

**Study Number:** C20724-03  
**Test Type:** TOX  
**Route:** Whole-Body Inhalation  
**Species/Strain:** Rat/Wistar Han

**PA43: Hematology Summary**  
**Test Compound:** Acetoin  
**CAS Number:** 513-86-0

**Date Report Requested:** 11/07/2019  
**Time Report Requested:** 09:59:06  
**Lab:** NTP

**C Number:**

C20724-03

**Study Gender:**

Both

**PWG Approval Date**

See web page for date of PWG Approval

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**Male**

	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Hematocrit (%)	SD 4	44.9 ± 0.6 (10) *	45.4 ± 0.7 (10)	45.2 ± 0.7 (10)	45.0 ± 0.7 (10)
Percent of Control			101.0	100.7	100.2
Manual Hematocrit (%)	SD 4	46.1 ± 0.6 (10)	47.2 ± 0.5 (10)	46.9 ± 0.6 (10)	46.9 ± 0.8 (10)
Percent of Control			102.3	101.6	101.7
Hemoglobin (g/dL)	SD 4	13.3 ± 0.2 (10)	13.5 ± 0.2 (10)	13.4 ± 0.2 (10)	13.4 ± 0.2 (10)
Percent of Control			102.0	100.7	101.0
Erythrocytes (10 <sup>6</sup> /uL)	SD 4	7.04 ± 0.10 (10)	7.07 ± 0.17 (10)	6.94 ± 0.09 (10)	6.97 ± 0.12 (10)
Percent of Control			100.5	98.7	99.1
Reticulocytes (10 <sup>3</sup> /uL)	SD 4	616.2 ± 19.6 (10)	555.4 ± 21.3 (10)	574.5 ± 21.7 (10)	550.5 ± 30.0 (10)
Percent of Control			90.1	93.2	89.3
Mean Cell Volume (fL)	SD 4	63.9 ± 0.5 (10)	64.3 ± 0.9 (10)	65.1 ± 0.4 (10)	64.6 ± 0.9 (10)
Percent of Control			100.7	101.9	101.1
Mean Cell Hemoglobin (pg)	SD 4	18.9 ± 0.2 (10)	19.2 ± 0.2 (10)	19.2 ± 0.1 (10)	19.3 ± 0.2 (10)
Percent of Control			101.5	102.0	102.1
Mean Cell Hemoglobin Concentration (g/dL)	SD 4	29.5 ± 0.2 (10)	29.8 ± 0.2 (10)	29.5 ± 0.3 (10)	29.8 ± 0.3 (10)
Percent of Control			101.0	100.1	101.1
Platelets (10 <sup>3</sup> /uL)	SD 4	1151 ± 56 (10)	1080 ± 71 (10)	1180 ± 35 (10)	1087 ± 45 (10)
Percent of Control			93.8	102.5	94.5
White Blood Cells (10 <sup>3</sup> /uL)	SD 4	7.18 ± 0.36 (10)	8.13 ± 0.66 (10)	8.36 ± 0.99 (10)	7.07 ± 0.39 (10)
Percent of Control			113.1	116.4	98.4
Neutrophils (10 <sup>3</sup> /uL)	SD 4	0.56 ± 0.03 (10)	0.75 ± 0.06 (10)	0.70 ± 0.09 (10)	0.73 ± 0.08 (10)
Percent of Control			133.6	124.7	129.9

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**Male**

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	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Total Lymphocytes (10 <sup>3</sup> /uL)	SD 4	6.34 ± 0.35 (10)	7.02 ± 0.62 (10)	7.37 ± 0.89 (10)	6.03 ± 0.36 (10)
Percent of Control			110.8	116.2	95.1
Monocytes (10 <sup>3</sup> /uL)	SD 4	0.19 ± 0.01 (10)	0.24 ± 0.02 (10)	0.20 ± 0.02 (10)	0.22 ± 0.02 (10)
Percent of Control			122.7	104.6	114.9
Basophils (10 <sup>3</sup> /uL)	SD 4	0.05 ± 0.00 (10) *	0.06 ± 0.01 (10)	0.05 ± 0.01 (10)	0.04 ± 0.01 (10)
Percent of Control			120.0	100.0	88.0
Eosinophils (10 <sup>3</sup> /uL)	SD 4	0.03 ± 0.00 (10)	0.05 ± 0.01 (10)	0.04 ± 0.01 (10)	0.04 ± 0.01 (10)
Percent of Control			147.1	126.5	126.5

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	Phase Day	Treatment Groups (ppm)	
		400	800
Hematocrit (%)	SD 4	42.2 ± 0.7 (10)	43.8 ± 0.7 (10)
Percent of Control		94.0	97.4
Manual Hematocrit (%)	SD 4	44.4 ± 0.6 (10)	45.8 ± 0.8 (10)
Percent of Control		96.2	99.3
Hemoglobin (g/dL)	SD 4	12.8 ± 0.2 (10)	13.1 ± 0.2 (10)
Percent of Control		96.7	99.1
Erythrocytes (10 <sup>6</sup> /uL)	SD 4	6.75 ± 0.11 (10)	6.95 ± 0.11 (10)
Percent of Control		96.0	98.8
Reticulocytes (10 <sup>3</sup> /uL)	SD 4	538.9 ± 20.7 (10)	631.3 ± 22.1 (10)
Percent of Control		87.5	102.5
Mean Cell Volume (fL)	SD 4	62.6 ± 0.5 (10)	63.0 ± 0.7 (10)
Percent of Control		97.9	98.6
Mean Cell Hemoglobin (pg)	SD 4	19.0 ± 0.3 (10)	18.9 ± 0.2 (10)
Percent of Control		100.7	100.3
Mean Cell Hemoglobin Concentration (g/dL)	SD 4	30.3 ± 0.3 (10)	30.0 ± 0.3 (10)
Percent of Control		102.8	101.8
Platelets (10 <sup>3</sup> /uL)	SD 4	1048 ± 62 (10)	1109 ± 55 (10)
Percent of Control		91.0	96.4
White Blood Cells (10 <sup>3</sup> /uL)	SD 4	7.02 ± 0.78 (10)	9.45 ± 0.93 (10)
Percent of Control		97.7	131.6
Neutrophils (10 <sup>3</sup> /uL)	SD 4	0.71 ± 0.08 (10)	0.88 ± 0.09 (10) *
Percent of Control		126.3	156.8

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	Phase Day	Treatment Groups (ppm)	
		400	800
Total Lymphocytes (10 <sup>3</sup> /uL)	SD 4	6.03 ± 0.71 (10)	8.23 ± 0.84 (10)
Percent of Control		95.1	129.8
Monocytes (10 <sup>3</sup> /uL)	SD 4	0.20 ± 0.02 (10)	0.25 ± 0.02 (10)
Percent of Control		100.5	129.4
Basophils (10 <sup>3</sup> /uL)	SD 4	0.04 ± 0.00 (10)	0.04 ± 0.01 (10)
Percent of Control		72.0	86.0
Eosinophils (10 <sup>3</sup> /uL)	SD 4	0.04 ± 0.00 (10)	0.04 ± 0.01 (10)
Percent of Control		123.5	117.6

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**Female**

	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Hematocrit (%)	SD 4	46.0 ± 0.4 (10)	46.0 ± 0.6 (10)	45.6 ± 0.6 (10)	44.2 ± 0.7 (10)
Percent of Control			100.0	99.1	95.9
Manual Hematocrit (%)	SD 4	47.8 ± 0.4 (10)	47.9 ± 0.6 (10)	47.6 ± 0.5 (10)	46.1 ± 0.7 (10)
Percent of Control			100.3	99.7	96.4
Hemoglobin (g/dL)	SD 4	14.2 ± 0.1 (10)	14.1 ± 0.2 (10)	14.0 ± 0.2 (10)	13.9 ± 0.3 (10)
Percent of Control			99.0	98.1	97.4
Erythrocytes (10 <sup>6</sup> /uL)	SD 4	7.42 ± 0.10 (10)	7.45 ± 0.12 (10)	7.50 ± 0.12 (10)	7.29 ± 0.11 (10)
Percent of Control			100.4	101.0	98.2
Reticulocytes (10 <sup>3</sup> /uL)	SD 4	439.2 ± 20.2 (10)	414.1 ± 22.3 (10)	401.8 ± 16.9 (10)	384.6 ± 23.3 (10)
Percent of Control			94.3	91.5	87.6
Mean Cell Volume (fL)	SD 4	62.1 ± 0.6 (10) **	61.8 ± 0.4 (10)	60.9 ± 0.5 (10)	60.5 ± 0.3 (10)
Percent of Control			99.5	98.1	97.5
Mean Cell Hemoglobin (pg)	SD 4	19.2 ± 0.2 (10)	18.9 ± 0.3 (10)	18.6 ± 0.1 (10)	19.0 ± 0.2 (10)
Percent of Control			98.7	97.2	98.9
Mean Cell Hemoglobin Concentration (g/dL)	SD 4	30.9 ± 0.2 (10) **	30.6 ± 0.3 (10)	30.6 ± 0.1 (10)	31.3 ± 0.3 (10)
Percent of Control			99.2	99.1	101.4
Platelets (10 <sup>3</sup> /uL)	SD 4	1172 ± 40 (10)	1271 ± 65 (10)	1158 ± 64 (10)	1143 ± 45 (10)
Percent of Control			108.5	98.8	97.6
White Blood Cells (10 <sup>3</sup> /uL)	SD 4	8.69 ± 0.66 (10)	8.03 ± 0.45 (10)	7.41 ± 0.39 (10)	8.58 ± 0.43 (10)
Percent of Control			92.4	85.3	98.8
Neutrophils (10 <sup>3</sup> /uL)	SD 4	0.73 ± 0.04 (10)	0.62 ± 0.07 (10)	0.54 ± 0.04 (10) *	0.64 ± 0.04 (10)
Percent of Control			85.1	73.5	86.9

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**Female**

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	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Total Lymphocytes ( $10^3/\mu\text{L}$ )	SD 4	7.60 $\pm$ 0.66 (10)	7.05 $\pm$ 0.43 (10)	6.56 $\pm$ 0.37 (10)	7.54 $\pm$ 0.40 (10)
Percent of Control			92.8	86.3	99.3
Monocytes ( $10^3/\mu\text{L}$ )	SD 4	0.23 $\pm$ 0.02 (10)	0.24 $\pm$ 0.02 (10)	0.19 $\pm$ 0.01 (10)	0.26 $\pm$ 0.03 (10)
Percent of Control			102.6	82.2	113.9
Basophils ( $10^3/\mu\text{L}$ )	SD 4	0.07 $\pm$ 0.01 (10)	0.06 $\pm$ 0.01 (10)	0.06 $\pm$ 0.00 (10)	0.06 $\pm$ 0.01 (10)
Percent of Control			92.6	86.8	89.7
Eosinophils ( $10^3/\mu\text{L}$ )	SD 4	0.07 $\pm$ 0.01 (10)	0.06 $\pm$ 0.01 (10)	0.06 $\pm$ 0.01 (10)	0.07 $\pm$ 0.01 (10)
Percent of Control			88.1	89.6	110.4

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	Phase Day	Treatment Groups (ppm)	
		400	800
Hematocrit (%)	SD 4	44.7 ± 0.6 (10)	45.2 ± 0.7 (10)
Percent of Control		97.2	98.3
Manual Hematocrit (%)	SD 4	46.6 ± 0.6 (10)	47.2 ± 0.7 (10)
Percent of Control		97.5	98.8
Hemoglobin (g/dL)	SD 4	14.1 ± 0.2 (10)	14.1 ± 0.2 (10)
Percent of Control		99.4	99.4
Erythrocytes (10 <sup>6</sup> /uL)	SD 4	7.43 ± 0.11 (10)	7.51 ± 0.15 (10)
Percent of Control		100.1	101.1
Reticulocytes (10 <sup>3</sup> /uL)	SD 4	394.2 ± 20.8 (10)	451.2 ± 26.3 (10)
Percent of Control		89.8	102.7
Mean Cell Volume (fL)	SD 4	60.2 ± 0.6 (10)	60.4 ± 0.7 (10)
Percent of Control		97.0	97.2
Mean Cell Hemoglobin (pg)	SD 4	19.0 ± 0.2 (10)	18.9 ± 0.2 (10)
Percent of Control		99.3	98.3
Mean Cell Hemoglobin Concentration (g/dL)	SD 4	31.6 ± 0.2 (10)	31.2 ± 0.1 (10)
Percent of Control		102.4	101.1
Platelets (10 <sup>3</sup> /uL)	SD 4	1303 ± 89 (10)	1088 ± 58 (10)
Percent of Control		111.2	92.8
White Blood Cells (10 <sup>3</sup> /uL)	SD 4	8.30 ± 0.64 (10)	8.47 ± 0.39 (10)
Percent of Control		95.5	97.5
Neutrophils (10 <sup>3</sup> /uL)	SD 4	0.76 ± 0.07 (10)	0.78 ± 0.07 (10)
Percent of Control		103.0	107.0



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**Female**

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	Phase Day	Treatment Groups (ppm)	
		400	800
Total Lymphocytes (10 <sup>3</sup> /uL)	SD 4	7.18 ± 0.56 (10)	7.33 ± 0.33 (10)
Percent of Control		94.5	96.5
Monocytes (10 <sup>3</sup> /uL)	SD 4	0.23 ± 0.03 (10)	0.24 ± 0.02 (10)
Percent of Control		98.3	102.6
Basophils (10 <sup>3</sup> /uL)	SD 4	0.07 ± 0.01 (10)	0.04 ± 0.01 (10)
Percent of Control		100.0	63.2
Eosinophils (10 <sup>3</sup> /uL)	SD 4	0.06 ± 0.01 (10)	0.08 ± 0.01 (10)
Percent of Control		94.0	116.4

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**Male**

	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Hematocrit (%)	SD 23	49.2 ± 0.9 (10) **	46.4 ± 1.0 (10)	45.6 ± 0.8 (10) *	46.6 ± 0.9 (10) *
Percent of Control			94.3	92.7	94.9
Manual Hematocrit (%)	SD 23	50.1 ± 1.0 (10) **	47.9 ± 0.8 (10)	46.9 ± 0.9 (10) *	47.7 ± 0.9 (10) *
Percent of Control			95.6	93.5	95.1
Hemoglobin (g/dL)	SD 23	15.7 ± 0.3 (10) **	14.9 ± 0.2 (10)	14.5 ± 0.2 (10) **	14.8 ± 0.2 (10) **
Percent of Control			94.7	92.3	94.3
Erythrocytes (10 <sup>6</sup> /uL)	SD 23	8.25 ± 0.19 (10)	7.65 ± 0.20 (10)	7.56 ± 0.12 (10) *	7.69 ± 0.16 (10)
Percent of Control			92.7	91.6	93.2
Reticulocytes (10 <sup>3</sup> /uL)	SD 23	290.1 ± 9.2 (10)	279.7 ± 6.9 (10)	289.9 ± 11.4 (10)	299.6 ± 10.9 (10)
Percent of Control			96.4	99.9	103.3
Mean Cell Volume (fL)	SD 23	59.7 ± 0.5 (10)	60.7 ± 0.6 (10)	60.3 ± 0.4 (10)	60.7 ± 0.6 (10)
Percent of Control			101.7	101.1	101.7
Mean Cell Hemoglobin (pg)	SD 23	19.1 ± 0.1 (10)	19.6 ± 0.3 (10)	19.2 ± 0.1 (10)	19.4 ± 0.2 (10)
Percent of Control			102.4	100.7	101.4
Mean Cell Hemoglobin Concentration (g/dL)	SD 23	32.0 ± 0.2 (10)	32.2 ± 0.3 (10)	31.9 ± 0.2 (10)	31.9 ± 0.3 (10)
Percent of Control			100.7	99.6	99.7
Platelets (10 <sup>3</sup> /uL)	SD 23	956 ± 30 (10)	882 ± 44 (10)	899 ± 70 (10)	985 ± 61 (10)
Percent of Control			92.3	94.0	103.1
White Blood Cells (10 <sup>3</sup> /uL)	SD 23	8.33 ± 0.35 (10)	8.10 ± 0.27 (10)	7.92 ± 0.35 (10)	8.03 ± 0.38 (10)
Percent of Control			97.2	95.0	96.4
Neutrophils (10 <sup>3</sup> /uL)	SD 23	1.49 ± 0.17 (10) *	0.83 ± 0.06 (10) *	0.76 ± 0.12 (10) **	0.83 ± 0.06 (10) *
Percent of Control			55.7	51.3	55.6

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**Male**

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		0	50	100	200
Total Lymphocytes (10 <sup>3</sup> /uL) Percent of Control	SD 23	6.60 ± 0.35 (10)	7.00 ± 0.23 (10) 106.1	6.94 ± 0.29 (10) 105.2	6.96 ± 0.38 (10) 105.5
Monocytes (10 <sup>3</sup> /uL) Percent of Control	SD 23	0.18 ± 0.01 (10)	0.19 ± 0.02 (10) 106.2	0.15 ± 0.02 (10) 84.8	0.18 ± 0.01 (10) 100.6
Basophils (10 <sup>3</sup> /uL) Percent of Control	SD 23	0.02 ± 0.00 (10)	0.02 ± 0.00 (10) 110.5	0.02 ± 0.00 (10) 105.3	0.02 ± 0.00 (10) 121.1
Eosinophils (10 <sup>3</sup> /uL) Percent of Control	SD 23	0.05 ± 0.01 (10) **	0.06 ± 0.01 (10) 112.2	0.04 ± 0.00 (10) 89.8	0.05 ± 0.00 (10) 93.9

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	Phase Day	Treatment Groups (ppm)	
		400	800
Hematocrit (%)	SD 23	45.3 ± 0.6 (9) **	45.8 ± 0.6 (10) **
Percent of Control		92.1	93.2
Manual Hematocrit (%)	SD 23	46.2 ± 0.6 (9) **	46.9 ± 0.5 (10) **
Percent of Control		92.1	93.6
Hemoglobin (g/dL)	SD 23	14.6 ± 0.2 (9) **	14.5 ± 0.2 (10) **
Percent of Control		93.0	92.4
Erythrocytes (10 <sup>6</sup> /uL)	SD 23	7.65 ± 0.11 (9)	7.75 ± 0.10 (10)
Percent of Control		92.8	94.0
Reticulocytes (10 <sup>3</sup> /uL)	SD 23	281.8 ± 9.5 (9)	300.9 ± 7.3 (10)
Percent of Control		97.1	103.7
Mean Cell Volume (fL)	SD 23	59.2 ± 0.7 (9)	59.1 ± 0.7 (10)
Percent of Control		99.3	99.1
Mean Cell Hemoglobin (pg)	SD 23	19.1 ± 0.3 (9)	18.8 ± 0.3 (10)
Percent of Control		100.1	98.3
Mean Cell Hemoglobin Concentration (g/dL)	SD 23	32.3 ± 0.3 (9)	31.7 ± 0.2 (10)
Percent of Control		101.0	99.1
Platelets (10 <sup>3</sup> /uL)	SD 23	930 ± 52 (9)	996 ± 36 (10)
Percent of Control		97.3	104.2
White Blood Cells (10 <sup>3</sup> /uL)	SD 23	8.13 ± 0.55 (9)	8.54 ± 0.44 (10)
Percent of Control		97.5	102.5
Neutrophils (10 <sup>3</sup> /uL)	SD 23	0.92 ± 0.08 (9)	0.75 ± 0.05 (10) **
Percent of Control		62.1	50.7

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	Phase Day	Treatment Groups (ppm)	
		400	800
Total Lymphocytes (10 <sup>3</sup> /uL)	SD 23	6.92 ± 0.49 (9)	7.57 ± 0.41 (10)
Percent of Control		105.0	114.8
Monocytes (10 <sup>3</sup> /uL)	SD 23	0.21 ± 0.04 (9)	0.16 ± 0.01 (10)
Percent of Control		119.9	90.4
Basophils (10 <sup>3</sup> /uL)	SD 23	0.02 ± 0.00 (9)	0.03 ± 0.00 (10)
Percent of Control		117.0	136.8
Eosinophils (10 <sup>3</sup> /uL)	SD 23	0.04 ± 0.01 (9)	0.03 ± 0.01 (10) *
Percent of Control		81.6	63.3

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**Female**

	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Hematocrit (%)	SD 23	45.9 ± 0.7 (10)	46.9 ± 0.4 (9)	45.8 ± 0.5 (10)	45.3 ± 0.5 (10)
Percent of Control			102.3	99.9	98.8
Manual Hematocrit (%)	SD 23	46.7 ± 0.6 (10) *	47.8 ± 0.6 (9)	46.8 ± 0.7 (10)	46.4 ± 0.6 (10)
Percent of Control			102.3	100.2	99.4
Hemoglobin (g/dL)	SD 23	15.1 ± 0.2 (10)	15.3 ± 0.2 (9)	15.0 ± 0.2 (10)	14.9 ± 0.2 (10)
Percent of Control			101.5	99.1	98.5
Erythrocytes (10 <sup>6</sup> /uL)	SD 23	7.81 ± 0.14 (10)	8.07 ± 0.10 (9)	7.93 ± 0.12 (10)	7.73 ± 0.08 (10)
Percent of Control			103.3	101.5	98.9
Reticulocytes (10 <sup>3</sup> /uL)	SD 23	178.3 ± 12.8 (10)	207.3 ± 11.3 (9)	215.4 ± 9.7 (10)	211.4 ± 16.6 (10)
Percent of Control			116.3	120.8	118.6
Mean Cell Volume (fL)	SD 23	58.8 ± 0.6 (10)	58.2 ± 0.6 (9)	57.9 ± 0.3 (10)	58.7 ± 0.3 (10)
Percent of Control			99.0	98.5	99.9
Mean Cell Hemoglobin (pg)	SD 23	19.4 ± 0.2 (10)	19.0 ± 0.3 (9)	18.9 ± 0.1 (10)	19.3 ± 0.2 (10)
Percent of Control			98.2	97.6	99.5
Mean Cell Hemoglobin Concentration (g/dL)	SD 23	32.9 ± 0.2 (10) *	32.7 ± 0.2 (9)	32.6 ± 0.1 (10)	32.8 ± 0.2 (10)
Percent of Control			99.2	99.1	99.8
Platelets (10 <sup>3</sup> /uL)	SD 23	908 ± 62 (10)	874 ± 49 (9)	870 ± 72 (10)	929 ± 37 (10)
Percent of Control			96.3	95.9	102.4
White Blood Cells (10 <sup>3</sup> /uL)	SD 23	6.13 ± 0.49 (10)	6.95 ± 0.35 (9)	5.78 ± 0.25 (10)	5.70 ± 0.23 (10)
Percent of Control			113.4	94.2	93.0
Neutrophils (10 <sup>3</sup> /uL)	SD 23	0.64 ± 0.05 (10) *	0.61 ± 0.08 (9)	0.78 ± 0.07 (10)	0.60 ± 0.08 (10)
Percent of Control			96.6	122.2	94.8

**Study Number:** C20724-03  
**Test Type:** TOX  
**Route:** Whole-Body Inhalation  
**Species/Strain:** Rat/Wistar Han

**PA43: Hematology Summary**  
**Test Compound:** Acetoin  
**CAS Number:** 513-86-0

**Date Report Requested:** 11/07/2019  
**Time Report Requested:** 09:59:06  
**Lab:** NTP

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**Female**

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	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Total Lymphocytes (10 <sup>3</sup> /uL)	SD 23	5.29 ± 0.45 (10)	6.07 ± 0.28 (9)	4.78 ± 0.19 (10)	4.89 ± 0.17 (10)
Percent of Control			114.9	90.3	92.5
Monocytes (10 <sup>3</sup> /uL)	SD 23	0.13 ± 0.02 (10)	0.18 ± 0.02 (9)	0.13 ± 0.01 (10)	0.13 ± 0.02 (10)
Percent of Control			138.2	105.5	100.8
Basophils (10 <sup>3</sup> /uL)	SD 23	0.02 ± 0.00 (10)	0.02 ± 0.00 (9)	0.02 ± 0.00 (10)	0.02 ± 0.00 (10)
Percent of Control			104.9	100.0	83.3
Eosinophils (10 <sup>3</sup> /uL)	SD 23	0.06 ± 0.01 (10)	0.07 ± 0.01 (9)	0.07 ± 0.01 (10)	0.07 ± 0.01 (10)
Percent of Control			107.6	110.9	104.7

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**Female**

	Phase Day	Treatment Groups (ppm)	
		400	800
Hematocrit (%)	SD 23	46.4 ± 0.5 (10)	47.9 ± 0.5 (10)
Percent of Control		101.2	104.4
Manual Hematocrit (%)	SD 23	47.3 ± 0.4 (10)	48.9 ± 0.6 (10)
Percent of Control		101.3	104.6
Hemoglobin (g/dL)	SD 23	15.1 ± 0.1 (10)	15.4 ± 0.2 (10)
Percent of Control		100.2	101.9
Erythrocytes (10 <sup>6</sup> /uL)	SD 23	7.81 ± 0.08 (10)	8.12 ± 0.09 (10)
Percent of Control		99.9	104.0
Reticulocytes (10 <sup>3</sup> /uL)	SD 23	219.9 ± 10.0 (10)	201.5 ± 7.6 (10)
Percent of Control		123.3	113.0
Mean Cell Volume (fL)	SD 23	59.5 ± 0.7 (10)	59.1 ± 0.7 (10)
Percent of Control		101.3	100.5
Mean Cell Hemoglobin (pg)	SD 23	19.4 ± 0.2 (10)	19.0 ± 0.3 (10)
Percent of Control		100.1	98.1
Mean Cell Hemoglobin Concentration (g/dL)	SD 23	32.6 ± 0.2 (10)	32.2 ± 0.2 (10) *
Percent of Control		99.1	97.7
Platelets (10 <sup>3</sup> /uL)	SD 23	969 ± 52 (10)	943 ± 28 (10)
Percent of Control		106.8	103.8
White Blood Cells (10 <sup>3</sup> /uL)	SD 23	6.00 ± 0.45 (10)	5.91 ± 0.29 (10)
Percent of Control		97.8	96.3
Neutrophils (10 <sup>3</sup> /uL)	SD 23	0.89 ± 0.08 (10)	0.76 ± 0.05 (10)
Percent of Control		139.3	119.7



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**Female**

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	<b>Phase Day</b>	<b>Treatment Groups (ppm)</b>	
		<b>400</b>	<b>800</b>
Total Lymphocytes (10 <sup>3</sup> /uL)	SD 23	4.90 ± 0.36 (10)	4.96 ± 0.29 (10)
Percent of Control		92.6	93.7
Monocytes (10 <sup>3</sup> /uL)	SD 23	0.13 ± 0.02 (10)	0.11 ± 0.01 (10)
Percent of Control		102.4	87.4
Basophils (10 <sup>3</sup> /uL)	SD 23	0.02 ± 0.00 (10)	0.01 ± 0.00 (10)
Percent of Control		127.8	66.7
Eosinophils (10 <sup>3</sup> /uL)	SD 23	0.07 ± 0.01 (10)	0.07 ± 0.01 (10)
Percent of Control		101.6	103.1

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**Male**

	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Hematocrit (%)	SD 93	50.9 ± 0.6 (10)	51.4 ± 0.9 (10)	50.1 ± 0.4 (10)	50.5 ± 0.6 (10)
Percent of Control			100.9	98.3	99.2
Manual Hematocrit (%)	SD 93	49.6 ± 0.5 (10)	50.7 ± 0.8 (10)	49.5 ± 0.5 (10)	49.7 ± 0.4 (10)
Percent of Control			102.2	99.8	100.2
Hemoglobin (g/dL)	SD 93	16.0 ± 0.2 (10)	16.2 ± 0.3 (10)	16.1 ± 0.1 (10)	16.1 ± 0.1 (10)
Percent of Control			101.2	100.4	100.3
Erythrocytes (10 <sup>6</sup> /uL)	SD 93	9.39 ± 0.11 (10)	9.42 ± 0.19 (10)	9.19 ± 0.09 (10)	9.28 ± 0.11 (10)
Percent of Control			100.3	97.9	98.8
Reticulocytes (10 <sup>3</sup> /uL)	SD 93	197.3 ± 7.7 (10)	214.8 ± 4.2 (10)	208.5 ± 6.2 (10)	210.8 ± 8.6 (10)
Percent of Control			108.9	105.7	106.9
Mean Cell Volume (fL)	SD 93	54.2 ± 0.4 (10)	54.6 ± 0.4 (10)	54.5 ± 0.4 (10)	54.4 ± 0.4 (10)
Percent of Control			100.7	100.5	100.4
Mean Cell Hemoglobin (pg)	SD 93	17.1 ± 0.1 (10)	17.3 ± 0.1 (10)	17.5 ± 0.2 (10)	17.4 ± 0.3 (10)
Percent of Control			101.0	102.5	101.5
Mean Cell Hemoglobin Concentration (g/dL)	SD 93	31.5 ± 0.2 (10)	31.6 ± 0.1 (10)	32.2 ± 0.2 (10)	31.9 ± 0.3 (10)
Percent of Control			100.3	102.0	101.1
Platelets (10 <sup>3</sup> /uL)	SD 93	775 ± 20 (10)	747 ± 37 (10)	799 ± 30 (10)	731 ± 25 (10)
Percent of Control			96.4	103.1	94.3
White Blood Cells (10 <sup>3</sup> /uL)	SD 93	7.61 ± 0.41 (10) **	8.06 ± 0.37 (10)	7.00 ± 0.47 (10)	6.21 ± 0.30 (10) *
Percent of Control			105.9	92.0	81.6
Neutrophils (10 <sup>3</sup> /uL)	SD 93	1.10 ± 0.11 (10)	1.27 ± 0.11 (10)	1.18 ± 0.07 (10)	1.14 ± 0.11 (10)
Percent of Control			115.6	107.1	103.2

**Study Number:** C20724-03  
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**CAS Number:** 513-86-0

**Date Report Requested:** 11/07/2019  
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**Lab:** NTP

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**Male**

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	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Total Lymphocytes (10 <sup>3</sup> /uL)	SD 93	6.26 ± 0.35 (10) **	6.52 ± 0.40 (10)	5.61 ± 0.43 (10)	4.88 ± 0.24 (10) **
Percent of Control			104.3	89.6	78.0
Monocytes (10 <sup>3</sup> /uL)	SD 93	0.13 ± 0.01 (10) **	0.17 ± 0.02 (10)	0.12 ± 0.01 (10)	0.10 ± 0.01 (10)
Percent of Control			123.9	87.3	74.6
Basophils (10 <sup>3</sup> /uL)	SD 93	0.02 ± 0.00 (10)	0.02 ± 0.00 (10)	0.02 ± 0.00 (10)	0.01 ± 0.00 (10)
Percent of Control			117.6	88.2	70.6
Eosinophils (10 <sup>3</sup> /uL)	SD 93	0.11 ± 0.01 (10)	0.08 ± 0.01 (10)	0.09 ± 0.01 (10)	0.09 ± 0.01 (10)
Percent of Control			75.2	81.0	81.9

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**Date Report Requested:** 11/07/2019  
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**Lab:** NTP

**Male**

	Phase Day	Treatment Groups (ppm)	
		400	800
Hematocrit (%)	SD 93	50.8 ± 0.7 (10)	50.0 ± 0.4 (10)
Percent of Control		99.8	98.2
Manual Hematocrit (%)	SD 93	50.2 ± 0.6 (10)	49.0 ± 0.4 (10)
Percent of Control		101.3	98.9
Hemoglobin (g/dL)	SD 93	16.3 ± 0.2 (10)	15.9 ± 0.2 (10)
Percent of Control		101.4	99.4
Erythrocytes (10 <sup>6</sup> /uL)	SD 93	9.35 ± 0.11 (10)	9.26 ± 0.07 (10)
Percent of Control		99.6	98.6
Reticulocytes (10 <sup>3</sup> /uL)	SD 93	208.4 ± 8.4 (10)	216.5 ± 7.5 (10)
Percent of Control		105.6	109.8
Mean Cell Volume (fL)	SD 93	54.3 ± 0.4 (10)	54.0 ± 0.5 (10)
Percent of Control		100.2	99.6
Mean Cell Hemoglobin (pg)	SD 93	17.4 ± 0.1 (10)	17.2 ± 0.2 (10)
Percent of Control		101.9	100.6
Mean Cell Hemoglobin Concentration (g/dL)	SD 93	32.1 ± 0.2 (10)	31.9 ± 0.2 (10)
Percent of Control		101.7	101.2
Platelets (10 <sup>3</sup> /uL)	SD 93	712 ± 34 (10)	774 ± 41 (10)
Percent of Control		91.9	99.8
White Blood Cells (10 <sup>3</sup> /uL)	SD 93	6.27 ± 0.48 (9) *	5.89 ± 0.24 (10) **
Percent of Control		82.4	77.4
Neutrophils (10 <sup>3</sup> /uL)	SD 93	1.23 ± 0.09 (10)	1.27 ± 0.05 (10)
Percent of Control		111.3	115.6

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**Male**

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	Phase Day	Treatment Groups (ppm)	
		400	800
Total Lymphocytes (10 <sup>3</sup> /uL)	SD 93	4.85 ± 0.35 (10) *	4.44 ± 0.24 (10) **
Percent of Control		77.5	70.9
Monocytes (10 <sup>3</sup> /uL)	SD 93	0.10 ± 0.02 (10) *	0.10 ± 0.01 (10) *
Percent of Control		71.6	74.6
Basophils (10 <sup>3</sup> /uL)	SD 93	0.01 ± 0.00 (10)	0.01 ± 0.00 (10)
Percent of Control		82.4	82.4
Eosinophils (10 <sup>3</sup> /uL)	SD 93	0.09 ± 0.01 (10)	0.07 ± 0.01 (10)
Percent of Control		81.0	69.5

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**Lab:** NTP

**Female**

	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Hematocrit (%)	SD 94	47.3 ± 0.6 (10)	48.9 ± 0.8 (10)	47.6 ± 0.5 (10)	48.5 ± 0.6 (10)
Percent of Control			103.3	100.5	102.5
Manual Hematocrit (%)	SD 94	47.4 ± 0.6 (10)	48.5 ± 0.8 (10)	47.1 ± 0.5 (10)	48.2 ± 0.6 (10)
Percent of Control			102.2	99.3	101.7
Hemoglobin (g/dL)	SD 94	15.2 ± 0.2 (10)	15.6 ± 0.2 (10)	15.1 ± 0.2 (10)	15.6 ± 0.2 (10)
Percent of Control			102.4	99.2	102.4
Erythrocytes (10 <sup>6</sup> /uL)	SD 94	8.48 ± 0.10 (10)	8.80 ± 0.14 (10)	8.66 ± 0.14 (10)	8.74 ± 0.12 (10)
Percent of Control			103.7	102.1	103.0
Reticulocytes (10 <sup>3</sup> /uL)	SD 94	222.5 ± 13.2 (10)	235.6 ± 9.0 (10)	244.5 ± 10.9 (10)	230.6 ± 11.6 (10)
Percent of Control			105.9	109.9	103.7
Mean Cell Volume (fL)	SD 94	55.8 ± 0.4 (10)	55.6 ± 0.3 (10)	55.0 ± 0.6 (10)	55.6 ± 0.5 (10)
Percent of Control			99.7	98.5	99.6
Mean Cell Hemoglobin (pg)	SD 94	17.9 ± 0.2 (10)	17.7 ± 0.1 (10)	17.5 ± 0.3 (10)	17.9 ± 0.2 (10)
Percent of Control			98.9	97.4	99.5
Mean Cell Hemoglobin Concentration (g/dL)	SD 94	32.2 ± 0.3 (10)	31.9 ± 0.2 (10)	31.8 ± 0.1 (10)	32.1 ± 0.2 (10)
Percent of Control			99.2	98.8	100.0
Platelets (10 <sup>3</sup> /uL)	SD 94	630 ± 40 (10)	652 ± 36 (10)	640 ± 40 (10)	652 ± 40 (10)
Percent of Control			103.4	101.5	103.4
White Blood Cells (10 <sup>3</sup> /uL)	SD 94	6.38 ± 0.46 (10)	5.47 ± 0.47 (10)	5.54 ± 0.46 (10)	5.20 ± 0.47 (10)
Percent of Control			85.7	87.0	81.5
Neutrophils (10 <sup>3</sup> /uL)	SD 94	1.03 ± 0.07 (10)	1.08 ± 0.07 (10)	1.13 ± 0.19 (10)	1.09 ± 0.12 (10)
Percent of Control			104.7	110.1	105.6

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**Female**

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	Phase Day	Treatment Groups (ppm)			
		0	50	100	200
Total Lymphocytes (10 <sup>3</sup> /uL)	SD 94	5.12 ± 0.48 (10)	4.17 ± 0.43 (10)	4.22 ± 0.38 (10)	3.90 ± 0.41 (10)
Percent of Control			81.4	82.5	76.1
Monocytes (10 <sup>3</sup> /uL)	SD 94	0.12 ± 0.01 (10)	0.13 ± 0.02 (10)	0.09 ± 0.01 (10)	0.10 ± 0.01 (10)
Percent of Control			106.6	75.4	84.4
Basophils (10 <sup>3</sup> /uL)	SD 94	0.01 ± 0.00 (10)	0.01 ± 0.00 (10)	0.01 ± 0.00 (10)	0.01 ± 0.00 (10)
Percent of Control			107.7	76.9	84.6
Eosinophils (10 <sup>3</sup> /uL)	SD 94	0.09 ± 0.01 (10)	0.07 ± 0.01 (10)	0.08 ± 0.01 (10)	0.10 ± 0.01 (10)
Percent of Control			79.6	87.1	107.5

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**Female**

	Phase Day	Treatment Groups (ppm)	
		400	800
Hematocrit (%)	SD 94	48.4 ± 0.5 (10)	48.5 ± 0.7 (10)
Percent of Control		102.3	102.4
Manual Hematocrit (%)	SD 94	48.1 ± 0.4 (10)	47.9 ± 0.4 (10)
Percent of Control		101.4	101.1
Hemoglobin (g/dL)	SD 94	15.5 ± 0.2 (10)	15.5 ± 0.1 (10)
Percent of Control		101.8	101.8
Erythrocytes (10 <sup>6</sup> /uL)	SD 94	8.62 ± 0.09 (10)	8.65 ± 0.14 (10)
Percent of Control		101.6	102.0
Reticulocytes (10 <sup>3</sup> /uL)	SD 94	256.5 ± 7.5 (10)	235.9 ± 15.6 (10)
Percent of Control		115.3	106.0
Mean Cell Volume (fL)	SD 94	56.2 ± 0.4 (10)	56.1 ± 0.5 (10)
Percent of Control		100.8	100.5
Mean Cell Hemoglobin (pg)	SD 94	18.0 ± 0.2 (10)	17.9 ± 0.2 (10)
Percent of Control		100.4	100.0
Mean Cell Hemoglobin Concentration (g/dL)	SD 94	32.0 ± 0.3 (10)	32.0 ± 0.2 (10)
Percent of Control		99.6	99.6
Platelets (10 <sup>3</sup> /uL)	SD 94	628 ± 56 (10)	686 ± 56 (10)
Percent of Control		99.7	108.8
White Blood Cells (10 <sup>3</sup> /uL)	SD 94	5.32 ± 0.53 (10)	5.46 ± 0.56 (10)
Percent of Control		83.4	85.6
Neutrophils (10 <sup>3</sup> /uL)	SD 94	0.86 ± 0.06 (10)	1.05 ± 0.12 (10)
Percent of Control		83.1	101.9



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**Female**

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	<b>Phase Day</b>	<b>Treatment Groups (ppm)</b>	
		<b>400</b>	<b>800</b>
Total Lymphocytes (10 <sup>3</sup> /uL) Percent of Control	SD 94	4.29 ± 0.48 (10) 83.7	4.21 ± 0.48 (10) 82.2
Monocytes (10 <sup>3</sup> /uL) Percent of Control	SD 94	0.08 ± 0.01 (10) 61.5	0.11 ± 0.01 (10) 86.9
Basophils (10 <sup>3</sup> /uL) Percent of Control	SD 94	0.01 ± 0.00 (10) 84.6	0.01 ± 0.00 (10) 84.6
Eosinophils (10 <sup>3</sup> /uL) Percent of Control	SD 94	0.08 ± 0.02 (10) 90.3	0.09 ± 0.01 (10) 92.5

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#### LEGEND

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Values given as mean  $\pm$  SEM (N) with Percent of Control calculated by (dosed group mean / control group mean) x 100

SD – Study Day

Statistical analysis performed by Jonckheere (trend) and Shirley or Dunn (pairwise) tests.

Statistical significance for the control group indicates a significant trend test

Statistical significance for a treatment group indicates a significant pairwise test compared to the vehicle control group

\* Statistically significant at  $P \leq 0.05$

\*\* Statistically significant at  $P \leq 0.01$

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