

**Study Number:** I11054B

**Test Type:** TOX

**Route:** Dosing in Water

**Species/Strain:** Rat/Harlan Sprague Dawley

**C Number:**

**Study Gender:**

**PWG Approval Date**

**M06: Spleen Immunophenotyping**

**Test Compound:** Sulfolane

**CAS Number:** 126-33-0

I11054B

Both

See web page for date of PWG Approval

**Date Report Requested:** 12/07/2018

**Time Report Requested:** 07:29:23

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F1 Males

Treatment Groups (mg/L)

	0	30	100	300	1000	15 mg/kg CPS
Spleen Cells (x10 <sup>6</sup> )	509.65 ± 30.49 (12) *	508.75 ± 32.55 (12)	419.00 ± 22.95 (12)	510.70 ± 35.61 (12)	393.70 ± 37.92 (12)	94.37 ± 9.83 (8) **
Total Lymphocytes	482.083 ± 28.996 (12)	484.800 ± 31.280 (12)	398.022 ± 21.557 (12)	484.449 ± 33.871 (12)	373.213 ± 36.395 (12)	91.402 ± 9.579 (8) **
Total T Cells	86.221 ± 5.598 (12)	92.648 ± 5.318 (12)	73.234 ± 3.970 (12)	93.442 ± 7.687 (12)	74.112 ± 8.364 (12)	27.768 ± 3.203 (8) **
CD4 <sup>+</sup> T Cells <sup>a</sup>	45.010 ± 2.505 (12)	49.269 ± 3.042 (12)	38.824 ± 2.190 (12)	49.145 ± 3.680 (12)	40.052 ± 4.663 (12)	13.333 ± 1.445 (8) **
CD8 <sup>+</sup> T Cells <sup>b</sup>	28.582 ± 2.667 (12)	32.005 ± 2.253 (12)	24.538 ± 1.558 (12)	32.831 ± 3.668 (12)	26.510 ± 3.406 (12)	12.565 ± 1.726 (8) **
B Cells	92.090 ± 9.285 (12)	90.738 ± 6.800 (12)	80.119 ± 5.717 (12)	98.079 ± 7.297 (12)	74.811 ± 8.555 (12)	10.758 ± 1.239 (8) **
NK Cells	44.574 ± 5.608 (12) *	42.137 ± 4.216 (12)	33.189 ± 2.426 (12)	37.781 ± 4.570 (12)	29.809 ± 3.528 (12)	6.704 ± 0.725 (8) **
Mono/Mac Cells <sup>c</sup>	15.146 ± 0.763 (12) **	15.069 ± 0.976 (12)	11.607 ± 0.673 (12)	15.494 ± 1.488 (12)	10.383 ± 1.182 (12) **	1.795 ± 0.230 (8) **
Neutrophils	13.883 ± 0.943 (12) **	13.166 ± 0.871 (12)	10.590 ± 0.800 (12)	12.419 ± 1.016 (12)	9.386 ± 1.065 (12) **	4.591 ± 0.582 (8) **
Eosinophils	1.902 ± 0.171 (12)	1.578 ± 0.122 (12)	1.375 ± 0.089 (12)	1.926 ± 0.170 (12)	1.366 ± 0.142 (12)	0.641 ± 0.101 (8) **
Total T Cells: B Cells Ratio	0.970 ± 0.047 (12)	1.043 ± 0.044 (12)	0.936 ± 0.041 (12)	0.961 ± 0.042 (12)	0.990 ± 0.043 (12)	2.608 ± 0.111 (8) **
CD4 <sup>+</sup> T Cells: CD8 <sup>+</sup> T Cells Ratio	1.677 ± 0.145 (12)	1.586 ± 0.110 (12)	1.629 ± 0.102 (12)	1.618 ± 0.136 (12)	1.596 ± 0.140 (12)	1.122 ± 0.118 (8) *
Percent Total Lymphocytes	94.557 ± 0.209 (12)	95.251 ± 0.269 (12)	95.023 ± 0.223 (12)	94.868 ± 0.226 (12)	94.598 ± 0.336 (12)	96.809 ± 0.214 (8) **
Percent Total T Cells	17.848 ± 0.508 (12)	19.239 ± 0.508 (12)	18.454 ± 0.412 (12)	19.166 ± 0.443 (12)	19.385 ± 0.521 (12)	30.264 ± 0.740 (8) **
Percent CD4 <sup>+</sup> T Cells <sup>a</sup>	52.654 ± 1.530 (12)	53.201 ± 1.284 (12)	53.168 ± 1.434 (12)	53.330 ± 1.815 (12)	54.165 ± 1.817 (12)	48.454 ± 2.294 (8)
Percent CD8 <sup>+</sup> T Cells <sup>b</sup>	32.771 ± 1.521 (12)	34.644 ± 1.457 (12)	33.576 ± 1.424 (12)	34.389 ± 1.599 (12)	35.603 ± 1.727 (12)	44.941 ± 2.419 (8) **
Percent B Cells	18.727 ± 0.747 (12) *	18.642 ± 0.532 (12)	19.996 ± 0.652 (12)	20.218 ± 0.660 (12)	19.822 ± 0.696 (12)	11.683 ± 0.289 (8) **
Percent NK Cells	8.994 ± 0.770 (12)	8.655 ± 0.633 (12)	8.417 ± 0.523 (12)	7.689 ± 0.616 (12)	8.109 ± 0.644 (12)	7.443 ± 0.625 (8)
Percent Mono/Mac Cells <sup>c</sup>	3.021 ± 0.138 (12)	2.967 ± 0.074 (12)	2.783 ± 0.112 (12)	3.007 ± 0.154 (12)	2.666 ± 0.149 (12)	1.870 ± 0.099 (8) **
Percent Neutrophils	2.756 ± 0.139 (12) *	2.589 ± 0.070 (12)	2.513 ± 0.093 (12)	2.435 ± 0.146 (12)	2.370 ± 0.107 (12)	4.865 ± 0.315 (8) **
Percent Eosinophils	0.374 ± 0.024 (12)	0.318 ± 0.025 (12)	0.330 ± 0.018 (12)	0.375 ± 0.019 (12)	0.355 ± 0.021 (12)	0.678 ± 0.077 (8) **

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F1 Females

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Spleen Cells (x10 <sup>6</sup> )	364.20 ± 23.49 (12)	343.95 ± 19.35 (12)	308.45 ± 6.12 (11)	291.20 ± 15.14 (12)	383.80 ± 30.00 (12)	65.45 ± 4.38 (8) **
Total Lymphocytes	345.360 ± 22.978 (12)	328.726 ± 19.109 (12)	293.841 ± 5.722 (11)	276.425 ± 15.102 (12)	369.911 ± 29.332 (12)	61.456 ± 4.219 (8) **
Total T Cells	51.042 ± 3.006 (12)	50.384 ± 3.157 (12)	47.794 ± 1.427 (11)	43.733 ± 2.347 (12)	60.965 ± 5.207 (12)	18.082 ± 1.234 (8) **
CD4 <sup>+</sup> T Cells <sup>a</sup>	29.310 ± 2.218 (12)	29.307 ± 1.507 (12)	26.288 ± 0.756 (11)	24.645 ± 1.333 (12)	34.575 ± 3.453 (12)	9.423 ± 0.615 (8) **
CD8 <sup>+</sup> T Cells <sup>b</sup>	18.461 ± 1.014 (12)	17.816 ± 1.720 (12)	18.186 ± 0.886 (11)	15.938 ± 1.150 (12)	22.273 ± 1.781 (12)	7.849 ± 0.771 (8) **
B Cells	59.321 ± 4.900 (12)	55.776 ± 3.838 (12)	51.188 ± 2.045 (11)	48.575 ± 3.348 (12)	70.296 ± 7.089 (12)	6.080 ± 0.664 (8) **
NK Cells	40.747 ± 2.421 (12)	32.346 ± 2.744 (12)	34.384 ± 2.490 (11)	30.579 ± 2.551 (12) *	43.360 ± 4.486 (12)	4.771 ± 0.631 (8) **
Mono/Mac Cells <sup>c</sup>	9.717 ± 0.723 (12)	9.205 ± 0.718 (12)	9.181 ± 0.355 (11)	8.780 ± 0.686 (12)	9.943 ± 1.238 (12)	1.294 ± 0.138 (8) **
Neutrophils	6.309 ± 0.495 (12)	5.621 ± 0.480 (12)	5.686 ± 0.351 (11)	5.656 ± 0.455 (12)	6.851 ± 0.639 (12)	2.849 ± 0.464 (8) **
Eosinophils	1.171 ± 0.119 (12)	1.000 ± 0.074 (12)	0.950 ± 0.048 (11)	0.866 ± 0.070 (12)	1.145 ± 0.083 (12)	0.464 ± 0.076 (8) **
Total T Cells: B Cells Ratio	0.888 ± 0.045 (12)	0.918 ± 0.045 (12)	0.943 ± 0.035 (11)	0.920 ± 0.041 (12)	0.889 ± 0.042 (12)	3.145 ± 0.293 (8) **
CD4 <sup>+</sup> T Cells: CD8 <sup>+</sup> T Cells Ratio	1.607 ± 0.107 (12)	1.740 ± 0.109 (12)	1.467 ± 0.051 (11)	1.607 ± 0.108 (12)	1.555 ± 0.088 (12)	1.271 ± 0.135 (8)
Percent Total Lymphocytes	94.685 ± 0.874 (12)	95.475 ± 0.555 (12)	95.280 ± 0.449 (11)	94.818 ± 0.612 (12)	96.301 ± 0.434 (12)	93.880 ± 1.064 (8)
Percent Total T Cells	14.893 ± 0.374 (12) **	15.342 ± 0.394 (12)	16.247 ± 0.301 (11) *	15.865 ± 0.329 (12) *	16.543 ± 0.506 (12) *	29.525 ± 0.870 (8) **
Percent CD4 <sup>+</sup> T Cells <sup>a</sup>	57.009 ± 1.426 (12)	58.735 ± 1.378 (12)	55.075 ± 0.708 (11)	56.603 ± 1.551 (12)	56.207 ± 1.277 (12)	52.505 ± 2.210 (8)
Percent CD8 <sup>+</sup> T Cells <sup>b</sup>	36.577 ± 1.535 (12)	34.735 ± 1.443 (12)	37.862 ± 0.930 (11)	36.244 ± 1.392 (12)	36.860 ± 1.168 (12)	42.968 ± 2.254 (8) *
Percent B Cells	17.055 ± 0.561 (12) *	17.007 ± 0.653 (12)	17.406 ± 0.560 (11)	17.483 ± 0.550 (12)	18.848 ± 0.618 (12)	9.811 ± 0.669 (8) **
Percent NK Cells	12.076 ± 0.679 (12)	9.968 ± 0.738 (12)	11.708 ± 0.817 (11)	11.129 ± 0.793 (12)	11.840 ± 0.926 (12)	7.613 ± 0.713 (8) **
Percent Mono/Mac Cells <sup>c</sup>	2.676 ± 0.125 (12)	2.668 ± 0.116 (12)	2.990 ± 0.133 (11)	3.017 ± 0.187 (12)	2.541 ± 0.134 (12)	1.959 ± 0.117 (8) **
Percent Neutrophils	1.764 ± 0.132 (12)	1.640 ± 0.100 (12)	1.849 ± 0.118 (11)	1.936 ± 0.093 (12)	1.785 ± 0.080 (12)	4.370 ± 0.689 (8) **
Percent Eosinophils	0.321 ± 0.020 (12)	0.291 ± 0.013 (12)	0.308 ± 0.013 (11)	0.299 ± 0.020 (12)	0.305 ± 0.018 (12)	0.725 ± 0.119 (8) **

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#### LEGEND

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Data are displayed as mean  $\pm$  SEM (N) unless otherwise noted.

<sup>a</sup>Helper/DTH - T Cell

<sup>b</sup>Cytotoxic T Cell

<sup>c</sup>Monocytes/Macrophage

All units are per  $10^6$  spleen cells unless otherwise noted

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

Statistical analysis for the positive control group compared to the vehicle control group was performed using the Kruskal-Wallis test.

\* Statistically significant at  $P \leq 0.05$

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

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

CPS = Cyclophosphamide

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