

Experiment Number: **G05037C**

Test Type: **Genetic Toxicology - In Vitro
Micronucleus**

G03: In Vitro Micronucleus Summary Data

Test Compound: **Diquat dibromide monohydrate|Distilled Water**

Date Report Requested: **07/13/2023**

Time Report Requested: **10:43:00**

NTP Study Number:

G05037C

Cell Type:

TK6

Study Result:

Positive

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Test Compound: Diquat dibromide monohydrate|Distilled Water

Time Report Requested: 10:43:00

Duration: 4 h; Activation: Without S9

Concentration (mM)	% Relative Survival	% Apoptosis and Necrosis	Fold Change in Apoptosis and Necrosis	Mean \pm SEM	p-Value
	Mean	Mean	Mean		
Vehicle Control ¹	100.0	1.46	1.0	0.393 \pm 0.032	
0.0363	84.3	2.9	2.0	0.693 \pm 0.149	0.1486
0.0513	79.6	3.3	2.3	0.940 \pm 0.221	0.0125 *
0.0726	68.2	3.77	2.6	0.887 \pm 0.205	0.0460
0.1027	59.7	4.43	3.0	1.073 \pm 0.137	0.0046 *
0.1257	52.2	6.57	4.5	1.150 \pm 0.040	
0.154	42.8	9.53	6.5	2.760 \pm 0.630	
0.1886	39.6	11.8	8.1	3.590 \pm 1.480	
0.2309	38.6	12.5	8.5	4.710 \pm 1.780	
0.2828	30.8	16.63	11.4	6.910 \pm 0.910	
0.3464	28.2	19.83	13.5	10.440 \pm 4.520	
0.4243	24.2	17.33	11.8	9.710 \pm 1.460	
0.6	20.5	30.83	21.0	11.860 \pm 3.940	
Trend p-Value				< 0.001 *	
VIN ²	53.5	10.48	7.2	4.720 \pm 0.410	< 0.001 *

Trial Summary: Weakly Positive

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Time Report Requested: 10:43:00

Duration: 4 h; Activation: Without S9

Concentration (mM)	% Relative Survival	% Apoptosis and Necrosis	Fold Change in Apoptosis and Necrosis	% MN	p-Value
	Mean	Mean	Mean	Mean ± SEM	
Vehicle Control ¹	100.0	1.82	1.0	0.159 ± 0.021	
0.017	54.1	2.03	1.1	0.333 ± 0.018	0.2127
0.024	91.8	2.33	1.3	0.293 ± 0.066	0.7344
0.034	77.4	2.3	1.3	0.340 ± 0.060	0.2553
0.048	73.9	2.93	1.6	0.380 ± 0.035	0.0479
0.059	74.2	2.57	1.4	0.347 ± 0.047	0.1848
0.072	67.9	3.53	1.9	0.440 ± 0.092	0.0284
0.088	64.0	3.8	2.1	0.433 ± 0.088	0.0340
0.11	58.4	4.57	2.5	0.720 ± 0.308	0.0105 *
0.13	51.1	6.13	3.4	0.707 ± 0.212	0.0020 *
0.16	45.9	8.13	4.5	1.530 ± 0.630	
0.20	39.4	11.8	6.5	3.490 ± 1.650	
0.28	33.0	19.43	10.7	1.920 ± 0.370	
Trend p-Value				< 0.001 *	
VIN ²	37.8	27.3	15.0	1.315 ± 0.295	< 0.001 *

Trial Summary: Weakly Positive

Experiment Number: G05037C

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Date Report Requested: 07/13/2023

Test Type: Genetic Toxicology - In Vitro
Micronucleus

Test Compound: Diquat dibromide monohydrate|Distilled Water

Time Report Requested: 10:43:00

Duration: 24 h; Activation: Without S9

Concentration (mM)	% Relative Survival	% Apoptosis and Necrosis	Fold Change in Apoptosis and Necrosis	% MN	p-Value
	Mean	Mean	Mean	Mean ± SEM	
Vehicle Control ¹	100.0	1.66	1.0	0.756 ± 0.077	
0.009072	85.2	3.77	2.3	0.747 ± 0.013	1.0000
0.01283	81.2	4.13	2.5	0.767 ± 0.187	1.0000
0.01814	71.3	5.43	3.3	1.267 ± 0.217	0.2124
0.02566	65.4	5.13	3.1	1.660 ± 0.050	0.0416
0.03143	61.3	5.93	3.6	2.113 ± 0.074	0.0042 *
0.03849	56.2	7.1	4.3	2.310 ± 0.470	
0.04714	49.2	9.03	5.5	3.100 ± 0.140	
0.05774	45.8	8.13	4.9	3.450 ± 0.390	
0.07071	39.3	10.4	6.3	5.520 ± 1.350	
0.0866	35.4	13.73	8.3	5.890 ± 1.040	
0.10607	29.9	17.63	10.7	5.800 ± 1.100	
0.15	27.0	22.13	13.4	11.130 ± 1.980	
Trend p-Value				< 0.001 *	
VIN ³	69.1	13.2	8.0	8.880 ± 0.280	0.0169 *

Trial Summary: Positive

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Test Type: Genetic Toxicology - In Vitro
Micronucleus

Test Compound: Diquat dibromide monohydrate|Distilled Water

Time Report Requested: 10:43:00

Duration: 24 h; Activation: Without S9

Concentration (mM)	% Relative Survival	% Apoptosis and Necrosis	Fold Change in Apoptosis and Necrosis	% MN	p-Value
	Mean	Mean	Mean	Mean ± SEM	
Vehicle Control ¹	100.0	1.98	1.0	0.184 ± 0.010	
0.0052	94.6	1.87	0.9	0.273 ± 0.041	1.0000
0.0074	90.5	2.17	1.1	0.307 ± 0.057	0.8086
0.010	76.1	2.53	1.3	0.473 ± 0.107	0.1947
0.015	70.5	2.57	1.3	0.547 ± 0.151	0.1284
0.018	71.0	3.1	1.6	0.507 ± 0.047	0.1411
0.022	65.8	3.77	1.9	0.993 ± 0.224	0.0085 *
0.027	61.2	4.07	2.1	1.180 ± 0.181	0.0045 *
0.033	61.5	4.87	2.5	1.160 ± 0.035	0.0066 *
0.041	55.6	5.9	3.0	2.047 ± 0.408	< 0.001 *
0.050	48.0	6.8	3.4	2.040 ± 0.437	< 0.001 *
0.061	44.0	9.23	4.7	2.790 ± 0.740	
0.086	39.2	15.83	8.0	2.730 ± 0.360	
Trend p-Value				< 0.001 *	
VIN ³	39.0	20.18	10.2	3.425 ± 0.589	< 0.001 *

Trial Summary: Positive

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G03: In Vitro Micronucleus Summary Data
 Test Compound: Diquat dibromide monohydrate|Distilled Water

Date Report Requested: 07/13/2023

Test Type: Genetic Toxicology - In Vitro
 Micronucleus

Time Report Requested: 10:43:00

Duration: 4 h; Activation: With 1% Rat S9

Concentration (mM)	% Relative Survival		% Apoptosis and Necrosis		Fold Change in Apoptosis and Necrosis		% MN	
	Mean		Mean		Mean		Mean ± SEM	p-Value
Vehicle Control ¹	100.0		4.69		1.0		0.193 ± 0.017	
0.018	90.1		4.5		1.0		0.247 ± 0.053	1.0000
0.026	97.6		4.27		0.9		0.187 ± 0.052	1.0000
0.036	70.4		4.8		1.0		0.287 ± 0.087	1.0000
0.051	76.2		5.57		1.2		0.300 ± 0.070	0.8495
0.063	70.7		5.47		1.2		0.387 ± 0.064	0.2193
0.077	64.4		8.03		1.7		0.453 ± 0.074	0.1023
0.094	61.5		9.13		1.9		0.860 ± 0.250	0.0093 *
0.12	45.3		10.93		2.3		1.047 ± 0.274	0.0052 *
0.14	48.7		14.57		3.1		1.867 ± 0.681	0.0020 *
0.17	47.0		16.7		3.56		1.120 ± 0.400	0.0218 *
0.21	41.8		20.3		4.3		3.180 ± 1.510	
0.30	37.3		23.97		5.1		2.380 ± 1.100	
Trend p-Value							< 0.001 *	
CPA ⁴	50.9		10.25		2.2		1.045 ± 0.239	< 0.001 *

Trial Summary: Positive

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LEGEND

MN = Micronuclei, CAS = Chemical abstract registry

For the 4 h chemical exposures with and without S9, the medium with test article (and S9, if present) is changed after 4 h and replaced with fresh medium without test article or S9, and cells are cultured for an additional 20 h to achieve a total culture time of 24 h

Values given as Mean or Mean \pm Standard Error Mean

Statistical analysis only performed on: % MN

Pairwise comparison with the vehicle control; values are significant at $P \leq 0.025$ by Dunn's test

Positive control: pairwise comparison with the vehicle control; values are significant at $P \leq 0.05$ by Mann Whitney U test

Apoptotic and necrotic cells are detected in the assay as ethidium monoazide (EMA)-positive events

Concentration-related trend; significant at $P \leq 0.025$ by Jonckheere's test

* Statistically significant pairwise or trend test

The number of wells per concentration of test article = 3

1: Vehicle Control: Distilled Water

2: Positive Control: 3 ng/mL Vinblastine sulfate

3: Positive Control: 0.75 ng/mL Vinblastine sulfate

4: Positive Control: 3 ug/mL Cyclophosphamide monohydrate

**** END OF REPORT ****