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MUTAGENIC EVALUATION OF  
COMPOUND FDA 73-74

007681110

POTASSIUM IODIDE A.C.S.  
REAGENT, 30 MESH GRANULAR

Mutagenic Evaluation of Compound FDA 73-74 (Potassium Iodine A. C. S. Reagent,  
30 Mesh Granular) 5/30/75

LBI PROJECT #2468

MUTAGENIC EVALUATION OF  
COMPOUND FDA 73-74

007681110

POTASSIUM IODIDE A.C.S.  
REAGENT, 30 MESH GRANULAR

SUBMITTED TO

FOOD AND DRUG ADMINISTRATION  
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE  
ROCKVILLE, MARYLAND

SUBMITTED BY

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MAY 30, 1975



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## EVALUATION SUMMARY

Compound FDA 73-74, Potassium Iodide A.C.S. Reagent, was not genetically active in any of the in vitro assays employed in this evaluation.



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DATE: May 30, 1975

SPONSOR: Food and Drug administration, Contract Number 223-74-2104

SUBJECT: Evaluation of Test Compound 007681110, Potassium Iodide, A.C.S. Reagent  
30 mesh granular, FDA 73-74

I. OBJECTIVE

The objective of this study was to evaluate the test compound for genetic activity in microbial assays with and without the addition of mammalian metabolic activation preparations.

II. MATERIALS

A. Test Compound

1. Date Received: August, 1974
2. Description: White crystalline material

B. Indicator Microorganisms

The following strains of indicator microorganisms were used in the evaluation:

Yeast Strain: Saccharomyces cerevisiae, strain D4

Bacteria Strains: Salmonella typhimurium, strains: TA-1535  
TA-1537  
TA-1538

C. Reaction Mixture

The following reaction mixture was employed in the activation tests:

<u>Component</u>	<u>Final Concentration/ml</u>
1. TPN (sodium salt)	6.0 $\mu$ M
2. Isocitric acid	49.0 $\mu$ M
3. Tris buffer, pH 7.4	28.0 $\mu$ M
4. MgCl <sub>2</sub>	1.7 $\mu$ M
5. Tissue homogenate fraction	72.0 mg



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D. Tissue Homogenates and Supernatants

The tissue homogenates and 9,000 x g supernatants were prepared from tissues of the following mammalian species: Mouse-ICR random bred adult males; rat-Sprague-Dawley adult males; and primate-Macaca mulatta adult males.

E. Positive Control Compounds

Table 1 lists chemicals for positive controls in the direct and activation assays.

TABLE 1  
POSITIVE CONTROLS USED IN DIRECT AND ACTIVATION ASSAYS

<u>Assay</u>	<u>Chemical</u> <sup>a</sup>	<u>Solvent</u>	<u>Probable Mutagenic Specificity</u>
Nonactivation	Ethyl methanesulfonate	Water or saline	BPS <sup>b</sup>
	2-Nitrofluorene	Dimethylsulfoxide <sup>c</sup>	FS <sup>b</sup>
	Quinacrine mustard	Water or saline	FS <sup>b</sup>
Activation	Dimethylnitrosamine	Water or saline	BPS <sup>b</sup>
	2-Acetylaminofluorene	Dimethylsulfoxide <sup>c</sup>	FS <sup>b</sup>

- <sup>a</sup> Concentrations given in the Results Section  
<sup>b</sup> BPS = base-pair substitution; FS = frameshift  
<sup>c</sup> Previously shown to be non-mutagenic

III. METHODS

A. Toxicity

The solubility, toxicity and doses for all chemicals were determined prior to screening.

Each chemical was tested for survival against the specific indicator strains over a range of doses to determine the 50% survival dose. Bacteria were tested in phosphate buffer, pH 7.4, for one hour at 37°C on a shaker. Yeasts were tested in phosphate buffer, pH 7.4, for four hours at 30°C on a shaker. The 50% survival curve and the 1/4 and 1/2 50% doses calculated.

If no toxicity was obtained for a chemical with a given strain, then a maximum dose of 5% (w/v) was used against the strain.

Unless otherwise specified, the doses calculated for the tests in buffer were applied to the activation tests. The solubility of the test chemical under treatment conditions is stated in the Results Section.



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## B. Plate Tests

In the nonactivation procedure, approximately  $10^9$  cells of a log-phase culture of the bacterial indicator strains were spread over the surface of a minimal plate, and a measured amount of the test chemical was placed in the center of the test plate. In activation tests, the test chemical was added to the cells, and an aliquot of the mixture was spread on the surface of the test plate. The reaction mixture (0.1 ml) plus tissue extract was then spotted on the surface of the plate. Positive and solvent controls were included. All plates were incubated at  $37^\circ\text{C}$  for four days and then scored. Each compound (test, positive control and solvent control) was done in duplicate. Concentrations of the positive control compounds are listed in the Results Section.

## C. Suspension Tests

### 1. Nonactivation

Log-phase bacteria and stationary-phase yeast cultures of the indicator organisms were grown in complete broth, washed and resuspended in 0.9% saline to densities of  $1 \times 10^9$  cells/ml and  $5 \times 10^7$  cells/ml, respectively. This constituted the working stock for tests of a group of test chemicals and their respective controls. Tests were conducted in plastic tissue culture plates. Cells plus appropriate volume(s) of the test chemical were added to the wells to give a final volume of 1.5 ml. The solvent replaced the test chemical in the negative controls. Treatment was at  $30^\circ\text{C}$  for four hours for yeast tests and at  $37^\circ\text{C}$  for one hour for bacterial tests. All flasks were shaken during treatment. Following treatment, the plates were set on ice. Aliquots of cells were removed, diluted in sterile saline ( $4^\circ\text{C}$ ) and plated on the appropriate complete media. Undiluted samples from flasks containing the bacteria were plated on minimal selective medium in reversion experiments. Samples from a  $10^{-1}$  dilution of treated cells were plated on the selected media for enumeration of gene conversion with strain D4. Bacterial plates were scored after incubation for 48 hours at  $37^\circ\text{C}$ . The yeast plates were incubated at  $30^\circ\text{C}$  for 3-5 days before scoring.

### 2. Activation.

Bacteria and yeast cells were grown and prepared as described in the nonactivation tests. Measured amounts of the test and control chemicals plus 0.25 ml of the stock-cell suspension were added to wells of the Linbro plate containing the appropriate tissue fraction and reaction mixture. All flasks (bacteria and yeast) were incubated at  $37^\circ\text{C}$  in an oxygen atmosphere with shaking. The treatment times as well as the dilutions, plating procedures and scoring of the plates were the same as described for nonactivation tests.



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D. Preparation of Tissue Homogenates and 9,000 x g Cell Fractions

Male animals (sufficient to provide the necessary quantities of tissues) were killed by cranial blow, decapitated and bled. Organs were immediately dissected from the animal using aseptic techniques and placed in ice-cold 0.25 M sucrose buffered with Tris at pH of 7.4. Upon collection of the desired quantity of organs, they were washed twice with fresh buffered sucrose and completely homogenized with a motor-driven homogenizing unit at 4°C. The whole organ homogenate obtained from this step was divided into two samples. One sample was frozen at -80°C and the other was centrifuged for 20 minutes at 9,000 x g in a refrigerated centrifuge. The supernatant from the centrifuged sample was retained and frozen at -80°C. These two frozen samples were used for the activation studies.

E. Data Recording and Reporting

Following the specified incubation periods all population plates were scored by an automatic colony counter and the results from each plate of a set were recorded, in ink, on data processing forms. All minimal or other types of selective media plates were hand scored and the results recorded along with the respective population data. Other relevant experimental data were recorded on experimental definition forms. For bacteria strains the number of colonies recorded from either the population or selective plates represents that number in 1 ml of test suspension plated. The numbers recorded for the yeast strain D4 represent the number in 0.5 ml of test suspension plated. The data were then processed and printed from a computer program.

IV. RESULTS SECTION

A. Solubility Properties of the Test Compound

1. Name or code designation of the test compound: 007681110, Potassium Iodide A.C.S. Reagent, 30 mesh granular.
2. Test solvent: DMSO
3. Solubility of the test compound under treatment conditions: Soluble under treatment conditions.
4. Additional comments: White crystalline grains

B. Toxicity and Dosage Determinations for the Test Compound

1. Test date for toxicity determination: February 11, 1975
2. The 50% survival level was determined for bacteria and yeast indicator organisms by conducting survival curves with the test compound at the following concentrations:

Percent Concentration (w/v or v/v)

5.0  
0.5  
0.05  
0.005  
0.0005

3. Concentrations of the test compound used in the mutagenicity tests:

<u>Dose</u>	<u>Percent Concentration</u>	
	<u>Bacteria</u>	<u>Yeast</u>
1/4 50% Survival	2.5	0.25
1/2 50% Survival	5.0	0.50
50% Survival	10.0	1.00
Plate Tests	5.0	--



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V. SUMMARY OF TEST RESULTS

Plate Tests

A. Name or code designation of the test compound: 007681110

B. Test date: March 29, 1975

C. Concentration of the test compound: 5.0%

Test	Species	Tissue	TA-1535		TA-1537		TA-1538	
			1	2	1	2	1	2
<u>1. Nonactivation</u>								
Solvent Control	---	---	11	20	4	5	15	11
Positive Control <sup>a</sup>	---	---	>10 <sup>5</sup>	>10 <sup>5</sup>	193	207	145	134
Test Compound	---	---	1	0	0	1	3	2
<u>2. Activation</u>								
Negative Control	---	---	7	10	6	3	7	12
Solvent Control	---	---	20	24	5	9	15	14
Reaction Mixture Control	---	---	23	20	7	8	18	16
Positive Control <sup>b</sup>	Mouse	Liver	>10 <sup>3</sup>	>10 <sup>3</sup>	39	34	343	357
Positive Control		Lung	12	8	2	1	11	16
Positive Control		Testes	16	17	3	8	7	11
Positive Control	Rat	Liver	>10 <sup>3</sup>	>10 <sup>3</sup>	89	88	347	341
Positive Control		Lung	14	7	2	3	14	18
Positive Control		Testes	16	13	5	7	10	13
Positive Control	Monkey	Liver	273	356	30	33	123	119
Positive Control		Lung	8	8	2	2	13	14
Positive Control		Testes	15	12	3	6	8	11
Test Compound	Mouse	Liver	11	11	7	5	22	19
Test Compound		Lung	6	5	3	2	4	8
Test Compound		Testes	4	8	6	5	9	14
Test Compound	Rat	Liver	11	13	5	5	22	18
Test Compound		Lung	6	5	3	2	7	11
Test Compound		Testes	7	8	6	7	14	14
Test Compound	Monkey	Liver	10	15	8	5	20	19
Test Compound		Lung	7	5	3	2	5	7
Test Compound		Testes	8	7	5	5	7	11

a TA-1535 EMS 10 µl/plate  
 TA-1537 QM 20 µg/plate  
 TA-1538 NF 100 µg/plate

b TA-1535 DMNA 50 µM/plate  
 TA-1537 AAF 100 µg/plate  
 TA-1538 AAF 100 µg/plate



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## DATA TABLE TERMS AND ABBREVIATIONS

ABBREVIATION OR TERM	DEFINITION OR EXPLANATION
COMPOUND	Client designated compound number appears in this column.
TEST CODES	<p>NAN = Nonactivation: Solvent Control            NAP = Nonactivation: Positive Control            NA1 = Nonactivation: Test Compound Dose 1            NA2, etc. = Reflects the other dose level(s)</p> <p>A+C = Negative Chemical Control            A-C = Activation: Solvent Control            ACP = Activation: Positive Control            ACT = Activation: Test Compound            A+T = Activation: Tissue Control</p> <p>LI = Liver Tissue Activation Fraction            LU = Lung Tissue Activation Fraction            KI = Kidney Tissue Activation Fraction            TE = Testes Tissue Activation Fraction            1,2, etc. = Dose Levels</p>
CONCENTRATION	<p>All test compound dose levels are expressed as a whole number followed by an exponent (negative) identified by the appropriate units.</p> <p>Example: 0025-2PCT = 0.25 percent concentration</p>
POPU	Total number of viable cells in the plating sample raised to some exponent printed directly below the abbreviation (i.e., EP + 6 = $x 10^6$ ).
MUT 1	Total number of mutants or convertants obtained from the sample plated raised to some exponent printed directly below the abbreviation (i.e., EP + 0 = $x 10^0$ ). For strain D4, MUT 1 represents the number of ADE+ convertants.
MUT 2	Only used for strain D4 and represents the number of TRY+ convertants in the plated sample.
FREQ 1	The calculated mutation or gene conversion frequency times the negative exponent written directly below. For strain D4, FREQ 1 represents the ADE+ value.
FREQ 2	Only used for strain D4 and represents the TRY+ conversion frequency.
CONTAM	Presence of contamination on any plates.



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DATA TABLE TERMS AND ABBREVIATIONS (continued)

ABBREVIATION OR TERM	DEFINITION OR EXPLANATION
AAF	2-Acetylaminofluorene
DMSO	Dimethylsulfoxide
DMN	Dimethylnitrosamine
EMS	Ethyl Methanesulfonate
QM	Quinacrine Mustard
NF	Nitrofluorene
SPECIES	Animal Strains
SPRDAW	Sprague Dawley Rats
ICRFLO	Flow ICR Random Bred Mice
RHESUS	Rhesus Monkey ( <u>Macaca mulatta</u> )
MIXEDB	Dog, Mixed Breed
NEWZEA	New Zealand White Rabbit

LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 05/15/75

SPECIES COMPOUND 007681110

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
NAN		10.15	2.10	9.02	1.58	1.69
NAP		273.70	225.89	145.97	113.25	60.11
NA1		1.69	0.60	1.91	0.63	0.31
NA2		5.03	1.44	2.72	0.59	0.98



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LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
 REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 05/15/75

SPECIES ICRFLO COMPOUND 007681110

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	TA1538 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
ACT	A+C	5.99	2.10	11.20		16.01	4.11
ACT	A+T	12.45	2.10	10.46		15.24	3.26
ACT	A-C	6.65	2.91	10.54	3.19	19.85	3.33
ACT	PLI	1168.86	10.07	37.43		20.62	4.92
ACT	PLU	8.06	2.19	12.57		39.08	3.22
ACT	PTE	9.32	2.86	12.54		23.53	3.29
ACT	L11	13.07	2.60	41.25	7.00	11.24	2.01
ACT	L12	11.55	2.41	21.01		14.03	2.38
ACT	LU1	10.58	1.43	11.11		14.55	2.74
ACT	LU2	9.59	1.98	11.14		11.58	2.01
ACT	TE1	7.87	0.26	12.50		15.02	2.47
ACT	TE2	6.94	0.99	11.94		13.55	1.37



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LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
 REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 05/15/75

SPECIES SPRDAW COMPOUND 007681110

TEST	ORG	TA1535 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
ACT	A+C	17.47	0.63	5.39	0.58	0.39
ACT	A+T	11.03	1.23	10.55	2.35	2.75
ACT	A-C	11.62	0.58	5.36	0.72	0.18
ACT	PLI	1500.00	7.28	59.37	8.75	10.22
ACT	PLU	18.29	0.84	7.31	3.40	1.39
ACT	PTE	22.47	0.33	8.13	3.38	1.93
ACT	LI1	13.11	0.41	14.68	1.65	2.94
ACT	LI2	12.21	0.52	7.03	0.97	1.17
ACT	LU1	15.62	0.22	7.09	2.12	0.63
ACT	LU2	11.28	0.56	5.71	2.95	2.18
ACT	TE1	10.38	0.60	8.22	2.16	2.30
ACT	TE2	13.86	0.75	7.49	2.07	2.87



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LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
 REPORT EXR34

COMPOUND FREQUENCY SUMMARY REPORT 06/17/75

SPECIES RHESUS/MONKEY

COMPOUND 007681110

TEST	ORG	TA1537 HIS EX-8	TA1537 HIS EX-8	TA1538 HIS EX-8	TA1535 HIS EX-8	0000D4 ADE EX-5	0000D4 TRY EX-5
ACT	A+C	7.44	2.28	4.49	7.43	10.40	1.65
ACT	A+T	11.84	3.14	4.09	14.05	15.69	2.55
ACT	A-C	7.04	1.55	5.55	7.01	14.76	2.24
ACT	PLI	19.31	4.91	24.13	1352.79	14.99	2.71
ACT	PLU	6.35	3.43	2.77	4.62	12.58	2.35
ACT	PTE	8.79	4.14	6.29	8.16	20.07	2.79
ACT	L11	13.71	4.49	1.63	10.61	17.27	3.01
ACT	L12	23.28	2.62	3.53	9.33	20.90	4.02
ACT	LU1	6.73	1.93	2.58	5.54	14.75	2.54
ACT	LU2	6.77	1.71	2.87	7.87	13.04	1.45
ACT	TE1	12.50	1.35	3.81	4.00	11.81	1.84
ACT	TE2	26.09	1.19	4.08	6.99	24.53	5.41



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VI. INTERPRETATION OF RESULTS AND CONCLUSIONS

Compound FDA 73-74, Potassium Iodide A.C.S. Reagent, was evaluated for genetic activity in a series of in vitro microbial assays with and without metabolic activation. The following results were obtained:

A. Salmonella typhimurium

1. Plate tests

At a concentration of 5.0%, this chemical was not mutagenic in direct or activation plate tests.

2. Nonactivation suspension tests

The results of these tests were negative.

3. Activation suspension tests

The mutation frequency at the LI1 dose with TA-1538 and mouse liver appeared increased in the initial experiment. The results appeared to be the result of low surviving populations, and the test was repeated. The repeat results were negative. The mutation frequencies at the LI2 and TE2 doses with TA-1537 using primate tissues also appeared increased.

The TE2 response could have resulted from low population counts. Neither increase was supported by other test data and were not considered to be significant. The results of these tests were all negative.

B. Saccharomyces cerevisiae

1. Nonactivation suspension tests

The results of these tests were negative.

2. Activation suspension tests

The results of these tests were negative.

C. Conclusions

The compound Potassium Iodide A.C.S. Reagent was not genetically active in any of the in vitro microbial assays employed in this evaluation.

Submitted by:

  
David Brusick, Ph.D.  
Director of Genetics



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APPENDIX  
Tabulation of Data



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104		PROJECT 02468			
EXPERIMENT 505803		DETECTOR TA1535		SPECIES		DATE - 05/15/75	
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		SALINE	1340	0136	10.15	0
	NAP		EMS 0.002 %	1327	3632	273.70	0
007681110	NA1		0005-0 PCT.	0590	0010	1.69	0
007681110	NA2		0025-1 PCT.	0855	0043	5.03	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104			PROJECT 02468			
EXPERIMENT 508301		DETECTOR TA1537			SPECIES			DATE - 05/15/75
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM	
	NAN		SALINE	0713	0015	2.10	0	
	NAP		QM 1.0 UG/ML	0421	0951	225.89	0	
007681110	NA1		0005-0 PCT.	0834	0005	0.60	0	
007681110	NA2		0025-1 PCT.	0905	0013	1.44	0	



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104		PROJECT 02468			
EXPERIMENT 505802		DETECTOR TA1538		SPECIES		DATE - 05/15/75	
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	NAN		DMSO	0599	0054	9.02	0
	NAP		NF 125 UG-ML	0546	0797	145.97	0
007681110	NA1		0005-0 PCT.	0367	0007	1.91	0
007681110	NA2		0025-1 PCT.	0515	0014	2.72	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104		PROJECT 02468					
EXPERIMENT 505804		DETECTOR 0000D4		SPECIES			DATE - 05/15/75		
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	NAN		SALINE	0947	0015	0016	1.58	1.69	0
	NAP		EMS 1.0 %	0702	0795	0422	113.25	60.11	7
007681110	NA1		0005-1 PCT.	0318	0002	0001	0.63	0.31	1
007681110	NA2		0025-2 PCT.	0510	0003	0005	0.59	0.98	0



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COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104

PROJECT 02468

EXPERIMENT 506301

DETECTOR TA1535

SPECIES ICRFLO

DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0734	0044	5.99	0
	A+T		***NO MATCH***	0819	0102	12.45	0
	A-C		SALINE	0917	0061	6.65	0
	ACP	LI	DMN 50 UM/ML	0456	5330	1168.86	1
	ACP	LU	DMN 50 UM/ML	0608	0049	8.06	0
	ACP	TE	DMN 50 UM/ML	0590	0055	9.32	0
007681110	ACT	LI1	0005-0 PCT.	0505	0066	13.07	0
007681110	ACT	LI2	0025-1 PCT.	0840	0097	11.55	0
007681110	ACT	LU1	0005-0 PCT.	0539	0057	10.58	0
007681110	ACT	LU2	0025-1 PCT.	0678	0065	9.59	0
007681110	ACT	TE1	0005-0 PCT.	0661	0052	7.87	0
007681110	ACT	TE2	0025-1 PCT.	0965	0067	6.94	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468  
EXPERIMENT 505901 DETECTOR TA1537 SPECIES ICRFLO DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	1476	0031	2.10	0
	A+T		***NO MATCH***	1524	0032	2.10	0
	A-C		DMSO	1445	0042	2.91	0
	ACP	LI	AAF 800 UG/ML	1489	0150	10.07	0
	ACP	LU	AAF 800 UG/ML	1463	0032	2.19	0
	ACP	TE	AAF 800 UG/ML	1293	0037	2.86	0
007681110	ACT	LI1	0005-0 PCT.	1383	0036	2.60	0
007681110	ACT	LI2	0025-1 PCT.	1538	0037	2.41	0
007681110	ACT	LU1	0005-0 PCT.	1468	0021	1.43	0
007681110	ACT	LU2	0025-1 PCT.	1669	0033	1.98	0
007681110	ACT	TE1	0005-0 PCT.	1528	0004	0.26	0
007681110	ACT	TE2	0025-1 PCT.	1609	0016	0.99	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
 COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104		PROJECT 02468			
EXPERIMENT 506401		DETECTOR TA1538		SPECIES ICRFLO		DATE - 05/15/75	
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0598	0067	11.20	0
	A+T		***NO MATCH***	0841	0088	10.46	0
	A-C		DMSO	0446	0047	10.54	0
	ACP	LI	AAF 800 UG/ML	0505	0189	37.43	0
	ACP	LU	AAF 800 UG/ML	0565	0071	12.57	2
	ACP	TE	AAF 800 UG/ML	0606	0076	12.54	0
007681110	ACT	LI1	0005-0 PCT.	0160	0066	41.25	0
007681110	ACT	LI2	0025-1 PCT.	0257	0054	21.01	0
007681110	ACT	LU1	0005-0 PCT.	0333	0037	11.11	2
007681110	ACT	LU2	0025-1 PCT.	0368	0041	11.14	2
007681110	ACT	TE1	0005-0 PCT.	0264	0033	12.50	0
007681110	ACT	TE2	0025-1 PCT.	0427	0051	11.94	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468  
EXPERIMENT 509302 DETECTOR TA1538 SPECIES ICRFLO DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A-C		DMSO	0595	0019	3.19	0
007681110	ACT	LI1	0005-0 PCT.	0443	0031	7.00	2



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104		PROJECT 02468					
EXPERIMENT 510401		DETECTOR 0000D4		SPECIES ICRFLO			DATE - 05/15/75		
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0706	0113	0029	16.01	4.11	0
	A+T		***NO MATCH***	1319	0201	0043	15.24	3.26	6
	A-C		SALINE	0660	0131	0022	19.85	3.33	2
	ACP	LI	DMN 90 UM/ML	0325	0067	0016	20.62	4.92	6
	ACP	LU	DMN 90 UM/ML	0870	0340	0028	39.08	3.22	2
	ACP	TE	DMN 90 UM/ML	0850	0200	0028	23.53	3.29	4
007681110	ACT	LI1	0005-1 PCT.	0747	0084	0015	11.24	2.01	6
007681110	ACT	LI2	0025-2 PCT.	0713	0100	0017	14.03	2.38	2
007681110	ACT	LU1	0005-1 PCT.	0584	0085	0016	14.55	2.74	0
007681110	ACT	LU2	0025-2 PCT.	0596	0069	0012	11.58	2.01	0
007681110	ACT	TE1	0005-1 PCT.	0446	0067	0011	15.02	2.47	6
007681110	ACT	TE2	0025-2 PCT.	0583	0079	0008	13.55	1.37	6



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104

PROJECT 02468

EXPERIMENT 506501

DETECTOR TA1535

SPECIES SPRDAW

DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0435	0076	17.47	0
	A+T		***NO MATCH***	0571	0063	11.03	0
	A-C		SALINE	0697	0081	11.62	0
	ACP	LI	DMN 50 UM/ML	0388	5820	1500.00	0
	ACP	LU	DMN 50 UM/ML	0410	0075	18.29	0
	ACP	TE	DMN 50 UM/ML	0356	0080	22.47	2
007681110	ACT	LI1	0005-0 PCT.	0511	0067	13.11	2
007681110	ACT	LI2	0025-1 PCT.	0639	0078	12.21	0
007681110	ACT	LU1	0005-0 PCT.	0365	0057	15.62	0
007681110	ACT	LU2	0025-1 PCT.	0603	0068	11.28	0
007681110	ACT	TE1	0005-0 PCT.	0530	0055	10.38	2
007681110	ACT	TE2	0025-1 PCT.	0505	0070	13.86	2

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
 COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468  
 EXPERIMENT 507001 DETECTOR TA1537 SPECIES SPRDAW DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	1906	0012	0.63	0
	A+T		***NO MATCH***	2198	0027	1.23	0
	A-C		DMSO	1900	0011	0.58	0
	ACP	LI	AAF 800 UG/ML	1594	0116	7.28	0
	ACP	LU	AAF 800 UG/ML	1657	0014	0.84	2
	ACP	TE	AAF 800 UG/ML	1841	0006	0.33	2
007681110	ACT	LI1	0005-0 PCT.	1944	0008	0.41	0
007681110	ACT	LI2	0025-1 PCT.	2491	0013	0.52	0
007681110	ACT	LU1	0005-0 PCT.	1813	0004	0.22	0
007681110	ACT	LU2	0025-1 PCT.	2144	0012	0.56	0
007681110	ACT	TE1	0005-0 PCT.	2315	0014	0.60	2
007681110	ACT	TE2	0025-1 PCT.	2273	0017	0.75	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468  
EXPERIMENT 507901 DETECTOR TA1538 SPECIES SPRDAW DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0445	0024	5.39	0
	A+T		***NO MATCH***	0275	0029	10.55	2
	A-C		DMSO	0392	0021	5.36	0
	ACP	LI	AAF 800 UG/ML	0507	0301	59.37	0
	ACP	LU	AAF 800 UG/ML	0588	0043	7.31	0
	ACP	TE	AAF 800 UG/ML	0541	0044	8.13	0
007681110	ACT	LI1	0005-0 PCT.	0218	0032	14.68	2
007681110	ACT	LI2	0025-1 PCT.	0384	0027	7.03	2
007681110	ACT	LUI	0005-0 PCT.	0282	0020	7.09	2
007681110	ACT	LU2	0025-1 PCT.	0350	0020	5.71	0
007681110	ACT	TE1	0005-0 PCT.	0304	0025	8.22	2
007681110	ACT	TE2	0025-1 PCT.	0454	0034	7.49	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104			PROJECT 02468				
EXPERIMENT 506601		DETECTOR 0000D4			SPECIES SPRDAW			DATE - 05/15/75	
COMPOUND	TEST	DRG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	1037	0006	0004	0.58	0.39	4
	A+T		***NO MATCH***	1020	0024	0028	2.35	2.75	4
	A-C		SALINE	1104	0008	0002	0.72	0.18	4
	ACP	LI	DMN 90 UM/ML	0949	0083	0097	8.75	10.22	4
	ACP	LU	DMN 90 UM/ML	0794	0027	0011	3.40	1.39	6
	ACP	TE	DMN 90 UM/ML	1035	0035	0020	3.38	1.93	4
007681110	ACT	LI1	0005-1 PCT.	0851	0014	0025	1.65	2.94	4
007681110	ACT	LI2	0025-2 PCT.	1542	0015	0018	0.97	1.17	5
007681110	ACT	LU1	0005-1 PCT.	0945	0020	0006	2.12	0.63	4
007681110	ACT	LU2	0025-2 PCT.	0916	0027	0020	2.95	2.18	5
007681110	ACT	TE1	0005-1 PCT.	0695	0015	0016	2.16	2.30	7
007681110	ACT	TE2	0025-2 PCT.	0628	0013	0018	2.07	2.87	7



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104

PROJECT 02468

EXPERIMENT 507201

DETECTOR TA1535

SPECIES RHESUS

DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		DMN 50 UM/ML	0888	0066	7.43	2
	A+T		***NO MATCH***	0541	0076	14.05	0
	A-C		SALINE	0913	0064	7.01	0
	ACP	LI	DMN 50 UM/ML	0502	6791	1352.79	0
	ACP	LU	DMN 50 UM/ML	0823	0038	4.62	0
	ACP	TE	DMN 50 UM/ML	0625	0051	8.16	0
007681110	ACT	LI1	0005-0 PCT.	0603	0064	10.61	0
007681110	ACT	LI2	0025-1 PCT.	1201	0112	9.33	0
007681110	ACT	LU1	0005-0 PCT.	0325	0018	5.54	0
007681110	ACT	LU2	0025-1 PCT.	0953	0075	7.87	0
007681110	ACT	TE1	0005-0 PCT.	1124	0045	4.00	0
007681110	ACT	TE2	0025-1 PCT.	1059	0074	6.99	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
 COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468  
 EXPERIMENT 511401 DETECTOR TA1537 SPECIES RHESUS DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0847	0063	7.44	2
	A+T		***NO MATCH***	0515	0061	11.84	0
	A-C		DMSO	0710	0050	7.04	0
	ACP	LI	AAF 800 UG/ML	0844	0163	19.31	0
	ACP	LU	AAF 800 UG/ML	0914	0058	6.35	0
	ACP	TE	AAF 800 UG/ML	0842	0074	8.79	0
007681110	ACT	LI1	0005-0 PCT.	0547	0075	13.71	0
007681110	ACT	LI2	0025-1 PCT.	0408	0095	23.28	0
007681110	ACT	LU1	0005-0 PCT.	0550	0037	6.73	0
007681110	ACT	LU2	0025-1 PCT.	0679	0046	6.77	0
007681110	ACT	TE1	0005-0 PCT.	0312	0039	12.50	0
007681110	ACT	TE2	0025-1 PCT.	0207	0054	26.09	2



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468  
EXPERIMENT 515503 DETECTOR TA1537 SPECIES RHESUS/MONKEY

DATE - 06/17/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0657	0015	2.28	0
	A+T		***NO MATCH***	0542	0017	3.14	0
	A-C		DMSO	0451	0007	1.55	0
	ACP	LI	AAF 800 UG/ML	0448	0022	4.91	0
	ACP	LU	AAF 800 UG/ML	0671	0023	3.43	0
	ACP	TE	AAF 800 UG/ML	0555	0023	4.14	0
007681110	ACT	LI1	0005-0 PCT.	0423	0019	4.49	0
007681110	ACT	LI2	0025-1 PCT.	0535	0014	2.62	0
007681110	ACT	LU1	0005-0 PCT.	0467	0009	1.93	0
007681110	ACT	LU2	0025-1 PCT.	0586	0010	1.71	0
007681110	ACT	TE1	0005-0 PCT.	0519	0007	1.35	0
007681110	ACT	TE2	0025-1 PCT.	0673	0008	1.19	0



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REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
COMPOUND SUMMARY BACKUP DETAIL

CONTRACT 22374-2104 PROJECT 02468  
EXPERIMENT 507601 DETECTOR TA1538 SPECIES RHESUS DATE - 05/15/75

COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+6	MUT1 EP+0	FREQ1 EP-8	CONTAM
	A+C		AAF 800 UG/ML	0802	0036	4.49	0
	A+T		***NO MATCH***	0464	0019	4.09	0
	A-C		DMSO	0721	0040	5.55	0
	ACP	LI	AAF 800 UG/ML	0601	0145	24.13	2
	ACP	LU	AAF 800 UG/ML	0649	0018	2.77	0
	ACP	TE	AAF 800 UG/ML	0572	0036	6.29	0
007681110	ACT	LI1	0005-0 PCT.	0307	0005	1.63	0
007681110	ACT	LI2	0025-1 PCT.	0425	0015	3.53	0
007681110	ACT	LU1	0005-0 PCT.	0426	0011	2.58	2
007681110	ACT	LU2	0025-1 PCT.	0696	0020	2.87	0
007681110	ACT	TE1	0005-0 PCT.	0525	0020	3.81	2
007681110	ACT	TE2	0025-1 PCT.	0612	0025	4.08	0

REPORT EXR33 LITTON BIONETICS MUTAGENIC ACTIVITY SYSTEM  
 COMPOUND SUMMARY BACKUP DETAIL

		CONTRACT 22374-2104			PROJECT 02468				
EXPERIMENT 510501		DETECTOR 0000D4			SPECIES RHESUS			DATE - 05/15/75	
COMPOUND	TEST	ORG ID	CONCENTRATION	POPU EP+4	MUT1 EP+1	MUT2 EP+1	FREQ1 EP-5	FREQ2 EP-5	CONTAM
	A+C		DMN 90 UM/ML	0423	0044	0007	10.40	1.65	0
	A+T		***NO MATCH***	0548	0086	0014	15.69	2.55	0
	A-C		SALINE	0759	0112	0017	14.76	2.24	0
	ACP	LI	DMN 90 UM/ML	0774	0116	0021	14.99	2.71	0
	ACP	LU	DMN 90 UM/ML	0469	0059	0011	12.58	2.35	0
	ACP	TE	DMN 90 UM/ML	0538	0108	0015	20.07	2.79	0
007681110	ACT	LI1	0005-1 PCT.	0498	0086	0015	17.27	3.01	0
007681110	ACT	LI2	0025-2 PCT.	0622	0130	0025	20.90	4.02	0
007681110	ACT	LU1	0005-1 PCT.	0590	0087	0015	14.75	2.54	0
007681110	ACT	LU2	0025-2 PCT.	0414	0054	0006	13.04	1.45	0
007681110	ACT	TE1	0005-1 PCT.	0652	0077	0012	11.81	1.84	0
007681110	ACT	TE2	0025-2 PCT.	0481	0118	0026	24.53	5.41	0