

M10: Thymus Immunophenotyping

Study Number: I20263

Test Compound: Tris(chloropropyl) phosphate

Date: 30 May 2024

DTTID: 104-016-002-000-4

CAS Number: 13674-84-5

Time: 9:31:58 AM

Study Type: Immune screening with perinatal exposure

DTXSID: DTXSID201016652

Species/Strain: Rat/Harlan Sprague Dawley

F1 Males: Thymus Immunophenotyping

	Treatment Groups (ppm)				
	0	2500	5000	10000	15 (mg/kg CPS)
Total Thymocytes (x10 ⁶)	765.800 ± 100.761[12]	800.933 ± 72.732[12]	671.800 ± 66.672[12]	721.236 ± 81.405[11]	47.150 ± 8.429[8]**
Absolute counts					
Total Lymphocytes	754.231 ± 99.299[12]	790.920 ± 71.688[12]	663.449 ± 66.130[12]	712.830 ± 80.526[11]	44.814 ± 8.260[8]**
Total T Cells	721.441 ± 95.089[12]	755.804 ± 68.645[12]	634.009 ± 62.963[12]	678.831 ± 76.918[11]	43.648 ± 8.031[8]**
CD4 ⁺ T Cells ^a	60.493 ± 9.723[12]	62.665 ± 5.267[12]	54.688 ± 5.121[12]	56.378 ± 5.655[11]	12.736 ± 2.167[8]**
CD8 ⁺ T Cells ^b	30.844 ± 4.409[12]	32.280 ± 2.965[12]	27.306 ± 2.867[12]	29.570 ± 3.173[11]	5.260 ± 1.004[8]**
CD4 ⁻ CD8 ⁻ Double Negative	25.145 ± 3.511[12]	26.156 ± 2.520[12]	22.464 ± 1.932[12]	22.995 ± 2.231[11]	3.171 ± 0.623[8]**
CD4 ⁺ CD8 ⁺ Double Positive	571.837 ± 73.957[12]	600.254 ± 55.301[12]	500.496 ± 51.213[12]	539.154 ± 63.643[11]	17.035 ± 3.409[8]**
CD4 ⁺ T Cells:CD8 ⁺ T Cells Ratio	1.970 ± 0.069[12]	1.987 ± 0.084[12]	2.063 ± 0.118[12]	1.930 ± 0.083[11]	2.542 ± 0.107[8]**
Relative counts					
Percent Total Lymphocytes (%)	98.473 ± 0.088[12]**	98.773 ± 0.061[12]*	98.708 ± 0.081[12]*	98.836 ± 0.063[11]**	94.331 ± 0.965[8]**
Percent Total T Cells (%)	95.657 ± 0.079[12]**	95.546 ± 0.061[12]	95.608 ± 0.076[12]	95.195 ± 0.105[11]**	97.421 ± 0.132[8]**
Percent CD4 ⁺ T Cells ^a (%)	8.313 ± 0.268[12]	8.379 ± 0.170[12]	8.788 ± 0.388[12]	8.455 ± 0.318[11]	30.088 ± 1.076[8]**
Percent CD8 ⁺ T Cells ^b (%)	4.238 ± 0.098[12]	4.264 ± 0.118[12]	4.306 ± 0.108[12]	4.405 ± 0.135[11]	11.890 ± 0.367[8]**
Percent CD4 ⁻ CD8 ⁻ Double Negative (%)	3.544 ± 0.182[12]	3.470 ± 0.118[12]	3.635 ± 0.175[12]	3.459 ± 0.106[11]	7.311 ± 0.271[8]**
Percent CD4 ⁺ CD8 ⁺ Double Positive (%)	79.253 ± 0.567[12]	79.331 ± 0.347[12]	78.653 ± 0.553[12]	79.103 ± 0.565[11]	38.146 ± 1.274[8]**

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F1 Females: Thymus Immunophenotyping

	Treatment Groups (ppm)				
	0	2500	5000	10000	15 (mg/kg CPS)
Total Thymocytes (x10 ⁶)	453.667 ± 71.989[12]	431.400 ± 33.883[12]	359.133 ± 37.647[12]	378.600 ± 56.232[12]	23.941 ± 3.871[8]**
Absolute counts					
Total Lymphocytes	449.338 ± 71.334[12]	428.247 ± 33.660[12]	356.666 ± 37.360[12]	376.125 ± 55.886[12]	23.488 ± 3.834[8]**
Total T Cells	400.810 ± 64.253[12]	381.176 ± 29.922[12]	315.956 ± 33.030[12]	331.427 ± 49.733[12]	21.973 ± 3.560[8]**
CD4 ⁺ T Cells ^a	38.850 ± 5.770[12]	36.255 ± 2.833[12]	29.616 ± 3.006[12]	31.693 ± 4.694[12]	6.577 ± 0.929[8]**
CD8 ⁺ T Cells ^b	24.781 ± 3.992[12]	21.782 ± 1.743[12]	18.835 ± 1.949[12]	21.216 ± 3.556[12]	2.930 ± 0.501[8]**
CD4 ⁻ CD8 ⁻ Double Negative	11.554 ± 1.846[12]	10.557 ± 0.810[12]	9.275 ± 0.951[12]	9.797 ± 1.562[12]	1.307 ± 0.192[8]**
CD4 ⁺ CD8 ⁺ Double Positive	299.897 ± 49.441[12]	289.655 ± 23.143[12]	239.661 ± 25.564[12]	247.751 ± 37.150[12]	8.385 ± 1.638[8]**
CD4 ⁺ T Cells:CD8 ⁺ T Cells Ratio	1.620 ± 0.064[12]	1.694 ± 0.075[12]	1.587 ± 0.049[12]	1.518 ± 0.058[12]	2.386 ± 0.149[8]**
Relative counts					
Percent Total Lymphocytes (%)	99.004 ± 0.116[12]**	99.266 ± 0.043[12]	99.322 ± 0.036[12]*	99.340 ± 0.051[12]*	97.883 ± 0.220[8]**
Percent Total T Cells (%)	89.029 ± 0.206[12]**	89.018 ± 0.155[12]	88.599 ± 0.193[12]	88.025 ± 0.189[12]**	93.755 ± 0.256[8]**
Percent CD4 ⁺ T Cells ^a (%)	9.918 ± 0.456[12]	9.565 ± 0.293[12]	9.484 ± 0.275[12]	9.578 ± 0.364[12]	31.295 ± 1.622[8]**
Percent CD8 ⁺ T Cells ^b (%)	6.163 ± 0.256[12]	5.705 ± 0.172[12]	5.997 ± 0.135[12]	6.350 ± 0.204[12]	13.193 ± 0.307[8]**
Percent CD4 ⁻ CD8 ⁻ Double Negative (%)	2.941 ± 0.159[12]	2.786 ± 0.084[12]	2.968 ± 0.082[12]	2.954 ± 0.093[12]	6.264 ± 0.455[8]**
Percent CD4 ⁺ CD8 ⁺ Double Positive (%)	74.466 ± 0.975[12]	75.950 ± 0.378[12]	75.582 ± 0.538[12]	74.846 ± 0.770[12]	36.253 ± 2.264[8]**

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LEGEND

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

All units are $\times 10^6$ /thymus unless otherwise noted.

Statistical analysis performed by Jonckheere (trend) and Shirley or Dunn (pairwise) tests. The positive control group (15 mg/kg CPS) was excluded from trend test.

Statistical analysis for the positive control group (15 mg/kg CPS) compared to the vehicle control group was performed using the Wilcoxon rank sum test.

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 $P \leq 0.01$

^aCD4⁺ T Cells = Helper/DTH - T Cell

^bCD8⁺ T Cells = Cytotoxic T Cell

SEM = Standard Error of the Mean

SD = Study Day

CPS = Cyclophosphamide

Males from the vehicle control and treatment groups were removed on SD 97; females were removed on SD 89.

Animals from the positive control group (15 mg/kg CPS) were purchased from a commercial source, age matched to the F1 animals, and removed on the same day as the F1 animals.

**** END OF REPORT ****