULOSKELETAL SYSTEM | |
| BONE, FEMUR | + + + + + + + + + + + + 50 |
| SKELETAL MUSCLE | 1 |
| FIBROSARCOMA | 1 |

| Male: Core Animals | | | | | | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male
50 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 5 | 7 | 7 | 6 | 6 | 4 | 6 | 6 | 7 | 5 | 6 | 5 | | |
| | | 8 | 3 | 2 | 4 | 2 | 9 | 5 | 3 | 8 | 3 | 7 | 8 | 7 | |
| | ANIMAL ID | 9 | 1 | 2 | 8 | 4 | 3 | 5 | 7 | 1 | 1 | 2 | 8 | 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 | 1 | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | |
| BRAIN | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ASTROCYTOMA | | | X | | | | | | | | | | | | 2 |
| HEMANGIOSARCOMA | | | | | | | | | | | | | | | 1 |
| REPRODUCTIVE SYSTEM | | | | | | | | | | | | | | | |
| EPIDIDYMIS | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| MAMMARY GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| PREPUTIAL GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| PROSTATE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOMA | | | | | | | | | | | | | | | 1 |
| SEMINAL VESICLE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| TESTIS | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | |
| LARYNX | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LUNG | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CYSTIC KERATINIZING EPITHELIOMA | | | | | | | | | | | | | | | 1 |
| NOSE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| TRACHEA | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | |
| EYE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HARDERIAN GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| Harlan Sprague Dawley Rat Male
50 ppm | | | | | | | | | | | | | | | | *TOTALS |
|--|-----------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----|---------|
| DAY ON TEST | ANIMAL ID | S
D
5
8
9 | S
D
7
3
1 | S
D
7
2
2 | S
D
6
4
8 | S
D
6
2
4 | S
D
4
9
3 | S
D
6
5
5 | S
D
6
3
7 | S
D
6
8
1 | S
D
7
3
1 | S
D
5
7
2 | S
D
6
8
8 | S
D
5
7
2 | | |
| | | 0
0
0
8
8 | 0
0
0
8
9 | 0
0
0
9
0 | 0
0
0
9
1 | 0
0
0
9
2 | 0
0
0
9
3 | 0
0
0
9
4 | 0
0
0
9
5 | 0
0
0
9
6 | 0
0
0
9
7 | 0
0
0
9
8 | 0
0
0
9
9 | 0
0
0
9
0 | | |
| | | 0
0
0
8
8 | 0
0
0
8
9 | 0
0
0
9
0 | 0
0
0
9
1 | 0
0
0
9
2 | 0
0
0
9
3 | 0
0
0
9
4 | 0
0
0
9
5 | 0
0
0
9
6 | 0
0
0
9
7 | 0
0
0
9
8 | 0
0
0
9
9 | 0
0
0
9
0 | | |
| | | 0
0
0
8
8 | 0
0
0
8
9 | 0
0
0
9
0 | 0
0
0
9
1 | 0
0
0
9
2 | 0
0
0
9
3 | 0
0
0
9
4 | 0
0
0
9
5 | 0
0
0
9
6 | 0
0
0
9
7 | 0
0
0
9
8 | 0
0
0
9
9 | 0
0
0
9
0 | | |
| URINARY SYSTEM | | | | | | | | | | | | | | | | |
| KIDNEY | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| AMPHOPHILIC-VACUOLAR ADENOMA | | | | | | | | | | | | | | | | 1 |
| URINARY BLADDER | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | | |
| Multiple Organ | | | | | | | | | | | | | | | | 1 |
| HEMANGIOSARCOMA | | | | | | | | | | | | | | | | 1 |

| Male: Core Animals | | |
|---|-------------|-----------|
| Harlan Sprague Dawley Rat Male
100 ppm | DAY ON TEST | ANIMAL ID | S |
| | | | D |
| | | | 6 | 6 | 7 | 6 | 6 | 4 | 7 | 6 | 7 | 6 | 5 | 6 | 7 | 6 | 6 | 7 | 7 | 5 | 6 | 7 | 7 | 5 | 7 | 6 | 6 | 7 | 7 |
| | | | 8 | 3 | 3 | 5 | 7 | 4 | 2 | 5 | 3 | 6 | 0 | 0 | 3 | 1 | 5 | 3 | 1 | 6 | 3 | 3 | 3 | 4 | 3 | 9 | 3 | 4 | 1 |
| | | | 3 | 9 | 1 | 6 | 4 | 5 | 4 | 8 | 0 | 1 | 5 | 0 | 1 | 1 | 1 | 0 | 8 | 0 | 9 | 1 | 0 | 4 | 0 | 4 | 1 | 5 | 7 |
| | | | 0 |
| | | | 0 |
| | | | 1 |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| ALIMENTARY SYSTEM | | |
| ESOPHAGUS | | | + |
| INTESTINE, LARGE, CECUM | | | + |
| INTESTINE, LARGE, COLON | | | + |
| INTESTINE, LARGE, RECTUM | | | + |
| INTESTINE, SMALL, DUODENUM | | | + |
| ADENOMA | | | X |
| INTESTINE, SMALL, ILEUM | | | + |
| INTESTINE, SMALL, JEJUNUM | | | + |
| ADENOCARCINOMA | | | X |
| MESENTERY | | |
| PANCREAS | | | + | + | | + |
| ACINUS; ADENOMA | | | X |
| SALIVARY GLAND | | | + |
| STOMACH, FORESTOMACH | | | + |
| LYMPHOMA; MALIGNANT | | | X |
| STOMACH, GLANDULAR | | | + |
| CARDIOVASCULAR SYSTEM | | |
| AORTA | | | + |
| HEART | | | + |
| SCHWANNOMA; MALIGNANT | | |

| | | | Male: Core Animals | |
|---|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
100 ppm | DAY ON TEST | ANIMAL ID | S | S | | | | | |
| | | | D | D | | | | |
| | | | 6 | 6 | 7 | 6 | 6 | 4 | 7 | 6 | 7 | 6 | 5 | 6 | 7 | 6 | 6 | 7 | 7 | 5 | 6 | 3 | 7 | 7 | 5 | 7 | 5 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | | | | |
| | | | 8 | 3 | 3 | 5 | 7 | 4 | 2 | 5 | 3 | 6 | 0 | 0 | 3 | 1 | 5 | 3 | 1 | 6 | 3 | 3 | 4 | 3 | 4 | 3 | 9 | 3 | 4 | 3 | 5 | 3 | 3 | 3 | 3 | 3 | | | |
| | | | 3 | 9 | 1 | 6 | 4 | 5 | 4 | 8 | 0 | 1 | 5 | 0 | 1 | 1 | 1 | 0 | 8 | 0 | 9 | 1 | 0 | 4 | 4 | 0 | 4 | 1 | 1 | 5 | 7 | 5 | 2 | 1 | 1 | 0 | 1 | | |
| | | | 0 | 0 | | | | | |
| | | | 0 | 0 | | | | | |
| | | | 1 | 1 | | | | | |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| ENDOCRINE SYSTEM | | | |
| ADRENAL GLAND | | | + | + | | | |
| CORTEX; ADENOMA | | | |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | X | | | | | | | | | X | | | | | | | | | | | | | | | | | | |
| BILATERAL; PHEOCHROMOCYTOMA;
MALIGNANT | | | |
| PHEOCHROMOCYTOMA; BENIGN | | | X | | | | | | | | | | | | | | X | |
| PHEOCHROMOCYTOMA; MALIGNANT | | | | | | | | | | | | X | |
| PANCREATIC ISLET | | | | | + | | | | | | | | | | | | | | + | |
| ADENOMA | | | |
| CARCINOMA | | | | | X | |
| PARATHYROID GLAND | | | + | + | + | + | + | + | N | + | | |
| CARCINOMA; METASTATIC | | | |
| PITUITARY GLAND | | | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | |
| PARS DISTALIS; ADENOMA | | | | | | X | | | | X | X | | | | X | | X | | | | X | X | | | | X | | X | | | | | | | | X | | | |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | X | |
| THYROID GLAND | | | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | |
| C-CELL, BILATERAL; ADENOMA | | | |
| C-CELL; ADENOMA | | | | | | | X | |
| C-CELL; CARCINOMA | | | |
| GENERAL BODY SYSTEM | | | |
| NONE | | | |

Lab: Battelle with EPL

| | | | Male: Core Animals | |
|---|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
100 ppm | DAY ON TEST | ANIMAL ID | S | S | | | | |
| | | | D | D | | | |
| | | | 6 | 6 | 7 | 6 | 6 | 4 | 7 | 6 | 7 | 6 | 5 | 6 | 7 | 6 | 6 | 7 | 7 | 5 | 6 | 7 | 7 | 5 | 7 | 5 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | | |
| | | | 8 | 3 | 3 | 5 | 7 | 4 | 2 | 5 | 3 | 6 | 0 | 0 | 3 | 1 | 5 | 3 | 1 | 6 | 3 | 3 | 3 | 4 | 3 | 9 | 3 | 4 | 3 | 5 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | | | 3 | 9 | 1 | 6 | 4 | 5 | 4 | 8 | 0 | 1 | 5 | 0 | 1 | 1 | 1 | 0 | 8 | 0 | 9 | 1 | 0 | 4 | 0 | 4 | 1 | 5 | 7 | 5 | 2 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 1 |
| | | | 0 | 0 | | | |
| | | | 0 | 0 | | | |
| | | | 1 | 1 | | | |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| IMMUNE SYSTEM | | | |
| LYMPH NODE | | | + |
| LUMBAR; LYMPHOMA; MALIGNANT | | | X |
| RENAL; LYMPHOMA; MALIGNANT | | | X |
| LYMPH NODE, BRONCHIAL | | | N | + | + | N | + | N | + | + | + | + | + | N | + | N | N | + | + | N | + | + | + | + | + | + | N | N | N | + | + | + | + | + | + | N | + | + | N | + |
| HISTIOCYTIC SARCOMA | | | |
| LYMPHOMA; MALIGNANT | | | X |
| LYMPH NODE, MANDIBULAR | | | N | + | |
| LYMPHOMA; MALIGNANT | | | X |
| LYMPH NODE, MEDIASTINAL | | | + | + | N | + | + | + | + | + | + | + | + | + | + | N | + | + |
| HISTIOCYTIC SARCOMA | | | |
| LYMPHOMA; MALIGNANT | | | X |
| LYMPH NODE, MESENTERIC | | | + | + | |
| LYMPHOMA; MALIGNANT | | | X |
| SPLEEN | | | + | + | |
| LYMPHOMA; MALIGNANT | | | X |
| THYMUS | | | + | + | N | + | + | + | + | + | + | + | + | + | + | N | + | + |
| LYMPHOMA; MALIGNANT | | | X |

Lab: Battelle with EPL

| | | | Male: Core Animals | |
|---|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
100 ppm | DAY ON TEST | ANIMAL ID | S | S | | | |
| | | | D | D | | |
| | | | 6 | 6 | 7 | 6 | 6 | 4 | 7 | 6 | 7 | 6 | 5 | 6 | 7 | 6 | 6 | 7 | 7 | 5 | 6 | 7 | 7 | 5 | 6 | 7 | 3 | 4 | 3 | 9 | 3 | 4 | 3 | 5 | 3 | |
| | | | 8 | 3 | 3 | 5 | 7 | 4 | 2 | 5 | 3 | 6 | 0 | 0 | 3 | 1 | 5 | 3 | 1 | 6 | 3 | 3 | 3 | 4 | 3 | 9 | 3 | 4 | 3 | 0 | 4 | 0 | 4 | 1 | 5 | 7 |
| | | | 3 | 9 | 1 | 6 | 4 | 5 | 4 | 8 | 0 | 1 | 5 | 0 | 1 | 1 | 1 | 0 | 8 | 0 | 9 | 1 | 0 | 4 | 0 | 4 | 1 | 5 | 7 | 5 | 2 | 1 | 1 | 0 | 1 | 3 |
| | | | 0 | 0 | |
| | | | 0 | 0 | |
| | | | 1 | 1 | |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | |
| REPRODUCTIVE SYSTEM | | | |
| EPIDIDYMIS | | | + | + | | |
| MAMMARY GLAND | | | + | + | |
| FIBROADENOMA | | | X |
| PREPUTIAL GLAND | | | + | + | |
| PROSTATE | | | + | + | |
| SEMINAL VESICLE | | | + | + | |
| TESTIS | | | + | + | |
| LEYDIG CELL ADENOMA | | | X |
| BILATERAL; LYMPHOMA; MALIGNANT | | | X |
| RESPIRATORY SYSTEM | | | |
| LARYNX | | | + | + | | |
| LYMPHOMA; MALIGNANT | | | X |
| LUNG | | | + | + | |
| LYMPHOMA; MALIGNANT | | | X |
| NOSE | | | + | + | |
| LYMPHOMA; MALIGNANT | | | X |
| TRACHEA | | | + | + | |
| LYMPHOMA; MALIGNANT | | | X |

| | | | Male: Core Animals | |
|---|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
100 ppm | DAY ON TEST | ANIMAL ID | S | S | | | | |
| | | | D | D | | | |
| | | | 6 | 6 | 7 | 6 | 6 | 4 | 7 | 6 | 7 | 6 | 5 | 6 | 7 | 6 | 6 | 7 | 7 | 5 | 6 | 3 | 7 | 7 | 5 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 7 | 7 | 6 | 7 | | |
| | | | 8 | 3 | 3 | 3 | 5 | 7 | 4 | 2 | 5 | 3 | 6 | 0 | 3 | 1 | 5 | 3 | 1 | 5 | 6 | 3 | 3 | 3 | 4 | 3 | 9 | 3 | 4 | 3 | 5 | 3 | 3 | 3 | 2 | 3 | 1 | 5 | 4 |
| | | | 3 | 9 | 1 | 6 | 4 | 5 | 4 | 8 | 0 | 1 | 5 | 0 | 1 | 1 | 0 | 8 | 0 | 6 | 3 | 9 | 1 | 0 | 4 | 0 | 4 | 1 | 5 | 7 | 5 | 2 | 1 | 1 | 0 | 1 | 4 | 1 | |
| | | | 0 | 0 | | | |
| | | | 0 | 0 | | | |
| | | | 1 | 1 | | | |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | | |
| SPECIAL SENSES SYSTEM | | | |
| EYE | | | + | + | | | | |
| BILATERAL; LYMPHOMA; MALIGNANT | | | X |
| HARDERIAN GLAND | | | + | + | | | |
| BILATERAL; LYMPHOMA; MALIGNANT | | | X |
| ZYMBAL'S GLAND | | | |
| SQUAMOUS CELL CARCINOMA | | | |
| | | | |
| URINARY SYSTEM | | | |
| KIDNEY | | | + | + | | | |
| LYMPHOMA; MALIGNANT | | | X |
| URINARY BLADDER | | | + | + | | | |
| SYSTEMIC LESIONS | | | |
| Multiple Organ | | | |
| HEMANGIOSARCOMA | | | |
| HISTIOCYTIC SARCOMA | | | |
| LYMPHOMA | | | |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| | | | | | | | | | | | | | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male
100 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 4 | 6 | 5 | 7 | 7 | 7 | |
| | | 3 | 6 | 1 | 3 | 3 | 3 | 3 | 7 | 9 | 9 | 3 | 3 | 3 | |
| | ANIMAL ID | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *TOTALS |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| ESOPHAGUS | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, CECUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, COLON | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, RECTUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, DUODENUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOMA | | | | | | | | | | | | | | | 1 |
| INTESTINE, SMALL, ILEUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, JEJUNUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA | | | | | | | | | | | | | | | 1 |
| MESENTERY | | | | | | | | | | | | | | | 1 |
| PANCREAS | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 47 |
| ACINUS; ADENOMA | | | | | | | | | | | | | | | 1 |
| SALIVARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| STOMACH, FORESTOMACH | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| STOMACH, GLANDULAR | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| AORTA | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HEART | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SCHWANNOMA; MALIGNANT | | | | | | | | X | | | | | | | 1 |

| Male: Core Animals | | | | | | | | | | | | | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male
100 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | *TOTALS |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 4 | 6 | 5 | 7 | 7 | 7 | |
| | | 3 | 6 | 1 | 3 | 3 | 3 | 3 | 7 | 9 | 9 | 3 | 3 | 3 | |
| | | 0 | 3 | 5 | 0 | 1 | 1 | 0 | 7 | 9 | 0 | 1 | 0 | 0 | |
| ANIMAL ID | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | |
| | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 | |
| ENDOCRINE SYSTEM | | | | | | | | | | | | | | | |
| ADRENAL GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CORTEX; ADENOMA | | | | | | | | | | | | | | | 1 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |
| BILATERAL; PHEOCHROMOCYTOMA;
MALIGNANT | | | | | | | | | | | | | | | 1 |
| PHEOCHROMOCYTOMA; BENIGN | | | | | | | | | | | | | | | 3 |
| PHEOCHROMOCYTOMA; MALIGNANT | | | X | X | | | X | | | | | | X | | 7 |
| PANCREATIC ISLET | | | | | | | | | | | | | | | 3 |
| ADENOMA | | | | | | | | | | | | | | | 1 |
| CARCINOMA | | | | | | | | | | | | | | | 1 |
| PARATHYROID GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| CARCINOMA; METASTATIC | | | | | | | X | | | | | | | | 1 |
| PITUITARY GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| PARS DISTALIS; ADENOMA | | | | | | | X | X | | | | | X | | 14 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| THYROID GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| C-CELL, BILATERAL; ADENOMA | | | | | | | | | | | | | | | 2 |
| C-CELL; ADENOMA | | | | | | X | | X | | | | | X | | 5 |
| C-CELL; CARCINOMA | | | | | | | X | | | | | | | | 1 |
| GENERAL BODY SYSTEM | | | | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | | | | |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| | | | | | | | | | | | | | | | |
|--------------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male | | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| 100 ppm | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| DAY ON TEST | | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 4 | 6 | 5 | 7 | 7 | 7 | |
| | | 3 | 6 | 1 | 3 | 3 | 3 | 3 | 7 | 9 | 9 | 3 | 3 | 3 | |
| | | 0 | 3 | 5 | 0 | 1 | 1 | 0 | 7 | 9 | 0 | 1 | 0 | 0 | |
| ANIMAL ID | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *TOTALS |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| HEMATOPOIETIC SYSTEM | | | | | | | | | | | | | | | |
| BONE MARROW | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| HEPATOBIILIARY SYSTEM | | | | | | | | | | | | | | | |
| LIVER | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CHOLANGIOMA | | | | | | | | | | | | | | | 2 |
| HEPATOCELLULAR CARCINOMA | | | | | | | | | | | | | | | 1 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |

Male: Core Animals

| | | | | | | | | | | | | | | | |
|--------------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male | | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| 100 ppm | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 4 | 6 | 5 | 7 | 7 | 7 | |
| DAY ON TEST | | 3 | 6 | 1 | 3 | 3 | 3 | 3 | 7 | 9 | 9 | 3 | 3 | 3 | |
| | | 0 | 3 | 5 | 0 | 1 | 1 | 0 | 7 | 9 | 0 | 1 | 0 | 0 | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| ANIMAL ID | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |

| | | | | | | | | | | | | | | | |
|-----------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| IMMUNE SYSTEM | | | | | | | | | | | | | | | |
| LYMPH NODE | | | | | | | | | | | | | | | 1 |
| LUMBAR; LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| RENAL; LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| LYMPH NODE, BRONCHIAL | | + | + | + | + | N | + | + | + | N | + | + | + | + | 36 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| LYMPH NODE, MANDIBULAR | | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |
| LYMPH NODE, MEDIASTINAL | | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |
| LYMPH NODE, MESENTERIC | | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |
| SPLEEN | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |
| THYMUS | | + | + | + | + | I | + | + | + | + | + | + | + | + | 47 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| | | | | | | | | | | | | | | | |
|---|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male
100 ppm | | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 4 | 6 | 5 | 7 | 7 | 7 | |
| | | DAY ON TEST | 3 | 6 | 1 | 3 | 3 | 3 | 7 | 9 | 9 | 3 | 3 | 3 | |
| | | | 0 | 3 | 5 | 0 | 1 | 1 | 0 | 7 | 9 | 0 | 1 | 0 | |
| ANIMAL ID | | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | |
|--------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| SKIN | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| FIBROMA | | | | | | | | | | | | | | | 2 |
| HEMANGIOSARCOMA | | | | | | | | | | | | | | | 1 |
| KERATOACANTHOMA | | | | | | | | | | | | | | | 3 |
| LIPOMA | | | | | X | | X | | | | | | | | 2 |
| PLEOMORPHIC FIBROSARCOMA | | | | | | | | | | | | | | | 1 |

MUSCULOSKELETAL SYSTEM

| | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| BONE, FEMUR | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

NERVOUS SYSTEM

| | | | | | | | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| BRAIN | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ASTROCYTOMA | | | X | | | | | | | | | | | | 4 |
| GLIOMA | | | | | | | | | | | | | | | 1 |
| GRANULAR CELL TUMOR; BENIGN | | | | | | | X | | | | | | | | 1 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| | | | | | | | | | | | | | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male
100 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 4 | 6 | 5 | 7 | 7 | 7 | |
| | | 3 | 6 | 1 | 3 | 3 | 3 | 3 | 7 | 9 | 9 | 3 | 3 | 3 | |
| | | 0 | 3 | 5 | 0 | 1 | 1 | 0 | 7 | 9 | 0 | 1 | 0 | 0 | |
| | ANIMAL ID | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |

REPRODUCTIVE SYSTEM

| | | | | | | | | | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| EPIDIDYMIS | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| MAMMARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| FIBROADENOMA | | | | | | | | | | | | | | | 1 |
| PREPUTIAL GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| PROSTATE | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SEMINAL VESICLE | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| TESTIS | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LEYDIG CELL ADENOMA | | | | | | X | | | | | | | | | 2 |
| BILATERAL; LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| LARYNX | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| LUNG | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| NOSE | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| TRACHEA | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPHOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| Harlan Sprague Dawley Rat Male
100 ppm | | S
D
7
3
0 | S
D
6
6
3 | S
D
7
1
5 | S
D
6
3
0 | S
D
7
3
1 | S
D
7
3
1 | S
D
7
3
0 | S
D
4
7
9 | S
D
6
9
9 | S
D
5
9
0 | S
D
7
3
1 | S
D
7
3
0 | S
D
7
3
0 | |
|---|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----|
| DAY ON TEST | | | | | | | | | | | | | | | |
| ANIMAL ID | | 0
0
1
3
8 | 0
0
1
3
9 | 0
0
1
4
0 | 0
0
1
4
1 | 0
0
1
4
2 | 0
0
1
4
3 | 0
0
1
4
4 | 0
0
1
4
5 | 0
0
1
4
6 | 0
0
1
4
7 | 0
0
1
4
8 | 0
0
1
4
9 | 0
0
1
4
0 | |
| | | *TOTALS | | | | | | | | | | | | | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | |
| EYE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| BILATERAL; LYMPHOMA; MALIGNANT | | 1 | | | | | | | | | | | | | |
| HARDERIAN GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| BILATERAL; LYMPHOMA; MALIGNANT | | 1 | | | | | | | | | | | | | |
| ZYMBAL'S GLAND | | 1 | | | | | | | | | | | | | |
| SQUAMOUS CELL CARCINOMA | | 1 | | | | | | | | | | | | | |
| URINARY SYSTEM | | | | | | | | | | | | | | | |
| KIDNEY | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPHOMA; MALIGNANT | | 2 | | | | | | | | | | | | | |
| URINARY BLADDER | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | |
| Multiple Organ | | | | | | | | | | | | + | + | 6 | |
| HEMANGIOSARCOMA | | | | | | | | | | | | | | 1 | |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | X | | 1 | |
| LYMPHOMA | | | | | | | | | | | | | X | 4 | |

| | | | Male: Core Animals | |
|---|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | ANIMAL ID | S | S |
| | | | D | D |
| | | | 3 | 7 | 7 | 7 | 6 | 6 | 7 | 6 | 7 | 6 | 7 | 6 | 3 | 7 | 4 | 6 | 5 | 5 | 6 | 5 | 7 | 6 | 6 | 6 | 7 | 4 | 7 | 6 | 5 | 6 | 4 | 7 | 3 | 6 | 6 |
| | | | 2 | 0 | 1 | 0 | 2 | 5 | 3 | 7 | 3 | 8 | 3 | 3 | 9 | 4 | 4 | 3 | 1 | 6 | 9 | 2 | 6 | 6 | 3 | 9 | 8 | 9 | 3 | 8 | 3 | 5 | 3 | 9 | 8 | 1 | 2 |
| | | | 2 | 5 | 6 | 9 | 3 | 9 | 1 | 7 | 1 | 3 | 1 | 6 | 5 | 2 | 0 | 1 | 9 | 3 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | 0 | 0 | |
| | | | 0 | 0 | |
| | | | 1 | 1 | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 |
| ALIMENTARY SYSTEM | | | |
| ESOPHAGUS | | | + | + | |
| INTESTINE, LARGE, CECUM | | | + | + | |
| INTESTINE, LARGE, COLON | | | + | + | |
| INTESTINE, LARGE, RECTUM | | | + | + | |
| INTESTINE, SMALL, DUODENUM | | | + | + | |
| INTESTINE, SMALL, ILEUM | | | + | + | |
| INTESTINE, SMALL, JEJUNUM | | | + | + | |
| MESENTERY | | | | + | | + | | |
| PANCREAS | | | + | + | |
| SALIVARY GLAND | | | + | + | |
| STOMACH, FORESTOMACH | | | + | + | |
| STOMACH, GLANDULAR | | | + | + | |
| CARDIOVASCULAR SYSTEM | | | |
| AORTA | | | + | + | |
| HEART | | | + | + | |

| | | | Male: Core Animals | | | |
|---|-------------|-----------|--------------------|--|--|--|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | ANIMAL ID | S | S | | | | | |
| | | | D | D | | | | |
| | | | 3 | 7 | 7 | 7 | 6 | 6 | 7 | 6 | 7 | 6 | 7 | 6 | 3 | 7 | 4 | 6 | 5 | 5 | 6 | 5 | 7 | 6 | 6 | 6 | 6 | 6 | 3 | 7 | 4 | 7 | 6 | 5 | | | | |
| | | | 2 | 0 | 1 | 0 | 2 | 5 | 3 | 7 | 3 | 8 | 3 | 3 | 9 | 4 | 4 | 3 | 1 | 6 | 9 | 2 | 6 | 6 | 3 | 9 | 8 | 9 | 3 | 4 | 8 | 3 | 5 | 3 | | | | |
| | | | 2 | 5 | 6 | 9 | 3 | 9 | 1 | 7 | 1 | 3 | 1 | 6 | 5 | 2 | 0 | 1 | 9 | 3 | 6 | 0 | 0 | 2 | 3 | 9 | 6 | 0 | 0 | 2 | 3 | 8 | 8 | 1 | 1 | | | |
| | | | 0 | 0 | | | | | |
| | | | 0 | 0 | | | | | |
| | | | 1 | 1 | | | | | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | | | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | | | | | |
| ENDOCRINE SYSTEM | | | | | | |
| ADRENAL GLAND | | | + | + | | | | | | |
| BILATERAL; PHEOCHROMOCYTOMA;
MALIGNANT | | | | X | | | | | | | | | | |
| PHEOCHROMOCYTOMA; BENIGN | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | |
| PHEOCHROMOCYTOMA; MALIGNANT | | | X | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | | |
| PANCREATIC ISLET | | | | | | | | | | | | | | | | | | | | + | | | | | | | | | | | | | | | | | | |
| ADENOMA | | | | | | | | | | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | |
| PARATHYROID GLAND | | | + | + | + | + | + | + | N | + | N | + | N | + | + | + | + | + | + | + | + | + | + | N | + | + | + | + | + | + | + | + | | | | | | |
| PITUITARY GLAND | | | + | + | | | | | | |
| PARS DISTALIS; ADENOMA | | | X | | X | X | X | X | | | X | | | | | X | | | |
| THYROID GLAND | | | + | + | | | | | | |
| C-CELL, BILATERAL; ADENOMA | | | | X | | | | | | | |
| C-CELL; ADENOMA | | | | | | | | | | | X | | | | | | | | | | | | | | | | | | | | X | | | | | | | |
| FOLLICULAR CELL; ADENOMA | | | | | | |
| GENERAL BODY SYSTEM | | | | | | |
| NONE | | | | | | |
| HEMATOPOIETIC SYSTEM | | | | | | |
| BONE MARROW | | | + | + | | | | | | |
| HISTIOCYTIC SARCOMA | | | | | | |

| | | | Male: Core Animals | |
|---|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | ANIMAL ID | S | S | | | |
| | | | D | D | | | |
| | | | 3 | 7 | 7 | 7 | 6 | 6 | 7 | 6 | 7 | 6 | 7 | 6 | 3 | 7 | 4 | 6 | 5 | 5 | 6 | 6 | 5 | 7 | 6 | 6 | 6 | 6 | 7 | 4 | 7 | 6 | 5 | 6 | 4 | 7 | 3 | 6 | |
| | | | 2 | 0 | 1 | 0 | 2 | 5 | 3 | 7 | 3 | 8 | 3 | 3 | 9 | 4 | 4 | 3 | 1 | 6 | 9 | 2 | 6 | 6 | 3 | 9 | 8 | 3 | 3 | 8 | 3 | 5 | 3 | 9 | 8 | 1 | 2 | 8 | |
| | | | 2 | 5 | 6 | 9 | 3 | 9 | 1 | 7 | 1 | 3 | 1 | 1 | 6 | 5 | 2 | 0 | 1 | 9 | 3 | 6 | 0 | 0 | 0 | 2 | 3 | 9 | 6 | 0 | 8 | 0 | 1 | 1 | 6 | 2 | 3 | 1 | |
| | | | 0 | 0 | | |
| | | | 0 | 0 | | |
| | | | 1 | 1 | | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| HEPATOBILIARY SYSTEM | | | |
| LIVER | | | + | + | | |
| CHOLANGIOMA | | | |
| HEPATOCELLULAR CARCINOMA | | | |
| HISTIOCYTIC SARCOMA | | | |
| IMMUNE SYSTEM | | | |
| LYMPH NODE | | | |
| LUMBAR; HISTIOCYTIC SARCOMA | | | |
| LYMPH NODE, BRONCHIAL | | | + | N | N | + | + | N | + | N | + | + | + | + | + | + | + | N | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | N | | |
| HISTIOCYTIC SARCOMA | | | |
| LYMPH NODE, MANDIBULAR | | | + | + | | |
| LYMPH NODE, MEDIASTINAL | | | + | N | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| HISTIOCYTIC SARCOMA | | | |
| LYMPH NODE, MESENTERIC | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| LYMPH NODE, POPLITEAL | | | |
| SPLEEN | | | + | + | | |
| HISTIOCYTIC SARCOMA | | | |
| THYMUS | | | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| HISTIOCYTIC SARCOMA | | | |

| | | | Male: Core Animals | |
|---|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | ANIMAL ID | S | S | | | |
| | | | D | D | | | |
| | | | 3 | 7 | 7 | 7 | 6 | 6 | 7 | 6 | 7 | 6 | 7 | 6 | 3 | 7 | 4 | 6 | 5 | 5 | 6 | 5 | 7 | 6 | 6 | 6 | 7 | 4 | 7 | 6 | 5 | 3 | 9 | 8 | 1 | 2 | 3 | 6 | |
| | | | 2 | 0 | 1 | 0 | 2 | 5 | 3 | 7 | 3 | 8 | 3 | 3 | 9 | 4 | 4 | 3 | 1 | 6 | 9 | 2 | 6 | 6 | 3 | 9 | 8 | 3 | 8 | 3 | 5 | 3 | 9 | 8 | 1 | 2 | 3 | 6 | |
| | | | 0 | 0 | | | |
| | | | 1 | 1 | | | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| INTEGUMENTARY SYSTEM | | | |
| SKIN | | + | |
| SWEAT GLAND; ADENOMA | | X | |
| FIBROSARCOMA | | X | |
| KERATOACANTHOMA | | X | |
| NEURAL CREST TUMOR; BENIGN | | | |
| PAPILLOMA | | | |
| PLEOMORPHIC FIBROSARCOMA | | X | |
| MUSCULOSKELETAL SYSTEM | | | |
| BONE | | + | |
| OSTEOSARCOMA | | X | |
| BONE, FEMUR | | + | |
| NERVOUS SYSTEM | | | |
| BRAIN | | + | |
| ASTROCYTOMA | | X | |
| GLIOMA | | X | |
| GRANULAR CELL TUMOR; BENIGN | | X | |
| OSTEOSARCOMA; METASTATIC | | X | |

| | | | Male: Core Animals | |
|---|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | ANIMAL ID | S | S | | |
| | | | D | D | | |
| | | | 3 | 7 | 7 | 7 | 6 | 6 | 7 | 6 | 7 | 6 | 7 | 6 | 6 | 3 | 7 | 4 | 6 | 5 | 5 | 6 | 5 | 7 | 6 | 6 | 6 | 6 | 7 | 4 | 7 | 6 | 5 | 6 | 4 | 7 | 3 | 6 |
| | | | 2 | 0 | 1 | 0 | 2 | 5 | 3 | 7 | 3 | 8 | 3 | 3 | 9 | 4 | 4 | 3 | 1 | 6 | 9 | 2 | 6 | 6 | 3 | 9 | 8 | 3 | 3 | 8 | 3 | 5 | 3 | 9 | 8 | 1 | 2 | 8 |
| | | | 2 | 5 | 6 | 9 | 3 | 9 | 1 | 7 | 1 | 3 | 1 | 1 | 6 | 5 | 2 | 0 | 1 | 9 | 3 | 6 | 0 | 0 | 0 | 2 | 3 | 9 | 6 | 0 | 8 | 0 | 1 | 1 | 6 | 2 | 3 | 1 |
| | | | 0 | 0 | |
| | | | 0 | 0 | |
| | | | 1 | 1 | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | |
| REPRODUCTIVE SYSTEM | | | |
| EPIDIDYMIS | | | + | + | | |
| MAMMARY GLAND | | | + | + | | |
| FIBROADENOMA | | | | | | | | | | | | | | | X | | | | | | | | | | | | X | | | | | | | | | | | |
| PREPUTIAL GLAND | | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | | |
| ADENOMA | | | |
| SQUAMOUS CELL CARCINOMA | | | | | | | | | | | | | | | X | |
| PROSTATE | | | + | + | | |
| ADENOMA | | | | | | | | | | | | | | | X | |
| SEMINAL VESICLE | | | + | + | | |
| ADENOMA | | | |
| TESTIS | | | + | + | | |
| LEYDIG CELL ADENOMA | | | | | | | | | | | | | | | X | |
| RESPIRATORY SYSTEM | | | |
| LARYNX | | | + | + | | |
| LUNG | | | + | + | | |
| FIBROSARCOMA; METASTATIC | | | |
| HISTIOCYTIC SARCOMA | | | |
| SQUAMOUS CELL CARCINOMA; METASTATIC | | | |
| NOSE | | | + | + | | |
| SQUAMOUS CELL CARCINOMA | | | |
| TRACHEA | | | + | + | | |

| | | | Male: Core Animals | |
|---|-------------|-----------|--------------------|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | ANIMAL ID | S | S | | | | |
| | | | D | D | | | |
| | | | 3 | 7 | 7 | 7 | 6 | 6 | 7 | 6 | 7 | 6 | 7 | 6 | 3 | 7 | 4 | 6 | 5 | 5 | 6 | 5 | 7 | 6 | 6 | 6 | 6 | 6 | 7 | 4 | 7 | 6 | 5 | 6 | 6 | 4 | 7 | 3 | 6 | 6 |
| | | | 2 | 0 | 1 | 0 | 2 | 5 | 3 | 7 | 3 | 8 | 3 | 3 | 9 | 4 | 4 | 3 | 1 | 6 | 9 | 2 | 6 | 6 | 3 | 9 | 8 | 3 | 3 | 8 | 3 | 5 | 3 | 9 | 8 | 1 | 2 | 2 | 8 | 1 |
| | | | 2 | 5 | 6 | 9 | 3 | 9 | 1 | 7 | 1 | 3 | 1 | 1 | 6 | 5 | 2 | 0 | 1 | 9 | 3 | 6 | 0 | 0 | 0 | 2 | 3 | 9 | 6 | 0 | 8 | 0 | 1 | 1 | 6 | 2 | 3 | 1 | 1 | |
| | | | 0 | 0 | | |
| | | | 0 | 0 | | |
| | | | 1 | 1 | | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| SPECIAL SENSES SYSTEM | | | |
| EYE | | | + | + | | |
| OSTEOSARCOMA; METASTATIC | | | X |
| HARDERIAN GLAND | | | + | + | | |
| OSTEOSARCOMA; METASTATIC | | | X |
| URINARY SYSTEM | | | |
| KIDNEY | | | + | + | | |
| URINARY BLADDER | | | + | + | | |
| PAPILLOMA | | | | X | X | | | | | | X | |
| SYSTEMIC LESIONS | | | |
| Multiple Organ | | | |
| HISTIOCYTIC SARCOMA | | | |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| | | | | | | | | | | | | | | | |
|---|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | <i>S</i> | |
| | | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | <i>D</i> | |
| | | 3 | 7 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 2 | 5 | |
| | | 9 | 3 | 3 | 3 | 6 | 0 | 9 | 3 | 3 | 3 | 4 | 4 | 9 | |
| ANIMAL ID | | 3 | 1 | 1 | 0 | 9 | 2 | 4 | 0 | 1 | 1 | 8 | 1 | 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 | |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |

| | |
|----------------------------|------------------------------|
| ALIMENTARY SYSTEM | |
| ESOPHAGUS | + + + + + + + + + + + + + 50 |
| INTESTINE, LARGE, CECUM | + + + + + + + + + + + + + 50 |
| INTESTINE, LARGE, COLON | + + + + + + + + + + + + + 50 |
| INTESTINE, LARGE, RECTUM | + + + + + + + + + + + + + 50 |
| INTESTINE, SMALL, DUODENUM | + + + + + + + + + + + + + 50 |
| INTESTINE, SMALL, ILEUM | + + + + + + + + + + + + + 50 |
| INTESTINE, SMALL, JEJUNUM | + + + + + + + + + + + + + 50 |
| MESENTERY | 2 |
| PANCREAS | + + + + + + + + + + + + + 49 |
| SALIVARY GLAND | + + + + + + + + + + + + + 50 |
| STOMACH, FORESTOMACH | + + + + + + + + + + + + + 50 |
| STOMACH, GLANDULAR | + + + + + + + + + + + + + 50 |
| CARDIOVASCULAR SYSTEM | |
| AORTA | + + + + + + + + + + + + + 50 |
| HEART | + + + + + + + + + + + + + 50 |

| Male: Core Animals | | | | | | | | | | | | | | | |
|---|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | |
| | | 3 | 7 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 2 | 5 | |
| | | 9 | 3 | 3 | 3 | 6 | 0 | 9 | 3 | 3 | 3 | 4 | 4 | 9 | |
| | | 3 | 1 | 1 | 0 | 9 | 2 | 4 | 0 | 1 | 1 | 8 | 1 | 6 | |
| | ANIMAL ID | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |
| ENDOCRINE SYSTEM | | | | | | | | | | | | | | | |
| ADRENAL GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| BILATERAL; PHEOCHROMOCYTOMA;
MALIGNANT | | | | | | | | | | | | | | | 1 |
| PHEOCHROMOCYTOMA; BENIGN | | | X | | | | | | | | | | | | 3 |
| PHEOCHROMOCYTOMA; MALIGNANT | | | | | | | | X | | | | | | | 4 |
| PANCREATIC ISLET | | | | | | | | | | | | | | | 1 |
| ADENOMA | | | | | | | | | | | | | | | 1 |
| PARATHYROID GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | N | 45 |
| PITUITARY GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| PARS DISTALIS; ADENOMA | | | | | | | | | | | X | X | | X | 11 |
| THYROID GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| C-CELL, BILATERAL; ADENOMA | | | | | | | | | | | | | | | 1 |
| C-CELL; ADENOMA | | | | X | | | | | | | X | | | | 4 |
| FOLLICULAR CELL; ADENOMA | | | | | | | | | X | | | | | | 1 |
| GENERAL BODY SYSTEM | | | | | | | | | | | | | | | |
| NONE | | | | | | | | | | | | | | | |
| HEMATOPOIETIC SYSTEM | | | | | | | | | | | | | | | |
| BONE MARROW | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HISTIOCYTIC SARCOMA | | | | | | X | | | | | | | | | 1 |

| Male: Core Animals | | | | | | | | | | | | | | | |
|---|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | |
| | | 3 | 7 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 2 | 5 | |
| | | 9 | 3 | 3 | 3 | 6 | 0 | 9 | 3 | 3 | 3 | 4 | 4 | 9 | |
| | | 3 | 1 | 1 | 0 | 9 | 2 | 4 | 0 | 1 | 1 | 8 | 1 | 6 | |
| | ANIMAL ID | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |
| HEPATOBILIARY SYSTEM | | | | | | | | | | | | | | | |
| LIVER | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CHOLANGIOMA | | | | | | | | | | X | | | | | 1 |
| HEPATOCELLULAR CARCINOMA | | | | | | | | | | | | | | | 1 |
| HISTIOCYTIC SARCOMA | | | | | | | X | | | | | | | | 1 |
| IMMUNE SYSTEM | | | | | | | | | | | | | | | |
| LYMPH NODE | | | | | | | + | | | | | | | | 1 |
| LUMBAR; HISTIOCYTIC SARCOMA | | | | | | | X | | | | | | | | 1 |
| LYMPH NODE, BRONCHIAL | | + | + | + | + | + | + | + | + | + | + | + | + | + | 43 |
| HISTIOCYTIC SARCOMA | | | | | | | X | | | | | | | | 1 |
| LYMPH NODE, MANDIBULAR | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPH NODE, MEDIASTINAL | | + | + | + | + | + | + | + | + | + | + | + | + | + | 47 |
| HISTIOCYTIC SARCOMA | | | | | | | X | | | | | | | | 1 |
| LYMPH NODE, MESENTERIC | | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| LYMPH NODE, POPLITEAL | | | | | | | | | | | | | | | 1 |
| SPLEEN | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HISTIOCYTIC SARCOMA | | | | | | | X | | | | | | | | 1 |
| THYMUS | | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 |
| HISTIOCYTIC SARCOMA | | | | | | | X | | | | | | | | 1 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| | | | | | | | | | | | | | | | |
|--------------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male | | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| 200 ppm | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| DAY ON TEST | | 3 | 7 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 2 | 5 | |
| | | 9 | 3 | 3 | 3 | 6 | 0 | 9 | 3 | 3 | 3 | 4 | 4 | 9 | |
| | | 3 | 1 | 1 | 0 | 9 | 2 | 4 | 0 | 1 | 1 | 8 | 1 | 6 | |
| ANIMAL ID | | 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 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| SKIN | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SWEAT GLAND; ADENOMA | | | | | | | | | | | | | | | 1 |
| FIBROSARCOMA | | | | | X | | | | X | X | | | | | 7 |
| KERATOACANTHOMA | | | | | | | | | | | | | | | 1 |
| NEURAL CREST TUMOR; BENIGN | | | | | | | | | X | | | | | | 1 |
| PAPILLOMA | | X | | | | | | X | | | | | | | 2 |
| PLEOMORPHIC FIBROSARCOMA | | | | | | | | | | | | | | | 1 |

MUSCULOSKELETAL SYSTEM

| | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| BONE | | | | | | | | | | | | | | | 1 |
| OSTEOSARCOMA | | | | | | | | | | | | | | | 1 |
| BONE, FEMUR | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

NERVOUS SYSTEM

| | | | | | | | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| BRAIN | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ASTROCYTOMA | | | | | | | | | | | | | | | 1 |
| GLIOMA | | | | | | | | | | | | | | | 2 |
| GRANULAR CELL TUMOR; BENIGN | | | | | | | | | | | | | | | 1 |
| OSTEOSARCOMA; METASTATIC | | | | | | | | | | | | | | | 1 |

| Male: Core Animals | | | | | | | | | | | | | | | |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Male
200 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 3 | 7 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 2 | 5 | |
| | | 9 | 3 | 3 | 3 | 6 | 0 | 9 | 3 | 3 | 3 | 4 | 4 | 9 | |
| | ANIMAL ID | 3 | 1 | 1 | 0 | 9 | 2 | 4 | 0 | 1 | 1 | 8 | 1 | 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 | |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |
| REPRODUCTIVE SYSTEM | | | | | | | | | | | | | | | |
| EPIDIDYMIS | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| MAMMARY GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| FIBROADENOMA | | | | | | | | | | | X | | | | 3 |
| PREPUTIAL GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| ADENOMA | | | | | | | | | | | | | | | 1 |
| SQUAMOUS CELL CARCINOMA | | | | | | | | | | | | | | | 1 |
| PROSTATE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOMA | | | | | | | | | | | | | | | 1 |
| SEMINAL VESICLE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOMA | | | | | | | | | | | | | | | 1 |
| TESTIS | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LEYDIG CELL ADENOMA | | | | | | | | | | X | | | | | 2 |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | |
| LARYNX | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LUNG | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| FIBROSARCOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| HISTIOCYTIC SARCOMA | | | | | | | X | | | | | | | | 1 |
| SQUAMOUS CELL CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| NOSE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SQUAMOUS CELL CARCINOMA | | | | | | | | | | | | | | | 1 |
| TRACHEA | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Male: Core Animals

| Harlan Sprague Dawley Rat Male
200 ppm | | | | | | | | | | | | | | | |
|---|-----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| DAY ON TEST | ANIMAL ID | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 3 | 7 | 7 | 7 | 6 | 6 | 6 | 7 | 7 | 7 | 6 | 2 | 5 | |
| | | 9 | 3 | 3 | 3 | 6 | 0 | 9 | 3 | 3 | 3 | 4 | 4 | 9 | |
| ANIMAL ID | | 3 | 1 | 1 | 0 | 9 | 2 | 4 | 0 | 1 | 1 | 8 | 1 | 6 | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | |
| EYE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| OSTEOSARCOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| HARDERIAN GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| OSTEOSARCOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| URINARY SYSTEM | | | | | | | | | | | | | | | |
| KIDNEY | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| URINARY BLADDER | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| PAPILLOMA | | | | | | | | | | | | | | | 3 |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | |
| Multiple Organ | | | | | | | + | | | | | | | | 1 |
| HISTIOCYTIC SARCOMA | | | | | | | X | | | | | | | | 1 |

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

[illegible]

ALIMENTARY SYSTEM

[illegible]

CARDIOVASCULAR SYSTEM

[illegible]

| | | | Female: Core Animals | |
|--|--|--|-----------------------|
| Harlan Sprague Dawley Rat
Female
0 ppm | | | |
| | | | |
| | | | |
| | | | |
| DAY ON TEST | | | S
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7
1 | S
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| ANIMAL ID | | | 0
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| ENDOCRINE SYSTEM | | | |
| ADRENAL GLAND | | | |
| CORTEX; ADENOCARCINOMA | | | |
| CORTEX; ADENOMA | | | |
| PHEOCHROMOCYTOMA; BENIGN | | | |
| PHEOCHROMOCYTOMA; MALIGNANT | | | |
| PANCREATIC ISLET | | | |
| ADENOMA | | | |
| PARATHYROID GLAND | | | |
| PITUITARY GLAND | | | |
| PARS DISTALIS; ADENOMA | | | |
| PARS INTERMEDIA; ADENOMA | | | |
| PARS DISTALIS; CARCINOMA | | | |
| THYROID GLAND | | | |
| C-CELL; ADENOMA | | | |
| C-CELL; CARCINOMA | | | |
| GENERAL BODY SYSTEM | | | |
| NONE | | | |
| HEMATOPOIETIC SYSTEM | | | |
| BONE MARROW | | | |
| LYMPHOMA; MALIGNANT | | | |

| | | | Female: Core Animals | |
|--|--|--|-----------------------|
| Harlan Sprague Dawley Rat
Female
0 ppm | | | |
| | | | |
| | | | |
| | | | |
| DAY ON TEST | | | S
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| ANIMAL ID | | | 0
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2
0 |

| | | | Female: Core Animals | |
|--|-------------|-----------|----------------------|
| Harlan Sprague Dawley Rat
Female
0 ppm | DAY ON TEST | ANIMAL ID | S | S | |
| | | | D | D |
| | | | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 5 | 7 | 7 | 7 | 7 | 7 | 5 | 5 | 4 | 6 | 6 | 7 | 5 | 5 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| | | | 3 | 3 | 9 | 3 | 3 | 7 | 4 | 9 | 6 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 7 | 5 | 3 | 6 | 9 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| | | | 1 | 1 | 0 | 2 | 1 | 6 | 8 | 9 | 6 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | 5 | 7 | 8 | 2 | 2 | 2 | 2 | 1 | 4 | 9 | 1 | 1 | |
| | | | 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 |
| | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | R | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| NERVOUS SYSTEM | | | |
| BRAIN | | | + | + | |
| GRANULAR CELL TUMOR; BENIGN | | | X |
| REPRODUCTIVE SYSTEM | | | |
| CLITORAL GLAND | | | + | + | |
| SQUAMOUS CELL CARCINOMA | | | X |
| MAMMARY GLAND | | | + | | + | |
| ADENOCARCINOMA | | | X |
| ADENOMA | | | X |
| FIBROADENOMA | | | X | | | | | X | X | X | X | X | X | | X | | | X | | X | X | X | | X | X | | X | X | X | X | |
| OVARY | | | + | + | |
| ADENOMA | | | |
| UTERINE CERVIX | | | + | + | |
| UTERUS | | | + | + | |
| ADENOCARCINOMA | | | X |
| POLYP; STROMAL | | | X |
| VAGINA | | | + | + | |

| | | | Female: Core Animals | | |
|--|-------------|-----------|----------------------|--|
| Harlan Sprague Dawley Rat
Female
0 ppm | DAY ON TEST | ANIMAL ID | S | S | | | | | | | | | |
| | | | D | D | | | | | | | | | |
| | | | 7 | 7 | 6 | 7 | 7 | 6 | 6 | 6 | 5 | 7 | 7 | 7 | 7 | 7 | 5 | 5 | 4 | 6 | 6 | 7 | 5 | 5 | 7 | 7 | 7 | 7 | 4 | 6 | 1 | 7 | 3 | 3 | 1 | 1 | 1 | 1 | | | | | | | |
| | | | 3 | 3 | 9 | 3 | 3 | 7 | 4 | 9 | 6 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 3 | 5 | 7 | 5 | 3 | 6 | 9 | 3 | 3 | 2 | 3 | 3 | 1 | 4 | 9 | 1 | 1 | 1 | 2 | 7 | 6 | 7 | 7 | 3 | 3 | 1 | |
| | | | 0 | 0 | |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | |
| | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | R | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | | |
| RESPIRATORY SYSTEM | | | | |
| LARYNX | | | + | + | |
| LUNG | | | + | + | |
| ADENOCARCINOMA; METASTATIC | | | | | | | X | | | | | | | | | | | X | | |
| CARCINOMA; METASTATIC | | | | |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| | | | | | | | | | | | | | | | | |
|--|--|-----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------|
| Harlan Sprague Dawley Rat
Female

0 ppm | | DAY ON TEST | | | | | | | | | | | | | | *TOTALS |
| | | S
D
4
3
0 | S
D
7
0
1 | S
D
7
3
2 | S
D
4
2
9 | S
D
7
3
2 | S
D
7
3
1 | S
D
6
9
6 | S
D
7
3
2 | S
D
6
9
2 | S
D
7
3
2 | S
D
7
3
1 | S
D
7
3
1 | S
D
7
3
1 | | |
| | | 0
0
2
3
8 | 0
0
2
3
9 | 0
0
2
4
0 | 0
0
2
4
1 | 0
0
2
4
2 | 0
0
2
4
3 | 0
0
2
4
4 | 0
0
2
4
4 | 0
0
2
4
4 | 0
0
2
4
4 | 0
0
2
4
4 | 0
0
2
4
4 | 0
0
2
4
4 | 0
0
2
5
0 | |
| | | | | | | | | | | | | | | | | |
| | | ANIMAL ID | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| ALIMENTARY SYSTEM | | | | | | | | | | | | | | | | |
| ESOPHAGUS | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| INTESTINE, LARGE, CECUM | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| INTESTINE, LARGE, COLON | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| INTESTINE, LARGE, RECTUM | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| INTESTINE, SMALL, DUODENUM | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| LYMPHOMA; MALIGNANT | | X | | | | | | | | | | | | | | 1 |
| INTESTINE, SMALL, ILEUM | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| LYMPHOMA; MALIGNANT | | X | | | | | | | | | | | | | | 1 |
| INTESTINE, SMALL, JEJUNUM | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| PANCREAS | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 49 |
| ACINUS; ADENOMA | | | | | | | | | | | | | | | | 1 |
| SALIVARY GLAND | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| STOMACH, FORESTOMACH | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| PAPILLOMA | | | | | | | | | | | | | | | | 1 |
| STOMACH, GLANDULAR | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| CARDIOVASCULAR SYSTEM | | | | | | | | | | | | | | | | |
| AORTA | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |
| HEART | | + + + + + + + + + + + + + + | | | | | | | | | | | | | | 50 |

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

Harlan Sprague Dawley Rat
Female

0 ppm

DAY ON TEST

ANIMAL ID

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| 4 | 7 | 7 | 4 | 7 | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | |
| 3 | 0 | 3 | 2 | 3 | 3 | 9 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| 0 | 1 | 2 | 9 | 2 | 1 | 6 | 2 | 9 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 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 | |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 | |
| 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 | 0 | 0 | *TOTALS |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| ADRENAL GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CORTEX; ADENOCARCINOMA | | | | | | | | | | | | | | | | 1 |
| CORTEX; ADENOMA | | | | | | | | | | | | | | | | 2 |
| PHEOCHROMOCYTOMA; BENIGN | | | | | | | | | | | | | | | | 3 |
| PHEOCHROMOCYTOMA; MALIGNANT | | | | | | | | | | | | | | | | 2 |
| PANCREATIC ISLET | | | | | | | | | | | | | | | | 3 |
| ADENOMA | | | | | | | | | | | | | | | | 1 |
| PARATHYROID GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 |
| PITUITARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| PARS DISTALIS; ADENOMA | | X | | | | | | X | X | X | X | X | | | | 23 |
| PARS INTERMEDIA; ADENOMA | | | | | | | | | | | | | | | | 1 |
| PARS DISTALIS; CARCINOMA | | | | | | | | | | | | | | | | 4 |
| THYROID GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| C-CELL; ADENOMA | | | | | | X | | X | | | | | | | | 12 |
| C-CELL; CARCINOMA | | | | | | | | | | | | | | | | 1 |

GENERAL BODY SYSTEM

NONE

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| BONE MARROW | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPHOMA; MALIGNANT | | | | X | | | | | | | | | | | | 1 |

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

Harlan Sprague Dawley Rat
Female

0 ppm

DAY ON TEST

ANIMAL ID

| S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |
| 4 | 7 | 7 | 4 | 7 | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 3 | 0 | 3 | 2 | 3 | 3 | 9 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 0 | 1 | 2 | 9 | 2 | 1 | 6 | 2 | 9 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| 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 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 |
| 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 | 0 | 0 |

*TOTALS

HEPATOBIILIARY SYSTEM

| | | | | | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| LIVER | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CHOLANGIOMA | | | | | X | | | | | | | | | | 5 |
| LYMPHOMA; MALIGNANT | | | | X | | | | | | | | | | | 1 |

IMMUNE SYSTEM

| | | | | | | | | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|----|
| LYMPH NODE | | | | + | | | | | | | | | | | 2 |
| LYMPH NODE, BRONCHIAL | + | + | + | + | + | + | N | + | + | + | N | + | + | | 37 |
| LYMPHOMA; MALIGNANT | | | | X | | | | | | | | | | | 1 |
| LYMPH NODE, MANDIBULAR | + | + | + | + | + | + | + | + | + | + | N | + | + | | 48 |
| LYMPHOMA; MALIGNANT | | | | X | | | | | | | | | | | 1 |
| LYMPH NODE, MEDIASTINAL | + | + | + | + | + | + | + | N | + | + | + | + | + | | 47 |
| LYMPHOMA; MALIGNANT | | | | X | | | | | | | | | | | 1 |
| LYMPH NODE, MESENTERIC | + | + | + | + | + | + | + | + | + | + | + | + | + | | 50 |
| LYMPHOMA; MALIGNANT | | | | X | | | | | | | | | | | 1 |
| SPLEEN | + | + | + | + | + | + | + | + | + | + | + | + | + | | 50 |
| LYMPHOMA; MALIGNANT | | | | X | | | | | | | | | | | 1 |
| THYMUS | + | + | + | + | + | + | + | + | + | + | + | + | + | | 47 |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|----|
| SKIN | + | + | + | + | + | + | + | + | + | + | + | + | + | | 50 |
| FIBROMA | | | | | | | | | | | | | | | 1 |

MUSCULOSKELETAL SYSTEM

| | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|----|
| BONE, FEMUR | + | + | + | + | + | + | + | + | + | + | + | + | + | | 50 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|----|

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| | | | | | | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat
Female
0 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | *TOTALS |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 4 | 7 | 7 | 4 | 7 | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 7 | |
| | | 3 | 0 | 3 | 2 | 3 | 3 | 9 | 3 | 1 | 3 | 3 | 3 | 3 | |
| | ANIMAL ID | 0 | 1 | 2 | 9 | 2 | 1 | 6 | 2 | 9 | 2 | 1 | 1 | 1 | |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| | | | | | | | | | | | | | | | |

NERVOUS SYSTEM

| | | | | | | | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| BRAIN | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| GRANULAR CELL TUMOR; BENIGN | | | | | | | | | | | | | | | 1 |

REPRODUCTIVE SYSTEM

| | | | | | | | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| CLITORAL GLAND | + | + | + | + | + | + | + | + | + | + | N | + | + | 49 |
| SQUAMOUS CELL CARCINOMA | | | | | | | | | | | | | | 1 |
| MAMMARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| ADENOCARCINOMA | | | | | | | | | | | | | | 5 |
| ADENOMA | | | | | | | | | | | | | | 1 |
| FIBROADENOMA | | X | X | | X | | | X | | | X | X | X | 28 |
| OVARY | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOMA | | | | | | | | | | | | | | 1 |
| UTERINE CERVIX | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| UTERUS | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA | | | | | | | | | | | | | | 1 |
| POLYP; STROMAL | | | | | | | | | | | | | | 5 |
| VAGINA | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

Female: Core Animals

| Harlan Sprague Dawley Rat
Female
0 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | *TOTALS |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 4 | 7 | 7 | 4 | 7 | 7 | 6 | 7 | 6 | 7 | 7 | 7 | 7 | |
| | | 3 | 0 | 3 | 2 | 3 | 3 | 9 | 3 | 1 | 3 | 3 | 3 | 3 | |
| | | 0 | 1 | 2 | 9 | 2 | 1 | 6 | 2 | 9 | 2 | 1 | 1 | 1 | |
| ANIMAL ID | 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 | |
| | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | |
| | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | |
| LARYNX | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LUNG | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | | 2 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| LYMPHOMA; MALIGNANT | | | | | X | | | | | | | | | | 1 |
| NOSE | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| TRACHEA | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | |
| EYE | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HARDERIAN GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ZYMBAL'S GLAND | | | | | | | | | | | | | | | 1 |
| CARCINOMA | | | | | | | | | | | | | | | 1 |
| URINARY SYSTEM | | | | | | | | | | | | | | | |
| KIDNEY | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| AMPHOPHILIC-VACUOLAR
CARCINOMA | | | | | | | | | | | | | | | 1 |
| URINARY BLADDER | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | |
| Multiple Organ | | | | | + | | | | | | | | | | 1 |
| LYMPHOMA | | | | | X | | | | | | | | | | 1 |

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

| Harlan Sprague Dawley Rat
Female
50 ppm | | DAY ON TEST | | ANIMAL ID | |
|---|--|-------------|-----|-----------|
| | | | | |
| | | | | |
| | | 544 | 540 | 522 | 568 | 558 | 573 | 568 | 573 | 570 | 533 | 577 | 555 | 550 | 549 | 551 | 553 | 552 | 556 | 562 | 544 | 571 | 552 | 573 | 573 | 567 | 587 | 571 | 554 | 573 | 573 | 563 | 573 | 563 | 539 |
| | | 002 | 002 | 002 | 002 | 000 | 000 | 000 | 000 | 002 |
| | | 551 | 552 | 553 | 554 | 555 | 556 | 557 | 558 | 559 | 001 | 002 | 003 | 004 | 005 | 006 | 007 | 008 | 009 | 010 | 011 | 012 | 013 | 014 | 015 | 016 | 017 | 018 | 019 | 020 | 021 | 022 | 023 | 024 | 025 |

ALIMENTARY SYSTEM

[illegible]

CARDIOVASCULAR SYSTEM

[illegible]

| Female: Core Animals | | |
|---|-------------|-----------|
| Harlan Sprague Dawley Rat
Female
50 ppm | DAY ON TEST | ANIMAL ID | S | |
| | | | D | |
| | | | 5 | 6 | 5 | 6 | 5 | 7 | 6 | 7 | 7 | 2 | 7 | 7 | 5 | 5 | 4 | 5 | 5 | 7 | 5 | 6 | 4 | 7 | 5 | 7 | 7 | 6 | 3 | 7 | 7 | 5 |
| | | | 4 | 4 | 2 | 8 | 8 | 3 | 8 | 3 | 0 | 0 | 3 | 3 | 5 | 0 | 9 | 1 | 5 | 3 | 0 | 2 | 4 | 1 | 2 | 3 | 3 | 7 | 8 | 1 | 3 | 3 |
| | | | 0 | |
| | | | 0 | |
| | | | 2 | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | |
| ENDOCRINE SYSTEM | | |
| ADRENAL GLAND | | | + | |
| ADENOCARCINOMA; METASTATIC | | | X | |
| CARCINOMA; METASTATIC | | | X | |
| PHEOCHROMOCYTOMA; BENIGN | | | X | |
| PHEOCHROMOCYTOMA; MALIGNANT | | | X | |
| PARATHYROID GLAND | | | + | |
| PITUITARY GLAND | | | + | |
| PARS DISTALIS; ADENOMA | | | X | |
| PARS DISTALIS; CARCINOMA | | | X | |
| THYROID GLAND | | | + | |
| C-CELL, BILATERAL; ADENOMA | | | X | |
| C-CELL; ADENOMA | | | X | |
| C-CELL; CARCINOMA | | | X | |
| GENERAL BODY SYSTEM | | |
| NONE | | |
| HEMATOPOIETIC SYSTEM | | |
| BONE MARROW | | | + | |
| HEPATOBIILIARY SYSTEM | | |
| LIVER | | | + | |
| ADENOCARCINOMA; METASTATIC | | | X | |
| CARCINOMA; METASTATIC | | | X | |
| CHOLANGIOMA | | | X | |
| HISTIOCYTIC SARCOMA | | | X | |

| Female: Core Animals | | | | |
|---|-------------|-----------|--|--|
| Harlan Sprague Dawley Rat
Female
50 ppm | DAY ON TEST | ANIMAL ID | S | | | | |
| | | | D | | | | |
| | | | 5 | 6 | 5 | 6 | 5 | 7 | 6 | 7 | 7 | 2 | 7 | 7 | 5 | 5 | 4 | 5 | 5 | 7 | 5 | 6 | 4 | 7 | 5 | 7 | 7 | 6 | 3 | 7 | 7 | 5 | 6 | 5 | 7 | | | |
| | | | 4 | 4 | 2 | 8 | 8 | 3 | 8 | 3 | 0 | 0 | 3 | 3 | 5 | 0 | 9 | 1 | 5 | 3 | 0 | 2 | 4 | 1 | 2 | 3 | 3 | 7 | 8 | 1 | 3 | 7 | 3 | 4 | 3 | 2 | | |
| | | | 4 | 0 | 2 | 8 | 3 | 1 | 8 | 1 | 3 | 8 | 1 | 2 | 5 | 4 | 1 | 2 | 5 | 2 | 6 | 6 | 2 | 3 | 2 | 1 | 2 | 5 | 7 | 2 | 1 | 4 | 0 | 4 | 2 | | | |
| | | | 0 | | | |
| | | | 0 | | | |
| | | | 2 | | | |
| | | | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | | |
| MUSCULOSKELETAL SYSTEM | | | | |
| BONE | | | + | | |
| BONE, FEMUR | | | + | | | |
| SKELETAL MUSCLE | | | | | | | | | | | | | | | + | | |
| ADENOCARCINOMA; METASTATIC | | | | |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | X | | |
| NERVOUS SYSTEM | | | | |
| BRAIN | | | + | | | |
| GLIOMA | | | | | | | | | | | | | | | | | X | | | | X | | | | | | | | | | | | X | | | | | |

Lab: Battelle with EPL

+

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

| Harlan Sprague Dawley Rat
Female
50 ppm | DAY ON TEST | S | |
|---|-------------|
| | | D | |
| | | 5 | 6 | 5 | 6 | 5 | 7 | 6 | 7 | 7 | 2 | 7 | 7 | 5 | 5 | 4 | 5 | 5 | 7 | 5 | 6 | 4 | 4 | 7 | 5 | 7 | 3 | 7 | 5 | 6 | 5 | 7 | 7 | 6 |
| | ANIMAL ID | 4 | 4 | 2 | 8 | 8 | 3 | 8 | 3 | 0 | 3 | 3 | 5 | 0 | 9 | 1 | 2 | 5 | 3 | 0 | 6 | 2 | 4 | 1 | 2 | 2 | 3 | 7 | 8 | 7 | 4 | 4 | 2 | 3 |
| | | 0 |
| | | 2 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 |

RESPIRATORY SYSTEM

[illegible]

SPECIAL SENSES SYSTEM

[illegible]

URINARY SYSTEM

| |
|--------|
| KIDNEY | + |
|--------|

SYSTEMIC LESIONS

| | |
|---------------------|---|
| Multiple Organ | + |
| HISTIOCYTIC SARCOMA | X |

| Female: Core Animals | | | | | | | | | | | | | | | |
|---|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------|
| Harlan Sprague Dawley Rat
Female
50 ppm | DAY ON TEST | S
D
7
3
1 | S
D
5
4
3 | S
D
4
4
9 | S
D
7
3
2 | S
D
6
1
2 | S
D
7
3
2 | S
D
3
9
0 | S
D
6
8
2 | S
D
7
3
2 | S
D
6
8
1 | S
D
6
6
7 | S
D
7
1
9 | S
D
5
1
7 | *TOTALS |
| | | 0
0
2
8
8 | 0
0
2
8
9 | 0
0
2
9
0 | 0
0
2
9
1 | 0
0
2
9
2 | 0
0
2
9
3 | 0
0
2
9
4 | 0
0
2
9
5 | 0
0
2
9
6 | 0
0
2
9
7 | 0
0
2
9
8 | 0
0
2
9
9 | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| ALIMENTARY SYSTEM | | | | | | | | | | | | | | | |
| ESOPHAGUS | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, CECUM | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, COLON | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, RECTUM | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, DUODENUM | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, ILEUM | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 2 |
| INTESTINE, SMALL, JEJUNUM | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| MESENTERY | | | | | | | | | | | | | | | 4 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | | 2 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| PANCREAS | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ACINUS; ADENOCARCINOMA;
METASTATIC | | | | | | | | | | | | | | | 1 |
| ACINUS; CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 3 |
| ACINUS; HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |
| SALIVARY GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| STOMACH, FORESTOMACH | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| STOMACH, GLANDULAR | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CARDIOVASCULAR SYSTEM | | | | | | | | | | | | | | | |
| AORTA | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HEART | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

Harlan Sprague Dawley Rat
Female
50 ppm

DAY ON TEST

ANIMAL ID

| S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| 7 | 5 | 4 | 7 | 6 | 7 | 3 | 6 | 7 | 6 | 6 | 6 | 7 | 5 | | | |
| 3 | 4 | 4 | 3 | 1 | 3 | 9 | 8 | 3 | 8 | 6 | 1 | 1 | | | | |
| 1 | 3 | 9 | 2 | 2 | 2 | 0 | 2 | 2 | 1 | 7 | 9 | 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 | | | |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | | | | |
| 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | | | | |
| 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | | | *TOTALS |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| ADRENAL GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| PHEOCHROMOCYTOMA; BENIGN | | | | | | | | | | | | | | | 2 |
| PHEOCHROMOCYTOMA; MALIGNANT | | | | | | | | | | | | | | | 1 |
| PARATHYROID GLAND | + | + | + | + | N | + | + | + | + | + | + | + | + | + | 47 |
| PITUITARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| PARS DISTALIS; ADENOMA | X | X | | X | | | | | X | X | X | | | | 15 |
| PARS DISTALIS; CARCINOMA | | | | | | | | | | | | | | | 1 |
| THYROID GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| C-CELL, BILATERAL; ADENOMA | | | | | | | | | | | | | | | 1 |
| C-CELL; ADENOMA | | | | | | X | | X | | X | X | | X | | 12 |
| C-CELL; CARCINOMA | | | | | | | | | | | | | | | 1 |

GENERAL BODY SYSTEM

NONE

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| BONE MARROW | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

HEPATOBIILIARY SYSTEM

| | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| LIVER | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 2 |
| CHOLANGIOMA | | | | | | X | | | | | | | | | 6 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

Harlan Sprague Dawley Rat
Female

50 ppm

DAY ON TEST

ANIMAL ID

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| 7 | 5 | 4 | 7 | 6 | 7 | 3 | 6 | 7 | 6 | 6 | 7 | 5 | | | | |
| 3 | 4 | 4 | 3 | 1 | 3 | 9 | 8 | 3 | 8 | 6 | 1 | 1 | | | | |
| 1 | 3 | 9 | 2 | 2 | 2 | 0 | 2 | 2 | 1 | 7 | 9 | 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 | | | | |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | | | | |
| 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | | | | |
| 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | | | *TOTALS |

IMMUNE SYSTEM

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|----|
| LYMPH NODE | | | | | | | | | | | | | | | | 4 |
| AXILLARY; ADENOCARCINOMA;
METASTATIC | | | | | | | | | | | | | | | | 1 |
| LUMBAR; HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | | 1 |
| LYMPH NODE, BRONCHIAL
CARCINOMA; METASTATIC | + | N | + | + | N | + | + | + | + | + | + | + | + | | | 35 |
| LYMPH NODE, MANDIBULAR | + | + | + | + | + | + | + | + | + | + | + | + | + | | | 49 |
| LYMPH NODE, MEDIASTINAL
ADENOCARCINOMA; METASTATIC | + | + | + | + | + | + | + | + | + | + | + | + | + | | | 49 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | | 2 |
| LYMPH NODE, MESENTERIC
CARCINOMA; METASTATIC | + | + | + | + | + | + | + | + | + | + | + | + | + | | | 50 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | | 3 |
| SPLEEN | + | + | + | + | + | + | + | + | + | + | + | + | + | | | 1 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | | 49 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | | 1 |
| THYMUS | + | N | + | + | + | + | + | + | + | + | + | + | + | | | 1 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | | 46 |
| THYMOMA | | | | | | | | | | | | | | | | 1 |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|--|----|
| SKIN | + | + | + | + | + | + | + | + | + | + | + | + | + | | | 50 |
| FIBROMA | | | | | | | | | | | | | | | | 1 |
| FIBROSARCOMA | | | | | | | | | | | | | | | | 1 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| Harlan Sprague Dawley Rat
Female
50 ppm | | | | | | | | | | | | | | | | |
|---|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----|---------|
| | | S
D
7
3
1 | S
D
5
4
3 | S
D
4
4
9 | S
D
7
3
2 | S
D
6
1
2 | S
D
7
3
2 | S
D
3
9
0 | S
D
6
8
2 | S
D
7
3
2 | S
D
6
8
1 | S
D
6
6
7 | S
D
7
1
9 | S
D
5
1
7 | | |
| DAY ON TEST | | | | | | | | | | | | | | | | |
| | | 0
2
8
8 | 0
2
8
9 | 0
2
9
0 | 0
2
9
1 | 0
2
9
2 | 0
2
9
3 | 0
2
9
4 | 0
2
9
5 | 0
2
9
6 | 0
2
9
7 | 0
2
9
8 | 0
2
9
9 | 0
2
9
0 | | |
| ANIMAL ID | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | *TOTALS |
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | |
| BONE | | | | | | | | | | | | | | | | 1 |
| BONE, FEMUR | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| SKELETAL MUSCLE | | | | | | | | | | | | | | | | 2 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | | | 1 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | | 1 |
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | |
| BRAIN | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| GLIOMA | | | | | | | | | | | | | | | | 3 |

| Female: Core Animals | | | | | | | | | | | | | | | |
|---|-------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------|
| Harlan Sprague Dawley Rat
Female
50 ppm | DAY ON TEST | S
D
7
3
1 | S
D
5
4
3 | S
D
4
4
9 | S
D
7
3
2 | S
D
6
1
2 | S
D
7
3
0 | S
D
3
9
2 | S
D
6
8
2 | S
D
7
3
2 | S
D
6
8
1 | S
D
6
6
7 | S
D
7
1
9 | S
D
5
1
7 | *TOTALS |
| | | 0
0
2
8
8 | 0
0
2
8
9 | 0
0
2
9
0 | 0
0
2
9
1 | 0
0
2
9
2 | 0
0
2
9
3 | 0
0
2
9
4 | 0
0
2
9
5 | 0
0
2
9
6 | 0
0
2
9
7 | 0
0
2
9
8 | 0
0
3
0
0 | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| REPRODUCTIVE SYSTEM | | | | | | | | | | | | | | | |
| CLITORAL GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |
| MAMMARY GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| ADENOCARCINOMA | | X | | | | | | | | | | | | | 7 |
| FIBROADENOMA | | X | | | X | | X | | | | X | X | X | | 27 |
| OVARY | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | | 2 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| UTERINE CERVIX | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |
| UTERUS | | + | + | + | + | + | I | + | + | + | + | + | + | + | 49 |
| ADENOCARCINOMA | | | | | | | | | | | | | | | 7 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |
| POLYP; STROMAL | | | | | | | | | | | | | | | 2 |
| VAGINA | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| | | | | | | | | | | | | | | | |
|---|-------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Harlan Sprague Dawley Rat
Female
50 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 5 | 4 | 7 | 6 | 7 | 3 | 6 | 7 | 6 | 6 | 7 | 5 | |
| | | 3 | 4 | 4 | 3 | 1 | 3 | 9 | 8 | 3 | 8 | 6 | 1 | 1 | |
| ANIMAL ID | | 1 | 3 | 9 | 2 | 2 | 2 | 0 | 2 | 2 | 1 | 7 | 9 | 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 | |
| | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| | | *TOTALS | | | | | | | | | | | | | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |

| | | | | | | | | | | | | | | | |
|----------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | |
| LARYNX | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LUNG | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | | 2 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 2 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |
| SQUAMOUS CELL CARCINOMA | | | | | | | | | | | | | | | 1 |
| NOSE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| TRACHEA | | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |

| | | | | | | | | | | | | | | | |
|-----------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | |
| EYE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HARDERIAN GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ZYMBAL'S GLAND | | | | | | | | | | | | | | | 1 |
| CARCINOMA | | | | | | | | | | | | | | | 1 |

| | | | | | | | | | | | | | | | |
|----------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| URINARY SYSTEM | | | | | | | | | | | | | | | |
| KIDNEY | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |
| URINARY BLADDER | | + | + | + | + | + | + | N | + | + | + | + | + | + | 46 |

| | | | | | | | | | | | | | | | |
|---------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | |
| Multiple Organ | | | | | | | | | | | | | | | 1 |
| HISTIOCYTIC SARCOMA | | | | | | | | | | | | | | | 1 |

| Female: Core Animals | |
|--|-------------|
| Harlan Sprague Dawley Rat
Female
100 ppm | DAY ON TEST | S | |
| | | D | |
| | | 6 | 7 | 7 | 7 | 7 | 5 | 2 | 6 | 4 | 5 | 3 | 7 | 7 | 7 | 3 | 4 | 5 | 5 | 5 | 7 | 2 | 5 | 6 | 6 | 6 | 5 | 7 | 4 | 6 | 7 | 7 | 5 | 4 |
| | | 9 | 2 | 3 | 3 | 3 | 0 | 6 | 7 | 3 | 1 | 9 | 3 | 3 | 3 | 9 | 4 | 7 | 3 | 4 | 3 | 9 | 2 | 0 | 1 | 9 | 2 | 1 | 8 | 1 | 3 | 3 | 9 | 2 |
| | ANIMAL ID | 0 |
| | 0 | 0 | |
| | 3 | 3 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 |
| ALIMENTARY SYSTEM | |
| ESOPHAGUS | + |
| INTESTINE, LARGE, CECUM | + |
| INTESTINE, LARGE, COLON | + |
| INTESTINE, LARGE, RECTUM | + |
| INTESTINE, SMALL, DUODENUM | + |
| INTESTINE, SMALL, ILEUM | + |
| INTESTINE, SMALL, JEJUNUM | + |
| PANCREAS | + |
| SALIVARY GLAND | + |
| CARCINOMA; METASTATIC | X |
| STOMACH, FORESTOMACH | + |
| STOMACH, GLANDULAR | + |
| CARDIOVASCULAR SYSTEM | |
| AORTA | + |
| HEART | + |
| HEMANGIOMA | X |

Lab: Battelle with EPL

| Female: Core Animals | | | | |
|--|-------------|-----------------------|---|---|
| Harlan Sprague Dawley Rat
Female
100 ppm | DAY ON TEST | S
D
6
5
9 | S
D
7
3
2 | S
D
7
3
1 | S
D
7
3
2 | S
D
7
3
2 | S
D
5
0
5 | S
D
2
6
4 | S
D
6
7
1 | S
D
4
3
6 | S
D
5
1
6 | S
D
3
9
3 | S
D
7
3
1 | S
D
7
3
2 | S
D
7
3
2 | S
D
3
9
3 | S
D
4
4
9 | S
D
5
7
2 | S
D
5
4
4 | S
D
7
3
1 | S
D
2
5
8 | S
D
6
0
1 | S
D
6
1
4 | S
D
6
9
1 | S
D
5
2
1 | S
D
7
1
7 | S
D
4
8
7 | S
D
6
1
4 | S
D
7
3
1 | S
D
7
3
1 | S
D
5
9
2 | S
D
4
2
2 | S
D
7
3
2 | S
D
5
8
4 | S
D
5
7
2 | S
D
7
0
8 | | | | |
| | | 0
0
3
0
1 | 0
0
3
0
2 | 0
0
3
0
3 | 0
0
3
0
4 | 0
0
3
0
5 | 0
0
3
0
6 | 0
0
3
0
7 | 0
0
3
0
8 | 0
0
3
0
9 | 0
0
3
0
0 | 0
0
3
1
1 | 0
0
3
1
2 | 0
0
3
1
3 | 0
0
3
1
4 | 0
0
3
1
5 | 0
0
3
1
6 | 0
0
3
1
7 | 0
0
3
1
8 | 0
0
3
1
9 | 0
0
3
2
0 | 0
0
3
2
1 | 0
0
3
2
2 | 0
0
3
2
3 | 0
0
3
2
4 | 0
0
3
2
5 | 0
0
3
2
6 | 0
0
3
2
7 | 0
0
3
2
8 | 0
0
3
3
9 | 0
0
3
3
0 | 0
0
3
3
1 | 0
0
3
3
2 | 0
0
3
3
3 | 0
0
3
3
4 | 0
0
3
3
5 | 0
0
3
3
6 | 0
0
3
3
7 | | |
| | | | | |
| | | | | |
| IMMUNE SYSTEM | | | | |
| LYMPH NODE | | + | | |
| LYMPH NODE, BRONCHIAL | | + | + | + | + | + | + | + | N | + | N | + | + | + | + | + | N | N | + | + | N | N | N | N | + | + | + | + | N | N | + | + | + | + | N | N | N | + | | |
| LYMPH NODE, MANDIBULAR | | + | + | |
| LYMPH NODE, MEDIASTINAL | | + | N | + | + | + | + | + | + | + | + | + | + | + | + | N | + | + | + | + | + | N | N | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| LYMPH NODE, MESENTERIC | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | N | + | |
| SPLEEN | | + | + | + | + | + | + | + | + | + | A | + | |
| THYMUS | | + | N | + | + | + |
| INTEGUMENTARY SYSTEM | | | | |
| SKIN | | + | + | + |
| FIBROSARCOMA | | | | |
| MUSCULOSKELETAL SYSTEM | | | | |
| BONE, FEMUR | | + | + | + |
| NERVOUS SYSTEM | | | | |
| BRAIN | | + | + | + |
| ASTROCYTOMA | | | X | X | | | | | | X | | | | | | |
| GRANULAR CELL TUMOR; BENIGN | | | | | | | | | | | | | | | | | | X | | |

| | | | Female: Core Animals | |
|--|-------------|-----------|----------------------|
| Harlan Sprague Dawley Rat
Female
100 ppm | DAY ON TEST | ANIMAL ID | S | S | | |
| | | | D | D | |
| | | | 6 | 7 | 7 | 7 | 7 | 5 | 2 | 6 | 4 | 5 | 3 | 7 | 7 | 7 | 3 | 4 | 5 | 5 | 5 | 7 | 2 | 5 | 6 | 6 | 6 | 5 | 7 | 4 | 6 | 7 | 5 |
| | | | 5 | 3 | 3 | 3 | 3 | 0 | 6 | 7 | 3 | 1 | 9 | 3 | 3 | 3 | 9 | 4 | 7 | 3 | 4 | 3 | 9 | 2 | 0 | 1 | 9 | 2 | 1 | 8 | 7 | 3 | 7 |
| | | | 9 | 2 | 1 | 2 | 2 | 5 | 4 | 1 | 6 | 6 | 3 | 1 | 2 | 2 | 3 | 9 | 2 | 2 | 4 | 1 | 5 | 8 | 1 | 4 | 1 | 1 | 7 | 4 | 1 | 2 | 2 |
| | | | 0 | 0 | |
| | | | 0 | 0 | |
| | | | 3 | 3 | |
| | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| REPRODUCTIVE SYSTEM | | | |
| CLITORAL GLAND | | | + | + | | |
| MAMMARY GLAND | | | + | + | |
| ADENOCARCINOMA | | | | | | | | X | | | | X | | X | X | X | | | | | X | X | | | | | X | | | | X | | |
| ADENOMA | | | X | X | | | | | | | | X | | | | | | | | | | X | | | | | | | | | | | |
| FIBROADENOMA | | | X | X | X | X | X | | X | | | X | X | X | | | X | X | X | X | | | X | | | X | | X | X | X | X | X | |
| OVARY | | | + | + | |
| GRANULOSA CELL TUMOR;
MALIGNANT | | | | | | | | | | | X | |
| UTERINE CERVIX | | | + | + | |
| UTERUS | | | + | + | |
| ADENOCARCINOMA | | | | | | X | |
| HEMANGIOMA | | | | | | | X | |
| HEMANGIOSARCOMA | | | | X | | | | |
| POLYP; STROMAL | | | | | | X | | | | | | | | | | | X | | | | | | | | | | | | | | | | |
| SQUAMOUS CELL CARCINOMA | | | | X | | | | | |
| VAGINA | | | + | + | |
| RESPIRATORY SYSTEM | | | |
| LARYNX | | | + | + | | |
| LUNG | | | + | + | |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | X | |
| CYSTIC KERATINIZING EPITHELIOMA | | | | X | |
| NOSE | | | + | + | |
| TRACHEA | | | + | + | |

| Female: Core Animals | |
|--|-------------|
| Harlan Sprague Dawley Rat
Female
100 ppm | DAY ON TEST | S | |
| | | D | |
| | | 6 | 7 | 7 | 7 | 7 | 5 | 2 | 6 | 4 | 5 | 3 | 7 | 7 | 7 | 3 | 4 | 5 | 5 | 5 | 7 | 2 | 5 | 6 | 6 | 6 | 5 | 7 | 4 | 6 | 7 | 7 | 5 | 4 | 7 |
| | | 5 | 3 | 3 | 3 | 3 | 0 | 6 | 7 | 3 | 1 | 9 | 3 | 3 | 3 | 3 | 9 | 4 | 7 | 3 | 4 | 3 | 9 | 2 | 0 | 1 | 9 | 2 | 1 | 8 | 1 | 3 | 3 | 9 | 2 |
| | | 9 | 2 | 1 | 2 | 2 | 5 | 4 | 1 | 6 | 6 | 3 | 1 | 2 | 2 | 3 | 9 | 2 | 2 | 4 | 1 | 5 | 8 | 1 | 4 | 1 | 1 | 7 | 7 | 4 | 1 | 1 | 2 | 2 | 2 |
| ANIMAL ID | 0 | 0 | |
| | 0 | 0 | |
| | 3 | 3 | |
| | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | |
| SPECIAL SENSES SYSTEM | |
| EYE | | + | |
| IRIS; MELANOMA | | X | |
| HARDERIAN GLAND | | + | |
| LACRIMAL GLAND | | + | |
| URINARY SYSTEM | |
| KIDNEY | | + | |
| URINARY BLADDER | | + | |
| SYSTEMIC LESIONS | |
| Multiple Organ | | + | |
| HEMANGIOSARCOMA | | X | |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| | | | | | | | | | | | | | | | |
|--|-------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Harlan Sprague Dawley Rat
Female
100 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 5 | 3 | 7 | 4 | 7 | 4 | 6 | 5 | 4 | 5 | 6 | 6 | |
| | | 3 | 8 | 8 | 0 | 5 | 3 | 7 | 4 | 4 | 7 | 5 | 4 | 3 | |
| ANIMAL ID | | 2 | 5 | 2 | 2 | 9 | 1 | 9 | 5 | 4 | 6 | 1 | 8 | 5 | |
| | | 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 | |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| | | *TOTALS | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| ESOPHAGUS | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, CECUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, COLON | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, RECTUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, DUODENUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, ILEUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, JEJUNUM | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| PANCREAS | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SALIVARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CARCINOMA; METASTATIC | | | | | | | | | | | | | | | 1 |
| STOMACH, FORESTOMACH | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| STOMACH, GLANDULAR | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

CARDIOVASCULAR SYSTEM

| | | | | | | | | | | | | | | | |
|------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| AORTA | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| HEART | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| HEMANGIOMA | | | | | | | | | | | | | | | 1 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| | | | | | | | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|--|---------|
| Harlan Sprague Dawley Rat
Female
100 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | | |
| | | 7 | 5 | 3 | 7 | 4 | 7 | 4 | 6 | 5 | 4 | 5 | 6 | 6 | | |
| | | 3 | 8 | 8 | 0 | 5 | 3 | 7 | 4 | 4 | 7 | 5 | 4 | 3 | | |
| ANIMAL ID | | 2 | 5 | 2 | 2 | 9 | 1 | 9 | 5 | 4 | 6 | 1 | 8 | 5 | | *TOTALS |
| | | 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 | | |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

ENDOCRINE SYSTEM

| | | | | | | | | | | | | | | | |
|-----------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| ADRENAL GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| CORTEX; ADENOMA | | | | | X | | | | | | | | | | 1 |
| PHEOCHROMOCYTOMA; BENIGN | | | | | | | | | | | | | | | 1 |
| PHEOCHROMOCYTOMA; MALIGNANT | | | | | | | | | | | | | | | 2 |
| PARATHYROID GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| PITUITARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 48 |
| PARS DISTALIS; ADENOMA | | X | | X | | | | X | | | | | | | 13 |
| PARS DISTALIS; CARCINOMA | | | | | | | | | | | | | | | 1 |
| PARS NERVOSA; GLIOMA | | | | | | | | | | | | | | | 1 |
| THYROID GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| C-CELL; ADENOMA | X | | | X | | X | | X | | | | | | | 9 |
| FOLLICULAR CELL; ADENOMA | | | | | | | | | | | | | | | 1 |

GENERAL BODY SYSTEM

| | | | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| NONE | | | | | | | | | | | | | | | |
|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

HEMATOPOIETIC SYSTEM

| | | | | | | | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| BONE MARROW | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|

HEPATOBIILIARY SYSTEM

| | | | | | | | | | | | | | | | |
|------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| LIVER | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| CHOLANGIOMA | | | | | | | | | X | | | | | | 6 |
| HEPATOCELLULAR ADENOMA | | | | | | | | X | | | | | | | 1 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| | | | | | | | | | | | | | | | |
|--|-------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|--|
| Harlan Sprague Dawley Rat
Female
100 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 5 | 3 | 7 | 4 | 7 | 4 | 6 | 5 | 4 | 5 | 6 | 6 | |
| | | 3 | 8 | 8 | 0 | 5 | 3 | 7 | 4 | 4 | 7 | 5 | 4 | 3 | |
| ANIMAL ID | | 2 | 5 | 2 | 2 | 9 | 1 | 9 | 5 | 4 | 6 | 1 | 8 | 5 | |
| | | 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 | |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | |
| | | *TOTALS | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | |
|-------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| IMMUNE SYSTEM | | | | | | | | | | | | | | | |
| LYMPH NODE | | | | | | | | | | | | | | | 1 |
| LYMPH NODE, BRONCHIAL | | N | + | + | + | + | + | + | N | + | N | + | + | + | 34 |
| LYMPH NODE, MANDIBULAR | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LYMPH NODE, MEDIASTINAL | | + | + | + | + | + | + | + | + | + | N | + | + | + | 45 |
| LYMPH NODE, MESENTERIC | | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| SPLEEN | | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| THYMUS | | + | + | + | + | + | + | + | + | N | + | + | + | + | 48 |

| | | | | | | | | | | | | | | | |
|----------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| INTEGUMENTARY SYSTEM | | | | | | | | | | | | | | | |
| SKIN | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| FIBROSARCOMA | | | | | | | | X | | | | | | | 1 |

| | | | | | | | | | | | | | | | |
|------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | |
| BONE, FEMUR | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

| | | | | | | | | | | | | | | | |
|-----------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| NERVOUS SYSTEM | | | | | | | | | | | | | | | |
| BRAIN | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ASTROCYTOMA | | | | | | | | | | | | | | | 3 |
| GRANULAR CELL TUMOR; BENIGN | | | | | | | | | | | | | | | 1 |

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

Harlan Sprague Dawley Rat
Female

100 ppm

DAY ON TEST

ANIMAL ID

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S | S | S | S | S | S | S | S | S | S | S | S | S | S | S |
| D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |
| 7 | 5 | 3 | 7 | 4 | 7 | 4 | 6 | 5 | 4 | 5 | 6 | 6 | 6 | 6 |
| 3 | 8 | 8 | 0 | 5 | 3 | 7 | 4 | 4 | 7 | 5 | 4 | 3 | 3 | 3 |
| 2 | 5 | 2 | 2 | 9 | 1 | 9 | 5 | 4 | 6 | 1 | 8 | 5 | 5 | 5 |
| 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 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 5 |
| 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 0 | 0 |

*TOTALS

REPRODUCTIVE SYSTEM

| | | | | | | | | | | | | | | |
|------------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| CLITORAL GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| MAMMARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA | | | | X | | | | X | | | | | | 11 |
| ADENOMA | | | X | | | | | | | | | | | 5 |
| FIBROADENOMA | | X | | | | X | | X | | | X | X | | 28 |
| OVARY | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| GRANULOSA CELL TUMOR;
MALIGNANT | | | | | | | | | | | | | | 1 |
| UTERINE CERVIX | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| UTERUS | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA | | | | | | X | | | | | X | | | 3 |
| HEMANGIOMA | | | | | | | | | | | | | | 1 |
| HEMANGIOSARCOMA | | | | | | | | | | | | | | 1 |
| POLYP; STROMAL | | X | | | | | | X | | | | | | 4 |
| SQUAMOUS CELL CARCINOMA | | | | | | | | | | | | | | 1 |
| VAGINA | + | + | + | | + | + | + | + | + | + | + | + | + | 49 |

RESPIRATORY SYSTEM

| | | | | | | | | | | | | | | |
|---------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| LARYNX | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LUNG | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | 1 |
| CYSTIC KERATINIZING EPITHELIOMA | | | | | | | | | | | | | | 1 |
| NOSE | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| TRACHEA | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| | | | | | | | | | | | | | | | |
|----------------------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat Female | | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| 100 ppm | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 7 | 5 | 3 | 7 | 4 | 7 | 4 | 6 | 5 | 4 | 5 | 6 | 6 | |
| | | 3 | 8 | 8 | 0 | 5 | 3 | 7 | 4 | 4 | 7 | 5 | 4 | 3 | |
| DAY ON TEST | | 2 | 5 | 2 | 2 | 9 | 1 | 9 | 5 | 4 | 6 | 1 | 8 | 5 | |
| | | 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 | |
| ANIMAL ID | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| | | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | *TOTALS |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | |
| EYE | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| IRIS; MELANOMA | | | | | | | | | | | | | | | 1 |
| HARDERIAN GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LACRIMAL GLAND | | | | | | | | | | | | | | | 1 |
| URINARY SYSTEM | | | | | | | | | | | | | | | |
| KIDNEY | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| URINARY BLADDER | | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SYSTEMIC LESIONS | | | | | | | | | | | | | | | |
| Multiple Organ | | | | | | | | | | | | | | | 1 |
| HEMANGIOSARCOMA | | | | | | | | | | | | | | | 1 |

Lab: Battelle with EPL

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

[illegible]

CARDIOVASCULAR SYSTEM

[illegible]

ENDOCRINE SYSTEM

[illegible]

GENERAL BODY SYSTEM

NONE

HEMATOPOIETIC SYSTEM

[illegible]

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

[illegible]

HEPATOBILIARY SYSTEM

[illegible]

IMMUNE SYSTEM

[illegible]

INTEGUMENTARY SYSTEM

[illegible]

Species/Strain: Rat/Harlan Sprague Dawley

Final

Lab: Battelle with EPL

Female: Core Animals

| Harlan Sprague Dawley Rat
Female
200 ppm | | DAY ON TEST | | | | | | | | | | | | | | | | | | | | ANIMAL ID | | | | | | | | | | | | | | | | | | | |
|--|--|-------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|--|--|--|--|--|
| | | SD731 | SD276 | SD436 | SD392 | SD693 | SD436 | SD262 | SD469 | SD354 | SD653 | SD340 | SD731 | SD250 | SD488 | SD382 | SD503 | SD422 | SD641 | SD488 | SD452 | SD493 | SD637 | SD331 | SD434 | SD660 | SD457 | SD674 | SD731 | SD460 | SD516 | SD011 | SD606 | SD662 | SD628 | | | | | | |
| | | 0051 | 0052 | 0033 | 0035 | 0055 | 0033 | 0056 | 0037 | 0000 | 0033 | 0036 | 0001 | 0036 | 0066 | 0036 | 0007 | 0036 | 0077 | 0037 | 0077 | 0037 | 0077 | 0036 | 0045 | 0077 | 0088 | 0011 | 0088 | 0033 | 0088 | 0044 | 0000 | 0088 | 0033 | 0088 | | | | | |

MUSCULOSKELETAL SYSTEM

[illegible]

NERVOUS SYSTEM

[illegible]

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

[illegible]

REPRODUCTIVE SYSTEM

[illegible]

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

[illegible]

RESPIRATORY SYSTEM

[illegible]

SPECIAL SENSES SYSTEM

[illegible]

URINARY SYSTEM

[illegible]

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

Harlan Sprague Dawley Rat
Female

200 ppm

DAY ON TEST

ANIMAL ID

| S | S | S | S | S | S | S | S | S | S | S | S | S | S | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |
| 5 | 4 | 5 | 5 | 4 | 7 | 3 | 4 | 5 | 5 | 4 | 6 | 3 | | |
| 9 | 6 | 1 | 9 | 8 | 3 | 1 | 7 | 2 | 6 | 8 | 6 | 6 | | |
| 0 | 0 | 5 | 3 | 8 | 1 | 8 | 2 | 9 | 2 | 0 | 7 | 5 | | |
| 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 | | |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | | |
| 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | | |
| 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |

*TOTALS

ALIMENTARY SYSTEM

| | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| ESOPHAGUS | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, CECUM | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, LARGE, COLON | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SQUAMOUS CELL CARCINOMA;
METASTATIC | | | | | | | | | | | | | | 1 |
| INTESTINE, LARGE, RECTUM | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, DUODENUM | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, ILEUM | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| INTESTINE, SMALL, JEJUNUM | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | X | | 1 |
| MESENTERY | | | | | | | | | | | | + | | 2 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | X | | 1 |
| SQUAMOUS CELL CARCINOMA;
METASTATIC | | | | | | | | | | | | | | 1 |
| PANCREAS | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ACINUS; ADENOCARCINOMA;
METASTATIC | | | | | | | | | | | | X | | 1 |
| ACINUS; SQUAMOUS CELL
CARCINOMA; METASTATIC | | | | | | | | | | | | | | 1 |
| SALIVARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| STOMACH, FORESTOMACH | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | X | | 1 |
| STOMACH, GLANDULAR | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | X | | 1 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| | | | | | | | | | | | | | | | | |
|--|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| Harlan Sprague Dawley Rat
Female
200 ppm | DAY ON TEST | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | S
D | *TOTALS |
| | | 5 | 4 | 5 | 5 | 4 | 7 | 3 | 4 | 5 | 5 | 4 | 6 | 3 | | |
| | | 9 | 6 | 1 | 9 | 8 | 3 | 1 | 7 | 2 | 6 | 8 | 6 | 6 | | |
| | | 0 | 0 | 5 | 3 | 8 | 1 | 8 | 2 | 9 | 2 | 0 | 7 | 5 | | |
| ANIMAL ID | | 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 | |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |

| | |
|----------------------------|------------------------------|
| CARDIOVASCULAR SYSTEM | |
| AORTA | + + + + + + + + + + + + + 50 |
| HEART | + + + + + + + + + + + + + 50 |
| ADENOCARCINOMA; METASTATIC | 2 |

| | |
|-----------------------------|------------------------------|
| ENDOCRINE SYSTEM | |
| ADRENAL GLAND | + + + + + + + + + + + + + 50 |
| ADENOCARCINOMA; METASTATIC | X 1 |
| PHEOCHROMOCYTOMA; BENIGN | 1 |
| PHEOCHROMOCYTOMA; MALIGNANT | 1 |
| PARATHYROID GLAND | + + + + + N + + + + + + + 48 |
| PITUITARY GLAND | + + + + + + + + + + + + + 50 |
| PARS DISTALIS; ADENOMA | X X X 8 |
| THYROID GLAND | + + + + + + + + + + + + + 50 |
| ADENOCARCINOMA; METASTATIC | X 1 |
| C-CELL, BILATERAL; ADENOMA | 1 |
| C-CELL; ADENOMA | X X 6 |
| C-CELL; CARCINOMA | 1 |

| | |
|---------------------|--|
| GENERAL BODY SYSTEM | |
| NONE | |

| | |
|----------------------|------------------------------|
| HEMATOPOIETIC SYSTEM | |
| BONE MARROW | + + + + + + + A + + + + + 48 |

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

Harlan Sprague Dawley Rat
Female

200 ppm

DAY ON TEST

ANIMAL ID

| S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | D | D | D | D | D | D | D | D | D | D | D | D | D | D | D |
| 5 | 4 | 5 | 5 | 4 | 7 | 3 | 4 | 5 | 5 | 4 | 6 | 3 | | | |
| 9 | 6 | 1 | 9 | 8 | 3 | 1 | 7 | 2 | 6 | 8 | 6 | 6 | | | |
| 0 | 0 | 5 | 3 | 8 | 1 | 8 | 2 | 9 | 2 | 0 | 7 | 5 | | | |
| 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 | | | |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | | | |
| 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | | | |
| 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | | |

*TOTALS

HEPATOBIILIARY SYSTEM

| | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| LIVER | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | X | | 1 |
| HEPATOCELLULAR ADENOMA | | | | | | | | | | | | | | | 1 |
| SQUAMOUS CELL CARCINOMA;
METASTATIC | | | | | | | | | | | | | | | 1 |

IMMUNE SYSTEM

| | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| LYMPH NODE, BRONCHIAL | + | + | + | N | + | + | + | N | + | + | + | + | + | + | 42 |
| LYMPH NODE, MANDIBULAR | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 46 |
| LYMPH NODE, MEDIASTINAL | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | X | | 1 |
| LYMPH NODE, MESENTERIC | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SPLEEN | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | X | | 1 |
| SQUAMOUS CELL CARCINOMA;
METASTATIC | | | | | | | | | | | | | | | 1 |
| THYMUS | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | X | X | 2 |

INTEGUMENTARY SYSTEM

| | | | | | | | | | | | | | | | |
|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| SKIN | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| FIBROMA | | | | | | X | | | | | | | | | 2 |

Study Number: C20302B-03
Test Type: TOX
Route: Whole-Body Inhalation
Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal
Test Compound: alpha-Pinene
CAS Number: 80-56-8
Final

Date Report Requested: 06/03/2024
Time Report Requested: 10:56:23
Lab: Battelle with EPL

Female: Core Animals

| | | | | | | | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---------|
| Harlan Sprague Dawley Rat
Female
200 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | S | |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 5 | 4 | 5 | 5 | 4 | 7 | 3 | 4 | 5 | 5 | 4 | 6 | 3 | | |
| | | 9 | 6 | 1 | 9 | 8 | 3 | 1 | 7 | 2 | 6 | 8 | 6 | 6 | | |
| ANIMAL ID | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | *TOTALS |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | | |
| | | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | | |
| | | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |

| | | | | | | | | | | | | | | | | |
|--|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| MUSCULOSKELETAL SYSTEM | | | | | | | | | | | | | | | | |
| BONE, FEMUR | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| SKELETAL MUSCLE | | | | | | | | | | | | | | + | | 3 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | | | X | | 1 |
| FIBROSARCOMA | | | | | | | | | | | | | | | | 1 |
| SQUAMOUS CELL CARCINOMA;
METASTATIC | | | | | | | | | | | | | | | | 1 |

| | | | | | | | | | | | | | | | | |
|----------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| NERVOUS SYSTEM | | | | | | | | | | | | | | | | |
| BRAIN | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| GLIOMA | | | | | | | X | | | | | | | | | 1 |
| SARCOMA | | | | | | | | | | | | | | | | 1 |

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

Female: Core Animals

Harlan Sprague Dawley Rat
Female
200 ppm

DAY ON TEST

ANIMAL ID

| <i>S</i>
<i>D</i>
5
9
0 | <i>S</i>
<i>D</i>
4
6
0 | <i>S</i>
<i>D</i>
5
1
5 | <i>S</i>
<i>D</i>
5
9
3 | <i>S</i>
<i>D</i>
4
8
8 | <i>S</i>
<i>D</i>
7
3
1 | <i>S</i>
<i>D</i>
3
1
8 | <i>S</i>
<i>D</i>
4
5
2 | <i>S</i>
<i>D</i>
5
5
6 | <i>S</i>
<i>D</i>
4
8
7 | <i>S</i>
<i>D</i>
6
6
7 | <i>S</i>
<i>D</i>
6
6
9 | <i>S</i>
<i>D</i>
3
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 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |
| 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 |
| 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| *TOTALS | | | | | | | | | | | | |

REPRODUCTIVE SYSTEM

| | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| CLITORAL GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| SQUAMOUS CELL CARCINOMA | | | | | | | | | | | | | | 1 |
| MAMMARY GLAND | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA | | X | X | | | X | X | | | X | X | X | X | 25 |
| FIBROADENOMA | X | | X | X | X | | | | | X | | | | 23 |
| OVARY | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | X | | 1 |
| LEIOMYOMA | | | | | | | | | | | | | | 1 |
| SQUAMOUS CELL CARCINOMA;
METASTATIC | | | | | | | | | | | | | | 1 |
| UTERINE CERVIX | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |
| LEIOMYOSARCOMA | | | X | | | | | | | | | | | 1 |
| UTERUS | + | + | + | + | + | + | + | + | + | + | + | + | + | 49 |
| ADENOCARCINOMA | | | | | | | | | | | | X | | 4 |
| POLYP; STROMAL | | | | | | X | X | | | X | | | | 8 |
| SQUAMOUS CELL CARCINOMA | | | | | | | | | | | | | | 3 |
| VAGINA | + | + | + | + | + | + | + | + | + | + | + | + | + | 50 |

| Female: Core Animals | | | | | | | | | | | | | | | |
|--|-------------|---|---|---|---|---|---|---|---|---|---|---|---|----|---------|
| Harlan Sprague Dawley Rat
Female
200 ppm | DAY ON TEST | S | S | S | S | S | S | S | S | S | S | S | S | S | *TOTALS |
| | | D | D | D | D | D | D | D | D | D | D | D | D | D | |
| | | 5 | 4 | 5 | 5 | 4 | 7 | 3 | 4 | 5 | 5 | 4 | 6 | 3 | |
| | | 9 | 6 | 1 | 9 | 8 | 3 | 1 | 7 | 2 | 6 | 8 | 6 | 6 | |
| | | 0 | 0 | 5 | 3 | 8 | 1 | 8 | 2 | 9 | 2 | 0 | 7 | 5 | |
| ANIMAL ID | 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 | |
| | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | | |
| | 8 | 8 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 0 | | |
| | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | | |
| RESPIRATORY SYSTEM | | | | | | | | | | | | | | | |
| LARYNX | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| LUNG | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| ADENOCARCINOMA; METASTATIC | | | | | | | | | | | | X | X | 7 | |
| LEIOMYOMA | | | | | | | X | | | | | | | 1 | |
| NOSE | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| TRACHEA | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| SPECIAL SENSES SYSTEM | | | | | | | | | | | | | | | |
| EYE | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| HARDERIAN GLAND | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| URINARY SYSTEM | | | | | | | | | | | | | | | |
| KIDNEY | | + | + | + | + | + | + | + | + | + | + | + | + | 50 | |
| AMPHOPHILIC-VACUOLAR
CARCINOMA | | | | | | | | | | | | | | 1 | |
| URINARY BLADDER | | + | + | + | + | + | + | + | + | + | + | + | + | 49 | |

Study Number: C20302B-03

Test Type: TOX

Route: Whole-Body Inhalation

Species/Strain: Rat/Harlan Sprague Dawley

PA04: Neoplasms By Individual Animal

Test Compound: alpha-Pinene

CAS Number: 80-56-8

Final

Date Report Requested: 06/03/2024

Time Report Requested: 10:56:23

Lab: Battelle with EPL

LEGEND

*TOTAL = Total animals with tissue examined microscopically: Total animals with a tumor.

+ = Tissue examined microscopically

X = Lesion present

A = Autolysis precludes evaluation

I = Insufficient tissue

M = Missing slides

N = No section present

P = Artifact precludes examination

R = Not examined read-down

BLANK = Not examined microscopically

**** END OF REPORT ****