Test Type: 18-33 DAYS **Route:** RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/BALB/C

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: 2,3 butanedione **CAS Number:** 431-03-8

First Dose M/F: NA / NA

Date Report Requested: 10/23/2014

Time Report Requested: 14:04:20

Lab: VCU

C Number: 120606

Lock Date: 02/12/2009

Cage Range: All

Date Range: All

Reasons For Removal:

Removal Date Range: All

Treatment Groups: All

Study Gender: Female

PWG Approval Date NONE

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: 2,3 butanedione **CAS Number:** 431-03-8

Route: RESPIRATORY EXPOSURE WHOLE BODY Species/Strain: Mouse/BALB/C

Test Type: 18-33 DAYS

First Dose M/F: NA / NA Lab: VCU

Date Report Requested: 10/23/2014

Time Report Requested: 14:04:20

BALB/C Mouse Female Air Control	AY ON TEST	0 0 2 5 0 0 0 0 6	0 0 2 5 0 0 0 0 7	0 0 2 5 0 0 0 0 0	0 0 2 5 0 0 0 2 0	0 0 2 5 0 0 0 3 5	*TC	DΤΑ	LS	
Alimentary System										
Liver		+	+	+	+	+	5			
Inflammation, Chronic		1		1	1	1		4	1.0	

NONE

Endocrine System

NONE

General Body System

Cardiovascular System

NONE

Genital System

NONE

Hematopoietic System

Bronchial Associated Lymphoid Tissue	+	+	+	М	М	3
Lymph Node, Bronchial	+	М	М	+	+	3
Lymph Node, Mediastinal	М	+	М	+	+	3
Spleen	+	+	+	+	+	5
Thymus	+	+	+	+	+	5
Medulla, Extramedullary Hematopoiesis			1			

Integumentary System

M .. Missing tissue

1 1.0

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

^{+ ..} Tissue examined microscopically

X ..Lesion present

Route: RESPIRATORY EXPOSURE WHOLE BODY

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: 2,3 butanedione

Species/Strain: Mouse/BALB/C

Test Type: 18-33 DAYS

CAS Number: 431-03-8

DAY ON TEST	"	0	0	0	0
BALB/C Mouse Female	$\begin{vmatrix} 0 \\ 2 \end{vmatrix}$	$\begin{vmatrix} 0 \\ 2 \end{vmatrix}$	0 2	$\begin{vmatrix} 0 \\ 2 \end{vmatrix}$	0 2
Air Control	5	5	5	5	5
ANIMAL ID	0	0	0	0	0
ANIIVIAL ID	0	0	0	0	0
	0	0	0	0	0
	0	0	0	2	3
	6	7	9	0	5

*TOTALS

NONE

Musculoskeletal System

NONE

Nervous System

NONE

Respiratory System

Lung Trachea

Special Senses System

NONE

Urinary System

NONE

M .. Missing tissue

X ..Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

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1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild

4) Marked

Date Report Requested: 10/23/2014

Time Report Requested: 14:04:20

First Dose M/F: NA / NA

Lab: VCU

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

^{+ ..} Tissue examined microscopically

Route: RESPIRATORY EXPOSURE WHOLE BODY

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: 2,3 butanedione

Species/Strain: Mouse/BALB/C

Test Type: 18-33 DAYS

CAS Number: 431-03-8

Lab: VCU

Date Report Requested: 10/23/2014

Time Report Requested: 14:04:20

First Dose M/F: NA / NA

BALB/C Mouse Female DA 25-ppm	ANIMAL ID	0 0 2 5 0 0 0 1 6	0 0 2 5 0 0 0 3 1	0 0 2 5 0 0 0 3 3	0 0 2 5 0 0 0 4 5	0 0 2 5 0 0 0 5 6	*TC	ЭΤΑ	LS
Alimentary System									
Liver Inflammation, Chronic		+ 1	+	+ 1	+ 1	+ 1	5	4	1.0

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

NONE

Hematopoietic System

Bronchial Associated Lymphoid Tissue	+	+	+	+	+	5		
Lymph Node, Bronchial	+	+	М	+	+	4		
Lymph Node, Mediastinal	М	M	M	+	М	1		
Spleen	+	+	+	+	+	5		
PeriLympSheath, Decreased Number, Lymphocyte					1		1	1.0
PeriLympSheath, Decreased Size		1			2		2	1.5

+ .. Tissue examined microscopically

M .. Missing tissue

X ..Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild 4) Marked

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Type: 18-33 DAYS Test Compound: 2,3 butanedione **CAS Number:** 431-03-8 Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/BALB/C

Date Report Requested: 10/23/2014 Time Report Requested: 14:04:20

First Dose M/F: NA / NA

Lab: VCU

						1	
DAY ON TEST	0	0	0	0	0		
BALB/C Mouse Female	0	0	0	0	0		
DALD/O MOUSE I CITIALE	2	2	2	2	2		
DA 25-ppm	5	5	5	5	5		
ANIMAL ID	0	0	0	0	0		
7.1.11111.12.13	0	0	0	0	0		
	0	0	0	4	5		
	6	1	3	5	6	*TOT	٩LS
PeriLympSheath, Increased Number, Apoptotic Cel					1	1	1.0
Thymus	+	+	+	+	+	5	
Cortex, Decreased Number, Lymphocyte		1			1	2	1.0
Cortex, Decreased Size					1	1	1.0
Cortex, Increased Number, Apoptotic Cel	1	1			1	3	1.0
Cortex, Increased Number, Ting Body Macr	1					1	1.0
Medulla, Increased Size					1	1	1.0
Integumentary System							

Integumentary System

NONE

Musculoskeletal System

NONE

Nervous System

NONE

Respiratory System

Lung Trachea M M M M

Special Senses System

NONE

Urinary System

+ .. Tissue examined microscopically

M .. Missing tissue

X ..Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Type: 18-33 DAYS

Test Compound: 2,3 butanedione

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: Mouse/BALB/C

CAS Number: 431-03-8

DAY ON TEST	0	0	0	0	0
BALB/C Mouse Female	$\begin{vmatrix} 0 \\ 2 \end{vmatrix}$	0	0	0 2	0 2
DA 25-ppm	5	5	5	5	5
ANIMAL ID	0	0	0	0	0
	0	0	Ö	Ö	Ö
	1	3	3	4	5
	6	1	3	5	6

*TOTALS

NONE

M .. Missing tissue

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK .. Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild

4) Marked

Date Report Requested: 10/23/2014

Time Report Requested: 14:04:20

First Dose M/F: NA / NA

Lab: VCU

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

^{+ ..} Tissue examined microscopically

X ..Lesion present

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: 2,3 butanedione

Route: RESPIRATORY EXPOSURE WHOLE BODY Species/Strain: Mouse/BALB/C

Test Type: 18-33 DAYS

CAS Number: 431-03-8

*TOTALS

First Dose M/F: NA / NA

Date Report Requested: 10/23/2014

Time Report Requested: 14:04:20

Lab: VCU

DA	Y ON TEST	0	0	0	0	0	0]
BALB/C Mouse Female		<i>0</i> 2	0 2	0 2	0 2	<i>0</i> 2	0 2	
DA 50-ppm		5	5	5	5	5	5	
ΔΝΙΜΔΙ ΙΟ	0	0	0	0	0	0		
	/ ((VIIIVI) (L 1D	0	0	0	0	0	0	l
		0	0	0	0	0	0	l
		0	1	4	5	6	8	l
		2	4	3	2	4	4	

Alimentary System

Liver Inflammation, Chronic 5 1.0 1 1

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

NONE

Hematopoietic System

Bronchial Associated Lymphoid Tissue	+	+	М	+	+	+	5		
Lymph Node, Bronchial	+	М	М	+	+	+	4		
Lymph Node, Mediastinal	+	М	М	+	М	М	2		
Spleen	+	+	+	+	+	+	6		
Marginal Zone, Increased Size	1					1		2	1.0
PeriLympSheath, Decreased Number, Lymphocyte		1				1		2	1.0
PeriLympSheath, Decreased Size	1			1		1		3	1.0

+ .. Tissue examined microscopically

M .. Missing tissue

X ..Lesion present

I .. Insufficient tissue

A .. Autolysis precludes evaluation BLANK .. Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Type: 18-33 DAYS Route: RESPIRATORY EXPOSURE WHOLE BODY Test Compound: 2,3 butanedione **CAS Number:** 431-03-8

Species/Strain: Mouse/BALB/C

Time Report Requested: 14:04:20

First Dose M/F: NA / NA

Date Report Requested: 10/23/2014

Lab: VCU

	DAY ON TEST	-	0	0	0	0	0			
BALB/C Mouse Female DA 50-ppm	е	0 2 5	0 2 5	0 2 5	0 2 5	0 2 5	0 2 5			
27. 00 pp	ANIMAL ID	0 0 0	0 0 0 1	0 0 0 4	0 0 0 5	0 0 0 6	0 0 0 8			
		2	4	3	2	4	4	*10	<u>ATC</u>	LS_
PeriLympSheath, Increased Apoptotic Cel	Number,						1		1	1.0
PeriLympSheath, Increased Number, Pig Macrophag							1		1	1.0
Red Pulp, Decreased Size		1			1		1		3	1.0
Red Pulp, Increased Number, Hemat Cells		1		2					2	1.5
Thymus		+	+	+	+	+	+	6		
Cortex, Decreased Number,	Lymphocyte	1					1		2	1.0
Cortex, Decreased Size		3					1		2	2.0
Cortex, Extramedullary Hem	atopoiesis	1							1	1.0
Cortex, Increased Number,	Apoptotic Cel	1	1	1	1	1	1		6	1.0
Cortex, Increased Number,	Lymphoblasts		1			1			2	1.0
Cortex, Increased Number, Ting Body Macr		2	1	1		1	1		5	1.2
Decreased Cortex Medulla Ratio		3							1	3.0
Medulla, Increased Number	, Lymphocyte	2		1			1		3	1.3
Medulla, Increased Size		1							1	1.0
Integumentary System										

Integumentary System

NONE

Musculoskeletal System

NONE

Nervous System

NONE

M .. Missing tissue

X ..Lesion present

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

^{+ ..} Tissue examined microscopically

I .. Insufficient tissue

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Type: 18-33 DAYS

Test Compound: 2,3 butanedione

Route: RESPIRATORY EXPOSURE WHOLE BODY Species/Strain: Mouse/BALB/C

CAS Number: 431-03-8

Lab: VCU

Date Report Requested: 10/23/2014

Time Report Requested: 14:04:20

First Dose M/F: NA / NA

L
BALB/C Mouse Female
DA 50-ppm

DAY ON TEST	0	0	0	0	0	0
_	0	0	0	0	0	0
е	2	2	2	2	2	2
	5	5	5	5	5	5
ANIMAL ID	0	0	0	0	0	0
AMIMAL ID	0	0	0	0	0	0
	0	0	0	0	0	0
	0	1	4	5	6	8
	2	4	3	2	4	4

*TOTALS

Respiratory System

Lung	+	+	+	+	+	+	6		
Bronchus, Epithelium, Regeneration		1						1	1.0
Bronchus, Inflammation, Chronic Active	1	1		1	1	1		5	1.0
Trachea	+	+	М	M	Μ	M	2		

Special Senses System

NONE

Urinary System

NONE

M .. Missing tissue

X ..Lesion present

BLANK .. Not examined microscopically

I .. Insufficient tissue

A .. Autolysis precludes evaluation

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

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P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Type: 18-33 DAYS

Test Compound: 2,3 butanedione

Route: RESPIRATORY EXPOSURE WHOLE BODY

CAS Number: 431-03-8

Species/Strain: Mouse/BALB/C

	,							
	DAY ON TEST	0	0	0	0	0	0	
BALB/C Mouse Female	۵ ا	0	0	0	0	0	0	
	2	2	2	2	2	2		
DA 100-ppm		5	5	5	5	5	5	
ΔΝΙΜΔΙ ΙΟ (0	0	0	0	0	0	l	
	0	0	0	0	0	0	l	
		0	0	0	0	0	0	l
		2	2	2	4	4	6	l
		2	5	7	0	6	3	L

*TOTALS

Alimentary System

Liver + + + + + + 6
Inflammation, Chronic 1 1 1 3 1.0

Cardiovascular System

NONE

Endocrine System

NONE

General Body System

NONE

Genital System

NONE

Hematopoietic System

Bronchial Associated Lymphoid Tissue	+	+	+	+	+	+	6		
Lymph Node, Bronchial	+	+	+	+	+	+	6		
Lymph Node, Mediastinal	M	М	M	+	M	M	1		
Spleen	+	+	+	+	+	+	6		
Follicles, Germ center, Increased Number	1	1						2	1.0
Marginal Zone, Increased Size			1	2	2			3	1.7
PeriLympSheath, Decreased Number, Lymphocyte		1				1		2	1.0

+ .. Tissue examined microscopically

M .. Missing tissue

X ..Lesion present

A .. Autolysis precludes evaluation

I .. Insufficient tissue

BLANK ..Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild

4) Marked

Date Report Requested: 10/23/2014

Time Report Requested: 14:04:20

First Dose M/F: NA / NA

Lab: VCU

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

Test Compound: 2,3 butanedione

CAS Number: 431-03-8

Test Type: 18-33 DAYS **Route:** RESPIRATORY EXPOSURE WHOLE BODY

Date Report Requested: 10/23/2014 Time Report Requested: 14:04:20

First Dose M/F: NA / NA

Lab: VCU

Species/Strain: Mouse/BALB/C

DAY ON TEST BALB/C Mouse Female DA 100-ppm ANIMAL ID	0 0 2 5 0 0 0 2 2 2	0 0 2 5 0 0 0 2 5	0 0 2 5 0 0 0 0 2 7	0 0 2 5 0 0 0 4 0	0 0 2 5 0 0 0 4 6	0 0 2 5 0 0 0 6 3	*T(OTA	LS
PeriLympSheath, Decreased Size		1		2	2	2		4	1.8
Red Pulp, Decreased Size		1		1	1	1		4	1.0
Thymus	+	+	+	+	+	+	6		
Cortex, Decreased Number, Lymphocyte	2		1	1				3	1.3
Cortex, Decreased Size	2		1		1			3	1.3
Cortex, Increased Number, Apoptotic Cel						1		1	1.0
Cortex, Increased Number, Lymphoblasts				2		1		2	1.5
Medulla, Increased Number, Lymphocyte	2		1	2	2	1		5	1.6
Medulla, Increased Size	1		1					2	1.0
Into aumontony Cyatam									

Integumentary System

NONE

Musculoskeletal System

NONE

Nervous System

NONE

Respiratory System

Lung	+	+	+	+	+	+	6		
Bronchus, Epithelium, Regeneration	1	2		2		1		4	1.5
Bronchus, Inflammation, Chronic Active	1	1		1		1		4	1.0
Trachea	+	M	M	М	M	М	1		

M .. Missing tissue

X ..Lesion presentI ..Insufficient tissue

A .. Autolysis precludes evaluation

BLANK .. Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

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P09: NON-NEOPLASTIC LESIONS BY INDIVIDUAL ANIMAL

CAS Number: 431-03-8

Test Type: 18-33 DAYS Route: RESPIRATORY EXPOSURE WHOLE BODY Test Compound: 2,3 butanedione

Date Report Requested: 10/23/2014 Time Report Requested: 14:04:20

First Dose M/F: NA / NA

Lab: VCU

Species/Strain: Mouse/BALB/C

DAY ON TE BALB/C Mouse Female DA 100-ppm ANIMAL	0 2 5 . ID 0 0 0	0 0 2 5 0 0 0	0 0 2 5 0 0 0	0 0 2 5 0 0 0 4	0 0 2 5 0 0 0 4	0 0 2 5 0 0 0 6	-
	2 2	2 5	Ž 7	4	4	6	

Special Senses System

NONE

Urinary System

NONE

** END OF REPORT **

*TOTALS

M .. Missing tissue

X ..Lesion present

I .. Insufficient tissue

A .. Autolysis precludes evaluation BLANK .. Not examined microscopically

1-4 ..Lesion qualified as:

1) Minimal 3) Moderate

2) Mild

^{* ..}Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade

^{+ ..} Tissue examined microscopically