

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

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

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

<b>C Number:</b>	I20606
<b>Lock Date:</b>	02/12/2009
<b>Cage Range:</b>	All
<b>Date Range:</b>	All
<b>Reasons For Removal:</b>	All
<b>Removal Date Range:</b>	All
<b>Treatment Groups:</b>	All
<b>Study Gender:</b>	Female
<b>PWG Approval Date</b>	NONE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

<b>ANIMAL ID:</b> 2	<b>TRT#:</b> 3 <b>DOSE:</b> DA 50-ppm	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 2
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**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Trachea
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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Lung	Bronchus	Inflammation	Chronic Active, Minimal
* Spleen	PeriLymphSheath	Decreased Size	Minimal
	Red Pulp	Decreased Size	Minimal
	Red Pulp	Increased Number	Hemat Cells, Minimal
	Marginal Zone	Increased Size	Minimal
* Thymus		Decreased Cortex Medulla Ratio	Moderate
	Cortex	Decreased Number	Lymphocyte, Minimal
	Cortex	Decreased Size	Moderate
	Cortex	Extramedullary Hematopoiesis	Minimal
	Cortex	Increased Number	Apoptotic Cel, Minimal
	Cortex	Increased Number	Ting Body Macr, Mild
	Medulla	Increased Number	Lymphocyte, Mild
	Medulla	Increased Size	Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99

**Test Type:** 18-33 DAYS

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** 2,3 butanedione

**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014

**Time Report Requested:** 14:03:18

**First Dose M/F:** NA / NA

**Lab:** VCU

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**ANIMAL ID:** 6

**TRT#:** 1

**SEX:** Female

**DAY ON TEST:** 25

**DOSE:** Air Control

**DISP:** Terminal Sacrifice

**HISTO:** 6

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

\* Bronchial Associated Lymphoid Tissue

\* Lung

\* Lymph Node, Bronchial

\* Spleen

\* Thymus

\* Trachea

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**MISSING**

\* Lymph Node, Mediastinal

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**OBSERVATIONS**

\* Liver

Inflammation

Chronic, Minimal

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99

**Test Type:** 18-33 DAYS

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** 2,3 butanedione

**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014

**Time Report Requested:** 14:03:18

**First Dose M/F:** NA / NA

**Lab:** VCU

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<b>ANIMAL ID:</b> 7	<b>TRT#:</b> 1 <b>DOSE:</b> Air Control	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 7
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**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

\* Bronchial Associated Lymphoid Tissue  
\* Spleen

\* Liver  
\* Thymus

\* Lung

\* Lymph Node, Mediastinal

**MISSING**

\* Lymph Node, Bronchial

\* Trachea

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 9	<b>TRT#:</b> 1 <b>DOSE:</b> Air Control	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 9
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**ORGAN AND ACCOUNTABLE SITE STATUS**

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<b>NORMAL</b>			
* Bronchial Associated Lymphoid Tissue	* Lung	* Spleen	

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<b>MISSING</b>			
* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Trachea	

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<b>OBSERVATIONS</b>			
* Liver		Inflammation	Chronic, Minimal
* Thymus	Medulla	Extramedullary Hematopoiesis	Minimal

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<b>PRIMARY CAUSE OF DEATH</b>	-		
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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 14	<b>TRT#:</b> 3 <b>DOSE:</b> DA 50-ppm	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 14
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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

\* Bronchial Associated Lymphoid Tissue      \* Trachea

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**MISSING**

\* Lymph Node, Bronchial      \* Lymph Node, Mediastinal

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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Lung	Bronchus	Inflammation	Chronic Active, Minimal
	Bronchus, Epithelium	Regeneration	Minimal
* Spleen	PeriLymphSheath	Decreased Number	Lymphocyte, Minimal
* Thymus	Cortex	Increased Number	Ting Body Macr, Minimal
	Cortex	Increased Number	Apoptotic Cel, Minimal
	Cortex	Increased Number	Lymphoblasts, Minimal

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PRIMARY CAUSE OF DEATH

-

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 16	<b>TRT#:</b> 2 <b>DOSE:</b> DA 25-ppm	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 16
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**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Lung	* Lymph Node, Bronchial	* Spleen
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**MISSING**

* Lymph Node, Mediastinal	* Trachea
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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Thymus	Cortex	Increased Number	Ting Body Macr, Minimal
	Cortex	Increased Number	Apoptotic Cel, Minimal

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**PRIMARY CAUSE OF DEATH** -

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 20	<b>TRT#:</b> 1 <b>DOSE:</b> Air Control	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 20
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**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Spleen
* Thymus			

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**MISSING**

* Bronchial Associated Lymphoid Tissue	* Trachea
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**OBSERVATIONS**

* Liver	Inflammation	Chronic, Minimal
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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 22	<b>TRT#:</b> 4	<b>SEX:</b> Female	<b>DAY ON TEST:</b> 25
	<b>DOSE:</b> DA 100-ppm	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 22

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Lymph Node, Bronchial	* Trachea
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**MISSING**

\* Lymph Node, Mediastinal

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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Lung	Bronchus	Inflammation	Chronic Active, Minimal
	Bronchus, Epithelium	Regeneration	Minimal
* Spleen	Follicles, Germ center	Increased Number	Minimal
* Thymus	Cortex	Decreased Number	Lymphocyte, Mild
	Cortex	Decreased Size	Mild
	Medulla	Increased Number	Lymphocyte, Mild
	Medulla	Increased Size	Minimal

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99

**Test Type:** 18-33 DAYS

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** 2,3 butanedione

**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014

**Time Report Requested:** 14:03:18

**First Dose M/F:** NA / NA

**Lab:** VCU

**ANIMAL ID:** 25

**TRT#:** 4

**SEX:** Female

**DAY ON TEST:** 25

**DOSE:** DA 100-ppm

**DISP:** Terminal Sacrifice

**HISTO:** 25

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

\* Bronchial Associated Lymphoid Tissue

\* Liver

\* Lymph Node, Bronchial

\* Thymus

**MISSING**

\* Lymph Node, Mediastinal

\* Trachea

**OBSERVATIONS**

\* Lung

Bronchus

Inflammation

Chronic Active, Minimal

Bronchus, Epithelium

Regeneration

Mild

\* Spleen

PeriLymphSheath

Decreased Number

Lymphocyte, Minimal

PeriLymphSheath

Decreased Size

Minimal

Red Pulp

Decreased Size

Minimal

Follicles, Germ center

Increased Number

Minimal

PRIMARY CAUSE OF DEATH

-

\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 27	<b>TRT#:</b> 4	<b>SEX:</b> Female	<b>DAY ON TEST:</b> 25
	<b>DOSE:</b> DA 100-ppm	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 27

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Liver	* Lung	* Lymph Node, Bronchial
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**MISSING**

* Lymph Node, Mediastinal	* Trachea
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**OBSERVATIONS**

* Spleen	Marginal Zone	Increased Size	Minimal
* Thymus	Cortex	Decreased Number	Lymphocyte, Minimal
	Cortex	Decreased Size	Minimal
	Medulla	Increased Number	Lymphocyte, Minimal
	Medulla	Increased Size	Minimal

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99

**Test Type:** 18-33 DAYS

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** 2,3 butanedione

**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014

**Time Report Requested:** 14:03:18

**First Dose M/F:** NA / NA

**Lab:** VCU

**ANIMAL ID:** 31

**TRT#:** 2

**SEX:** Female

**DAY ON TEST:** 25

**DOSE:** DA 25-ppm

**DISP:** Terminal Sacrifice

**HISTO:** 31

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

\* Bronchial Associated Lymphoid Tissue

\* Liver

\* Lung

\* Lymph Node, Bronchial

**MISSING**

\* Lymph Node, Mediastinal

\* Trachea

**OBSERVATIONS**

\* Spleen

PeriLymphSheath

Decreased Size

Minimal

\* Thymus

Cortex

Decreased Number

Lymphocyte, Minimal

Cortex

Increased Number

Apoptotic Cel, Minimal

PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 33	<b>TRT#:</b> 2 <b>DOSE:</b> DA 25-ppm	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 33
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**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Lung	* Spleen	* Thymus
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**MISSING**

* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Trachea
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**OBSERVATIONS**

* Liver	Inflammation	Chronic, Minimal
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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 35	<b>TRT#:</b> 1 <b>DOSE:</b> Air Control	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 35
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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal	* Spleen
* Thymus			

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**MISSING**

* Bronchial Associated Lymphoid Tissue	* Trachea
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**OBSERVATIONS**

* Liver	Inflammation	Chronic, Minimal
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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 40	<b>TRT#:</b> 4	<b>SEX:</b> Female	<b>DAY ON TEST:</b> 25
	<b>DOSE:</b> DA 100-ppm	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 40

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
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**MISSING**

\* Trachea

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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Lung	Bronchus	Inflammation	Chronic Active, Minimal
	Bronchus, Epithelium	Regeneration	Mild
* Spleen	PeriLymphSheath	Decreased Size	Mild
	Red Pulp	Decreased Size	Minimal
	Marginal Zone	Increased Size	Mild
* Thymus	Cortex	Decreased Number	Lymphocyte, Minimal
	Cortex	Increased Number	Lymphoblasts, Mild
	Medulla	Increased Number	Lymphocyte, Mild

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 43	<b>TRT#:</b> 3 <b>DOSE:</b> DA 50-ppm	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 43
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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

\* Lung

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**MISSING**

\* Bronchial Associated Lymphoid Tissue

\* Lymph Node, Bronchial

\* Lymph Node, Mediastinal

\* Trachea

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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Spleen	Red Pulp	Increased Number	Hemat Cells, Mild
* Thymus	Cortex	Increased Number	Ting Body Macr, Minimal
	Cortex	Increased Number	Apoptotic Cel, Minimal
	Medulla	Increased Number	Lymphocyte, Minimal

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE



**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 45	<b>TRT#:</b> 2 <b>DOSE:</b> DA 25-ppm	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 45
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**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Spleen	* Thymus		

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**MISSING**

\* Trachea

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**OBSERVATIONS**

* Liver	Inflammation	Chronic, Minimal
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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 46	<b>TRT#:</b> 4	<b>SEX:</b> Female	<b>DAY ON TEST:</b> 25
	<b>DOSE:</b> DA 100-ppm	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 46

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Lung	* Lymph Node, Bronchial
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**MISSING**

* Lymph Node, Mediastinal	* Trachea
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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Spleen	PeriLymphSheath	Decreased Size	Mild
	Red Pulp	Decreased Size	Minimal
	Marginal Zone	Increased Size	Mild
* Thymus	Cortex	Decreased Size	Minimal
	Medulla	Increased Number	Lymphocyte, Mild

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 52	<b>TRT#:</b> 3 <b>DOSE:</b> DA 50-ppm	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 52
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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
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**MISSING**

\* Trachea

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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Lung	Bronchus	Inflammation	Chronic Active, Minimal
* Spleen	PeriLymphSheath	Decreased Size	Minimal
	Red Pulp	Decreased Size	Minimal
* Thymus	Cortex	Increased Number	Apoptotic Cel, Minimal

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PRIMARY CAUSE OF DEATH

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 56	<b>TRT#:</b> 2 <b>DOSE:</b> DA 25-ppm	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 56
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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Lung	* Lymph Node, Bronchial
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**MISSING**

* Lymph Node, Mediastinal	* Trachea
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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Spleen	PeriLymphSheath	Decreased Number	Lymphocyte, Minimal
	PeriLymphSheath	Decreased Size	Mild
	PeriLymphSheath	Increased Number	Apoptotic Cel, Minimal
* Thymus	Cortex	Decreased Number	Lymphocyte, Minimal
	Cortex	Decreased Size	Minimal
	Cortex	Increased Number	Apoptotic Cel, Minimal
	Medulla	Increased Size	Minimal

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 63	<b>TRT#:</b> 4	<b>SEX:</b> Female	<b>DAY ON TEST:</b> 25
	<b>DOSE:</b> DA 100-ppm	<b>DISP:</b> Terminal Sacrifice	<b>HISTO:</b> 63

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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

* Bronchial Associated Lymphoid Tissue	* Liver	* Lymph Node, Bronchial
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**MISSING**

* Lymph Node, Mediastinal	* Trachea
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**OBSERVATIONS**

* Lung	Bronchus	Inflammation	Chronic Active, Minimal
	Bronchus, Epithelium	Regeneration	Minimal
* Spleen	PeriLymphSheath	Decreased Number	Lymphocyte, Minimal
	PeriLymphSheath	Decreased Size	Mild
	Red Pulp	Decreased Size	Minimal
* Thymus	Cortex	Increased Number	Apoptotic Cel, Minimal
	Cortex	Increased Number	Lymphoblasts, Minimal
	Medulla	Increased Number	Lymphocyte, Minimal

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**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99

**Test Type:** 18-33 DAYS

**Route:** RESPIRATORY EXPOSURE WHOLE BODY

**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**

**Test Compound:** 2,3 butanedione

**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014

**Time Report Requested:** 14:03:18

**First Dose M/F:** NA / NA

**Lab:** VCU

**ANIMAL ID:** 64

**TRT#:** 3

**SEX:** Female

**DAY ON TEST:** 25

**DOSE:** DA 50-ppm

**DISP:** Terminal Sacrifice

**HISTO:** 64

**ORGAN AND ACCOUNTABLE SITE STATUS**

**NORMAL**

\* Bronchial Associated Lymphoid Tissue

\* Liver

\* Lymph Node, Bronchial

\* Spleen

**MISSING**

\* Lymph Node, Mediastinal

\* Trachea

**OBSERVATIONS**

\* Lung

Bronchus

Inflammation

Chronic Active, Minimal

\* Thymus

Cortex

Increased Number

Ting Body Macr, Minimal

Cortex

Increased Number

Lymphoblasts, Minimal

Cortex

Increased Number

Apoptotic Cel, Minimal

**PRIMARY CAUSE OF DEATH**

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\* PROTOCOL REQUIRED TISSUE

**Experiment Number:** 20606-99  
**Test Type:** 18-33 DAYS  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** Mouse/BALB/C

**P14: INDIVIDUAL ANIMAL PATHOLOGY DATA**  
**Test Compound:** 2,3 butanedione  
**CAS Number:** 431-03-8

**Date Report Requested:** 10/23/2014  
**Time Report Requested:** 14:03:18  
**First Dose M/F:** NA / NA  
**Lab:** VCU

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<b>ANIMAL ID:</b> 84	<b>TRT#:</b> 3 <b>DOSE:</b> DA 50-ppm	<b>SEX:</b> Female <b>DISP:</b> Terminal Sacrifice	<b>DAY ON TEST:</b> 25 <b>HISTO:</b> 84
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**ORGAN AND ACCOUNTABLE SITE STATUS**

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**NORMAL**

\* Bronchial Associated Lymphoid Tissue      \* Lymph Node, Bronchial

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**MISSING**

\* Lymph Node, Mediastinal      \* Trachea

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**OBSERVATIONS**

* Liver		Inflammation	Chronic, Minimal
* Lung	Bronchus	Inflammation	Chronic Active, Minimal
* Spleen	PeriLymphSheath	Decreased Number	Lymphocyte, Minimal
	PeriLymphSheath	Decreased Size	Minimal
	Red Pulp	Decreased Size	Minimal
	PeriLymphSheath	Increased Number	Apoptotic Cel, Minimal
	PeriLymphSheath	Increased Number	Pig Macrophag, Minimal
	Marginal Zone	Increased Size	Minimal
* Thymus	Cortex	Decreased Number	Lymphocyte, Minimal
	Cortex	Decreased Size	Minimal
	Cortex	Increased Number	Ting Body Macr, Minimal
	Cortex	Increased Number	Apoptotic Cel, Minimal
	Medulla	Increased Number	Lymphocyte, Minimal

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PRIMARY CAUSE OF DEATH

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**\*\* END OF REPORT \*\***

\* PROTOCOL REQUIRED TISSUE