ビフェニルのラット及びマウスを用いた
経口投与によるがん原性試験(混餌試験)報告書

試験番号：ラット/0205；マウス/0206

APPENDIX

(D1－J4)

APPENDIXES (CONTINUED)

APPENDIXES (CONTINUED)

APPENDIX D 1

CHEMICAL INTAKE CHANGES (TOW-YERA STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	45.639± 1.557	40.800± 1.477	37.710± 1.258	34.447± 0.984	33.142± 1.171	30.567± 1.199	29.045± 1.628
1500ppm	137.290± 5.000	120.436± 4.317	113.437± 3.757	101.701± 3.013	98.619± 3.584	89.788± 3.315	85.396± 2.962
4500ppm	397.124± 32.271	358.376± 13.049	330.509± 11.804	308.096± 14.055	291.272± 13.470	272.401± 12.760	256.782± 13.507

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13	14
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	27.089± 1.403	26.431± 1.486	25.577± 1.297	24.843± 1.350	24.388± 1.410	24.741± 1.846	23.162± 1.390
1500ppm	79.392± 3.548	78.401± 3.530	74.464± 3.955	73.003± 3.972	70.438± 4.189	73.018± 4.617	67.429± 4.325
4500ppm	241.758± 14.968	233.731± 13.099	223.993± 11.701	218.293± 9.480	212.569± 10.469	220.427± 14.074	206.174± 11.523

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 15	17	19	21	23	25	27
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	23.274± 1.549	22.930± 1.443	24.338± 3.095	21.185± 1.300	21.154± 1.394	21.045± 1.332	21.248± 1.372
1500ppm	67.915± 4.241	66.374± 2.626	74.076± 7.258	62.077± 3.693	63.167± 5.184	62.393± 5.074	63.803± 5.999
4500ppm	207.681± 11.808	204.534± 12.275	206.916± 19.250	196.816± 11.535	195.710± 13.506	193.274± 12.348	195.286± 13.285

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg／kg／d a y
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 29	31	33	35	37	39	41
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	20.707± 1.690	20.742± 1.426	20.176± 1.507	19.842± 2.004	20.208± 1.424	19.137± 1.424	19.249± 1.468
1500ppm	61.862± 5.914	62.040± 4.967	60.122± 6.387	59.253± 4.570	59.950± 4.677	58.682± 7.126	57.751± 5.269
4500ppm	191.756± 15.638	193.298± 12.109	186.518± 15.469	188.550± 15.383	161.515± 37.621	187.215± 19.226	184.268± 17.897

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 43	45	47	49	51	53	55
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	18.798± 2.477	18.228± 1.528	18.275± 1.540	18.574± 1.760	18.831± 1.768	18.921± 1.670	18.179± 1.736
1500ppm	58.194± 5.867	54.978± 5.558	56.265± 6.187	56.555± 6.528	57.636± 7.622	57.976± 6.708	57.286± 8.382
4500ppm	183.276± 15.504	178.501± 18.666	179.628± 18.498	179.803± 26.345	184.787± 21.668	186.868± 20.621	179.016± 21.028

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 57	59	61	63	65	67	69
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	19.002± 1.549	18.264± 1.436	18.343± 1.765	18.266± 2.160	18.693± 2.973	18.817± 1.526	18.900± 1.984
1500ppm	58.026± 6.426	55.042± 6.256	56.821± 6.677	55.770± 6.624	57.027± 5.999	56.564± 5.134	58.126± 7.683
4500ppm	183.579± 19.775	177.164± 23.051	182.992± 27.171	186.473± 22.406	189.637± 31.150	190.251± 24.852	195.046± 28.597

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 71	73	75	77	79	81	83
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	18.144± 1.784	18.737± 1.816	18.634± 1.713	18.633± 1.830	18.522± 1.814	18.738± 1.989	18.031± 2.275
1500ppm	56.146± 7.139	56.778± 5.536	58.246± 7.778	58.397± 7.318	57.536± 7.109	58.028± 8.012	56.694± 6.661
4500ppm	193.635± 29.697	188.008± 37.239	202.219± 31.002	200.832± 35.149	194.128± 24.073	203.505± 30.390	197.594± 31.937

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 85	87	89	91	93	95	97
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	19.445± 1.903	19.298± 2.217	18.675± 2.487	18.988± 3.150	19.344± 2.554	18.674± 2.160	18.573± 2.651
1500ppm	58.759± 6.790	57.984± 7.316	57.701± 9.066	57.208± 9.404	57.695± 6.933	56.903± 6.881	57.948± 7.217
4500ppm	200.618± 25.925	210.274± 31.730	203.359± 35.022	205.701± 32.371	205.717± 36.900	199.806± 28.053	206.867± 43.812

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 99	101	103	105
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	18.589± 2.672	18.724± 2.595	18.790± 2.734	19.141± 2.503
1500ppm	55.332± 7.930	58.021± 7.679	59.121± 10.150	61.533± 11.428
4500ppm	193.142± 34.818	186.482± 45.488	197.558± 41.042	214.419± 40.534

APPENDIX D 2

CHEMICAL INTAKE CHANGES (TOW-YERA STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	47.793± 1.442	44.368± 1.908	42.876± 2.036	40.248± 2.228	38.396± 2.191	35.492± 2.066	33.937± 2.431
1500ppm	143.704± 7.541	129.624± 4.917	126.450± 4.797	117.972± 20.471	114.642± 7.251	105.041± 6.307	100.531± 4.975
4500ppm	418.772± 51.279	390.388± 44.443	370.842± 37.456	345.658± 30.527	334.333± 19.286	317.900± 32.867	293.898± 14.525

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg／kg／d a y
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13	14
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	31.756± 1.807	32.068± 5.317	30.173± 3.176	30.622± 4.522	29.952± 3.299	31.385± 4.443	29.178± 3.814
1500ppm	93.298± 5.302	95.276± 6.908	90.748± 8.464	92.440± 9.534	89.669± 12.805	94.594± 7.083	87.595± 9.760
4500ppm	286.101± 27.549	279.044± 14.879	272.269± 13.329	271.658± 14.001	264.107± 12.588	275.264± 26.878	256.411± 23.639

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg／kg／d a y
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 15	17	19	21	23	25	27
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	29.839± 2.516	28.968± 2.716	29.261± 2.429	28.147± 1.925	28.224± 2.634	28.224± 2.537	27.997± 3.092
1500ppm	92.892± 13.611	86.318± 3.885	90.287± 9.597	88.281± 8.268	87.045± 9.644	87.012± 12.436	84.845± 6.727
4500ppm	264.845± 36.875	264.099± 21.060	269.317± 20.635	258.576± 29.141	256.685± 15.043	245.217± 14.160	243.978± 11.994

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 29	31	33	35	37	39	41
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	27.745± 2.721	27.405± 3.207	28.353± 3.469	26.701± 2.860	27.380± 3.596	27.161± 3.570	27.748± 3.714
1500ppm	84.531± 8.345	83.808± 9.614	86.053± 11.469	81.663± 11.659	82.558± 12.982	83.862± 12.193	85.877± 13.388
4500ppm	247.833± 21.571	243.963± 24.118	247.457± 22.404	237.554± 38.427	240.079± 21.450	241.065± 31.644	242.270± 21.310

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 43	45	47	49	51	53	55
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	27.286± 3.584	27.010± 3.788	26.195± 3.140	28.130± 4.226	27.304± 4.147	27.227± 4.315	26.649± 4.326
1500ppm	85.459± 14.866	81.738± 13.201	79.838± 10.864	87.244± 13.086	86.267± 12.271	85.414± 14.424	86.317± 13.684
4500ppm	235.012± 21.827	235.555± 31.746	234.633± 22.079	253.421± 33.448	254.920± 30.967	247.578± 27.244	247.893± 28.478

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg／kg／d a y
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 57	59	61	63	65	67	69
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	27.068± 3.802	27.115± 3.760	27.331± 4.356	26.343± 3.900	25.865± 3.891	25.735± 3.696	26.765± 4.243
1500ppm	83.974± 8.439	83.986± 10.895	84.866± 11.330	82.452± 9.894	81.737± 9.653	80.759± 9.066	83.570± 10.579
4500ppm	253.827± 37.081	247.957± 27.245	249.602± 32.879	253.030± 38.468	251.060± 33.623	244.509± 31.026	259.228± 48.535

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 71	73	75	77	79	81	83
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	25.338± 3.966	25.656± 4.398	24.761± 4.886	25.777± 4.115	24.670± 3.748	25.540± 4.150	24.577± 3.790
1500ppm	77.937± 11.035	79.426± 11.167	78.839± 10.188	78.367± 14.030	79.108± 9.911	79.680± 10.718	77.394± 10.483
4500ppm	238.161± 44.248	251.441± 42.188	251.909± 40.637	242.533± 50.604	246.127± 38.548	251.526± 41.430	243.284± 37.593

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 85	87	89	91	93	95	97
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	25.283± 4.470	24.738± 4.364	23.230± 5.973	23.311± 4.377	23.209± 4.549	23.007± 4.698	23.495± 4.423
1500ppm	76.948± 10.744	75.440± 11.457	75.414± 10.876	72.969± 11.825	73.672± 13.099	71.670± 13.707	72.081± 12.792
4500ppm	243.670± 41.023	244.701± 43.020	250.150± 54.951	237.501± 47.414	237.342± 61.829	236.486± 37.339	233.630± 39.870

STUDY NO. : 0205
ANIMAL : RAT F344
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 99	101	103	105
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
500ppm	23.010± 4.046	23.683± 4.938	22.185± 5.083	22.959± 5.087
1500ppm	71.660± 11.488	71.944± 12.457	68.852± 14.318	69.289± 16.075
4500ppm	230.988± 48.176	216.229± 75.504	242.648± 47.038	250.066± 45.771

APPENDIX D 3

CHEMICAL INTAKE CHANGES (TOW-YERA STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	147.303± 14.888	132.392± 12.339	115.756± 9.370	122.851± 11.963	125.632± 14.655	125.918± 14.079	121.401± 14.218
2000ppm	456.096± 46.470	394.790± 34.672	339.967± 19.101	367.449± 26.185	377.464± 34.718	373.337± 41.780	368.120± 38.448
6000ppm	2371.432±530.329	1687.407±271.998	1227.924±203.870	1180.100±141.491	1250.198±163.432	1259.620±197.496	1246.028±179.712

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13	14
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	126.438± 13.724	117.469± 13.708	128.885± 15.720	119.699± 13.609	116.140± 12.855	106.762± 11.453	120.791± 13.577
2000ppm	392.745± 43.983	367.332± 43.029	369.096± 38.026	353.857± 41.664	366.671± 43.335	321.269± 36.225	363.131± 40.680
6000ppm	1314.090±185.468	1244.315±172.182	1195.237±129.225	1210.091±171.925	1190.308±121.474	1120.018±134.839	1238.558±123.548

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 15	17	19	21	23	25	27
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	119.418± 16.504	108.117± 13.254	106.066± 14.166	100.560± 12.735	91.266± 10.019	95.393± 9.761	90.261± 11.384
2000ppm	344.852± 47.432	332.872± 35.741	315.942± 40.732	298.905± 39.466	301.559± 35.456	295.196± 44.139	288.802± 39.604
6000ppm	1236.688±216.809	1169.911±135.357	1076.806±124.451	1048.257±114.471	1019.876±125.993	1029.726±123.363	975.627±164.383

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg／kg／d a y
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 29	31	33	35	37	39	41
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	87.201± 9.691	83.865± 9.781	85.842± 11.970	86.007± 9.822	87.086± 10.843	85.081± 10.613	87.531± 9.266
2000ppm	272.848± 36.463	257.452± 26.323	289.782± 34.653	270.267± 35.561	288.299± 38.483	267.837± 31.193	262.217± 33.198
6000ppm	943.688±124.853	870.582±108.363	945.822±132.909	942.875±132.889	987.547±147.562	925.846±126.365	886.374±115.650

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 43	45	47	49	51	53	55
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	89.232± 8.880	97.077± 14.405	80.415± 14.137	95.122± 16.548	86.793± 16.397	89.043± 13.984	79.990± 14.151
2000ppm	267.471± 35.746	299.630± 38.831	247.273± 32.416	285.935± 41.158	260.931± 35.607	274.142± 36.801	243.652± 27.933
6000ppm	747.521±122.785	1085.544±162.443	848.034±118.095	977.286±143.317	901.053±113.976	915.426±124.339	775.253±114.520

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 57	59	61	63	65	67	69
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	83.940± 15.453	83.694± 12.386	88.559± 13.167	88.152± 12.801	88.965± 12.526	82.502± 15.087	84.337± 14.143
2000ppm	263.231± 41.620	264.245± 38.083	262.018± 35.878	265.143± 37.178	266.413± 32.608	264.817± 38.743	251.318± 35.209
6000ppm	885.414±154.047	970.221±131.491	986.914±155.113	983.571±180.320	980.360±131.912	967.494±140.119	955.724±134.185

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 71	73	75	77	79	81	83
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	85.535± 13.254	88.342± 17.255	86.622± 15.927	82.089± 16.975	79.879± 14.249	84.284± 16.948	82.873± 15.945
2000ppm	245.639± 41.264	252.790± 44.346	260.110± 41.999	245.401± 36.368	230.806± 31.251	255.936± 35.837	257.030± 35.874
6000ppm	919.996±118.481	933.827±113.535	942.719±127.649	947.353±146.472	905.316±139.583	951.802±152.206	930.065±130.227

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 85	87	89	91	93	95	97
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	77.971± 16.817	83.978± 18.572	84.614± 22.328	81.930± 17.404	84.575± 26.843	79.167± 27.122	83.356± 24.020
2000ppm	236.570± 34.590	267.024± 35.484	250.069± 35.018	230.800± 32.920	249.529± 44.967	226.956± 36.311	246.405± 33.646
6000ppm	920.554±149.367	971.566±164.549	923.557±151.819	887.618±168.820	947.570±205.389	852.600±180.220	1036.700±239.041

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : MALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 99	101	103	105
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	87.013± 30.048	82.573± 25.083	81.660± 33.361	88.817± 34.696
2000ppm	248.369± 34.605	234.313± 42.674	249.185± 42.217	262.813± 44.310
6000ppm	1039.695±250.194	983.291±186.951	1029.198±237.186	1121.662±277.663

APPENDIX D 4

CHEMICAL INTAKE CHANGES (TOW-YERA STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 1	2	3	4	5	6	7
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	177.885± 13.846	155.122± 14.296	159.426± 14.852	148.243± 9.764	160.158± 14.375	152.640± 11.439	176.814± 17.396
2000ppm	550.860± 62.384	497.390± 42.213	462.373± 40.195	460.910± 44.589	478.742± 54.842	498.881± 66.057	542.863± 62.637
6000ppm	2731.999±476.321	1901.057±306.968	1929.347±366.601	1455.704±235.565	1670.972±376.676	1625.948±260.137	1732.002±304.804

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 8	9	10	11	12	13	14
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	166.984± 16.412	179.583± 20.177	167.494± 18.361	180.725± 20.681	159.846± 21.240	162.329± 19.035	163.970± 20.264
2000ppm	515.584± 51.074	535.821± 81.138	508.007± 50.624	525.015± 53.319	508.418± 50.525	500.423± 48.915	486.021± 51.715
6000ppm	1626.579±270.236	1820.085±344.359	1641.429±298.285	1697.774±287.724	1646.196±273.018	1647.969±277.015	1570.601±255.497

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 15	17	19	21	23	25	27
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	208.446± 36.706	149.242± 15.164	150.232± 17.075	141.881± 15.148	130.370± 15.193	148.690± 15.161	127.368± 14.475
2000ppm	567.535± 86.692	464.063± 50.247	465.088± 45.613	445.735± 40.462	452.733± 56.391	474.587± 40.872	419.216± 51.093
6000ppm	2104.988±606.550	1524.080±254.927	1496.158±233.324	1459.908±181.435	1366.780±182.391	1521.889±254.210	1370.110±264.507

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 29	31	33	35	37	39	41
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	130.325± 14.310	129.305± 15.978	129.688± 15.916	125.739± 14.938	121.812± 14.158	136.074± 16.720	124.573± 13.365
2000ppm	412.459± 43.460	408.076± 41.947	422.631± 47.038	403.306± 51.731	388.243± 42.743	411.601± 41.433	387.286± 47.270
6000ppm	1335.214±226.426	1273.102±192.276	1358.329±223.544	1320.668±219.750	1314.165±234.190	1379.938±199.959	1321.531±204.297

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 43	45	47	49	51	53	55
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	129.198± 12.123	126.669± 12.712	117.743± 14.080	117.861± 12.074	123.256± 13.038	127.156± 15.482	104.522± 13.032
2000ppm	367.802± 47.494	413.681± 44.020	369.029± 60.402	358.675± 49.555	370.579± 54.786	408.368± 52.183	344.857± 46.781
6000ppm	1222.654±229.697	1378.951±209.545	1215.495±191.330	1205.062±179.580	1262.247±205.629	1343.796±200.179	1137.357±200.010

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 57	59	61	63	65	67	69
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	119.297± 13.271	111.839± 17.926	115.079± 13.061	117.876± 13.828	116.845± 12.470	104.326± 11.717	112.297± 12.055
2000ppm	370.188± 45.674	357.527± 56.048	367.326± 56.794	370.391± 52.979	368.724± 51.078	323.094± 49.365	354.022± 49.118
6000ppm	1257.683±206.229	1266.721±213.669	1295.829±212.793	1333.796±216.240	1286.976±204.879	1170.944±167.451	1245.764±178.333

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 71	73	75	77	79	81	83
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	116.196± 16.729	118.572± 15.200	126.970± 18.918	112.267± 19.155	118.469± 27.604	120.637± 24.766	113.920± 23.750
2000ppm	365.856± 52.133	369.340± 52.073	379.090± 61.090	372.689± 64.978	369.502± 64.384	364.382± 59.833	344.287± 53.338
6000ppm	1260.458±205.007	1316.074±164.485	1290.868±182.302	1255.814±182.405	1142.902±145.231	1202.295±162.896	1184.293±205.361

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/day
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 85	87	89	91	93	95	97
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	116.006± 26.966	115.109± 27.214	120.118± 31.264	118.173± 30.764	119.162± 32.135	125.278± 39.736	125.636± 41.025
2000ppm	361.182± 49.002	354.917± 52.455	351.570± 59.077	356.058± 58.324	350.987± 44.728	350.259± 45.344	363.776± 57.522
6000ppm	1223.555±214.924	1214.731±181.497	1220.482±207.379	1220.803±227.059	1252.722±227.621	1254.318±249.451	1419.216±246.998

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
UNIT : mg/kg/d a y
REPORT TYPE : A1 105
SEX : FEMALE

CHEMICAL INTAKE CHANGES (SUMMARY)
ALL ANIMALS

Group Name	Administration (weeks) 99	101	103	105
Control	0.000± 0.000	0.000± 0.000	0.000± 0.000	0.000± 0.000
667ppm	123.831± 37.213	112.001± 16.968	115.299± 21.705	108.423± 17.545
2000ppm	359.550± 42.717	351.831± 49.422	358.160± 52.008	359.503± 75.681
6000ppm	1310.725±167.588	1365.506±234.466	1447.188±250.523	1403.543±277.477

APPENDIX E 1

HEMATOLOGY (TOW-YERA STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : MALE REPORT TYPE : A1

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV fℓ	MCH pg	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	36	8.65± 1.08	15.1± 2.1	43.4± 5.5	50.2± 2.0	17.4± 1.2	34.7± 1.5	833± 161
500ppm	41	8.64± 1.69	15.0± 2.6	43.3± 7.0	51.7± 11.0	17.7± 2.7	34.5± 1.5	766± 193
1500ppm	36	8.46± 1.99	14.4± 3.0	42.0± 7.2	52.3± 12.9*	17.5± 2.5	34.0± 2.5	745± 225
4500ppm	31	8.70± 2.08	13.5± 3.8	40.2± 9.4	46.5± 3.9**	15.4± 2.0**	33.1± 3.4	913± 228

Significant difference ; * : $P \leqq 0.05$ ** : $P \leqq 0.01$ Test of Dunnett

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : MALE REPORT TYPE : A1

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHERS
Control	36	6.03± 2.89	1± 1	52± 11	2± 1	0± 0	4± 2	41± 10	1± 1
500ppm	41	6.55± 4.21	1± 1	51± 12	2± 1	0± 0	4± 2	39± 8	3± 11
1500ppm	36	11.47± 16.72	1± 2	48± 17	1± 1	0± 0	4± 2	38± 15	8± 20
4500ppm	31	8.14± 13.39	1± 1	55± 14	1± 1	0± 0	5± 2	33± 11**	5± 14

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX E 2

HEMATOLOGY (TOW-YERA STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : FEMALE REPORT TYPE : A1

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$		HEMOGLOBIN g/dℓ		HEMATOCRIT %		MCV fℓ		MCH pg		MCHC g/dℓ		PLATELET $10^3/\mu\ell$	
Control	43	8.12±	0.74	15.2±	1.1	43.4±	2.7	53.6±	3.2	18.7±	0.9	34.9±	0.9	626±	124
500ppm	37	8.19±	0.82	15.0±	1.4	43.2±	3.5	52.9±	2.8	18.4±	0.6	34.8±	1.0	618±	99
1500ppm	44	7.65±	1.34	14.2±	2.3*	40.6±	5.8**	53.9±	5.7	18.7±	1.4	34.8±	1.9	640±	108
4500ppm	33	7.52±	1.17**	13.8±	1.8**	39.9±	4.3**	53.8±	6.5	18.5±	1.1	34.6±	1.8	730±	195

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : FEMALE REPORT TYPE : A1

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHERS
Control	43	3.38± 1.52	2± 2	46± 10	1± 1	0± 0	4± 2	45± 9	1± 3
500ppm	37	3.16± 1.66	1± 1	48± 10	2± 1	0± 0	4± 2	44± 11	1± 1
1500ppm	44	3.39± 2.68	1± 1	46± 12	2± 1	0± 0	4± 2	45± 11	2± 5
4500ppm	33	4.80± 8.61	1± 2	50± 12	1± 1	0± 0	4± 2	40± 12	4± 12

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX E 3

HEMATOLOGY (TOW-YERA STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : MALE REPORT TYPE : A1

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$		HEMOGLOBIN g/dℓ		HEMATOCRIT %		MCV fℓ		MCH pg		MCHC g/dℓ		PLATELET $10^3/\mu\ell$	
Control	34	9.55±	0.94	13.9±	1.4	41.8±	3.5	43.9±	2.2	14.5±	0.7	33.1±	1.1	1946±	508
667ppm	39	9.57±	0.97	14.0±	1.3	42.1±	3.7	44.2±	2.7	14.7±	0.8	33.2±	0.7	1885±	435
2000ppm	37	9.32±	1.27	13.5±	1.9	40.8±	5.1	43.9±	1.9	14.5±	0.6	33.1±	1.2	1943±	406
6000ppm	37	10.17±	0.90*	14.6±	0.9	43.8±	2.9	43.1±	1.3*	14.4±	0.6	33.4±	1.0	2218±	437*

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : MALE REPORT TYPE : A1

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHERS
Control	34	2.09± 0.92	0± 0	29± 14	1± 2	0± 0	4± 2	65± 14	0± 0
667ppm	39	1.93± 1.06	0± 1	29± 11	2± 2	0± 0	4± 2	64± 12	1± 2
2000ppm	37	2.72± 6.60	0± 1	31± 13	1± 1	0± 0	4± 2	63± 13	1± 2
6000ppm	37	1.81± 1.07	0± 1	34± 14	1± 1	0± 0	4± 2	61± 14	1± 1

Significant difference ; * : $P \leqq 0.05$ ** : $P \leqq 0.01$ Test of Dunnett

APPENDIX E 4

HEMATOLOGY (TOW-YERA STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : FEMALE REPORT TYPE : A1

HEMATOLOGY(1) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	RED BLOOD CELL $10^6/\mu\ell$	HEMOGLOBIN g/dℓ	HEMATOCRIT %	MCV f ℓ	MCH p g	MCHC g/dℓ	PLATELET $10^3/\mu\ell$
Control	28	9.30± 1.15	13.7± 1.7	40.8± 4.6	44.0± 2.0	14.7± 0.3	33.4± 1.3	1122± 200
667ppm	20	9.66± 2.15	14.4± 2.8	43.1± 8.0	45.7± 7.3	15.1± 1.5	33.2± 1.6	968± 367
2000ppm	22	9.75± 1.63	14.2± 1.9	42.3± 4.9	43.8± 2.5	14.6± 0.9	33.4± 1.6	1097± 340
6000ppm	31	9.80± 1.95	13.9± 1.9	41.8± 5.4	43.5± 5.2	14.4± 1.3	33.2± 1.2	1145± 440

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : FEMALE REPORT TYPE : A1

HEMATOLOGY(2) (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	WBC $10^3/\mu\ell$	Differential WBC (%) N-BAND	N-SEG	EOSINO	BASO	MONO	LYMPHO	OTHERS
Control	28	1.62± 0.69	0± 0	26± 9	2± 2	0± 0	5± 2	67± 10	1± 1
667ppm	20	4.69± 12.59	1± 2	27± 16	1± 1	0± 0	4± 2	64± 18	3± 5
2000ppm	22	4.80± 12.46	0± 0	28± 14	1± 2	0± 0	4± 1	64± 14	3± 9
6000ppm	31	2.29± 2.26	1± 2	34± 19	1± 2	0± 0	4± 2	59± 20	1± 2

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX F 1

BIOCHEMISTRY (TOW-YERA STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	TOTAL PROTEIN g/dℓ		ALBUMIN g/dℓ		A/G RATIO		T-BILIRUBIN mg/dℓ		GLUCOSE mg/dℓ		T-CHOLESTEROL mg/dℓ		TRIGLYCERIDE mg/dℓ	
Control	36	6.7±	0.3	3.3±	0.2	1.0±	0.1	0.22±	0.04	151±	17	186±	59	106±	72
500ppm	41	6.7±	0.4	3.3±	0.2	1.0±	0.1	0.26±	0.13	158±	18	176±	49	111±	92
1500ppm	36	6.7±	0.8	3.3±	0.4	1.0±	0.1	0.40±	0.71	146±	20	168±	49	107±	56
4500ppm	31	6.8±	0.4	3.5±	0.3**	1.1±	0.1**	0.24±	0.10	145±	18	158±	52	69±	43*

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	PHOSPHOLIPID mg/dℓ	GOT IU/ℓ	GPT IU/ℓ	LDH IU/ℓ	ALP IU/ℓ	G-GTP IU/ℓ	CPK IU/ℓ
Control	36	243± 69	74± 24	35± 14	155± 53	179± 73	9± 10	74± 12
500ppm	41	233± 59	90± 45	40± 14	172± 85	230± 194*	10± 7	80± 27
1500ppm	36	229± 58	136± 164**	52± 43**	268± 463	249± 121**	14± 10**	92± 48
4500ppm	31	225± 66	131± 67**	61± 25**	158± 68	326± 173**	23± 18**	84± 30

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	UREA NITROGEN mg/dℓ		CREATININE mg/dℓ		SODIUM mEq/ℓ		POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ		CALCIUM mg/dℓ		INORGANIC PHOSPHORUS mg/dℓ	
Control	36	19.8±	4.7	0.6±	0.1	144±	2	3.8±	0.3	110±	2	10.8±	0.3	4.1±	0.7
500ppm	41	20.2±	4.5	0.6±	0.1	143±	2	3.7±	0.3	110±	2	10.7±	0.3	4.1±	0.6
1500ppm	36	22.8±	4.9**	0.7±	0.2	144±	2	3.8±	0.4	111±	3	10.9±	0.6	4.1±	0.7
4500ppm	31	29.2±	10.5**	0.6±	0.2	143±	2	4.1±	0.3**	111±	2	10.8±	0.5	4.3±	0.8

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX F 2

BIOCHEMISTRY (TOW-YERA STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	TOTAL PROTEIN g/dℓ	ALBUMIN g/dℓ	A/G RATIO	T-BILIRUBIN mg/dℓ	GLUCOSE mg/dℓ	T-CHOLESTEROL mg/dℓ	TRIGLYCERIDE mg/dℓ
Control	43	7.1± 0.4	3.8± 0.2	1.2± 0.1	0.20± 0.04	152± 20	147± 39	83± 68
500ppm	37	6.9± 0.4	3.7± 0.3	1.2± 0.1	0.18± 0.02	152± 15	127± 21	67± 49
1500ppm	44	6.9± 0.5	3.7± 0.3	1.2± 0.1	0.20± 0.11	149± 21	137± 30	69± 45
4500ppm	33	7.0± 0.4	3.7± 0.3	1.2± 0.1	0.17± 0.03**	146± 19	139± 27	31± 9**

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

(HCL074)

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	PHOSPHOLIPID mg/dℓ	GOT IU/ℓ	GPT IU/ℓ	LDH IU/ℓ	ALP IU/ℓ	G-GTP IU/ℓ	CPK IU/ℓ
Control	43	240± 65	100± 44	52± 17	170± 53	116± 37	3± 3	88± 105
500ppm	37	210± 35	114± 51	60± 35	185± 71	145± 124	3± 2	73± 17
1500ppm	44	224± 52	131± 105	67± 38	192± 103	133± 63	3± 2	76± 19
4500ppm	33	217± 37	145± 68**	76± 37**	206± 110	147± 81	5± 8	77± 23

Significant defference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0205
ANIMAL : RAT F344
SAMPLING DATE : 108-2
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	UREA NITROGEN mg/dℓ		CREATININE mg/dℓ		SODIUM mEq/ℓ		POTASSIUM mEq/ℓ		CHLORIDE mEq/ℓ		CALCIUM mg/dℓ		INORGANIC PHOSPHORUS mg/dℓ	
Control	43	14.3±	1.7	0.5±	0.1	142±	2	3.6±	0.4	108±	2	10.7±	0.4	3.5±	0.9
500ppm	37	15.2±	1.9	0.5±	0.1	142±	1	3.6±	0.4	109±	2*	10.6±	0.3	3.5±	0.8
1500ppm	44	17.0±	6.4**	0.5±	0.1	142±	2	3.7±	0.3	109±	2*	10.6±	0.4	3.6±	1.0
4500ppm	33	21.0±	5.3**	0.5±	0.1	142±	2	3.9±	0.5**	110±	2**	10.6±	0.4	3.9±	0.7

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX F 3

BIOCHEMISTRY (TOW-YERA STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	TOTAL PROTEIN g/dℓ	ALBUMIN g/dℓ	A/G RATIO	T-BILIRUBIN mg/dℓ	GLUCOSE mg/dℓ	T-CHOLESTEROL mg/dℓ	TRIGLYCERIDE mg/dℓ
Control	34	5.5± 0.8	3.1± 0.4	1.3± 0.1	0.19± 0.02	218± 35	112± 59	30± 12
667ppm	39	5.3± 0.8	2.9± 0.4	1.3± 0.2	0.19± 0.03	209± 45	93± 38	31± 18
2000ppm	37	5.3± 0.5	2.9± 0.3	1.2± 0.2	0.20± 0.09	215± 38	102± 43	31± 13
6000ppm	37	5.4± 0.3	3.1± 0.2	1.3± 0.2	0.19± 0.03	188± 41**	104± 17	26± 7

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	GOT IU/ℓ		GPT IU/ℓ		LDH IU/ℓ		ALP IU/ℓ		CPK IU/ℓ		UREA NITROGEN mg/dℓ		SODIUM mEq/ℓ	
Control	34	85±	92	73±	113	321±	230	178±	111	44±	33	20.2±	3.6	152±	1
667ppm	39	58±	38	34±	31	252±	126*	155±	30	38±	15	22.0±	4.0	153±	2
2000ppm	37	69±	60	36±	49	432±	868	169±	36	43±	32	23.2±	4.4*	153±	2
6000ppm	37	88±	151	43±	80	283±	200	261±	102**	58±	51*	22.9±	2.7**	155±	2**

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : MALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	POTASSIUM mEq／ℓ		CHLORIDE mEq／ℓ		CALCIUM mg／dℓ		INORGANIC PHOSPHORUS mg／dℓ	
Control	34	4.4±	0.4	122±	3	9.2±	0.6	7.0±	1.0
667ppm	39	4.2±	0.4	124±	3	9.0±	0.5	6.7±	0.9
2000ppm	37	4.2±	0.4	124±	2*	9.1±	0.5	6.7±	0.8
6000ppm	37	4.1±	0.3**	125±	3**	9.2±	0.3	6.6±	0.9

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX F 4

BIOCHEMISTRY (TOW-YERA STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	TOTAL PROTEIN g/dℓ		ALBUMIN g/dℓ		A/G RATIO		T-BILIRUBIN mg/dℓ		GLUCOSE mg/dℓ		T-CHOLESTEROL mg/dℓ		TRIGLYCERIDE mg/dℓ	
Control	28	4.9±	0.3	2.8±	0.2	1.3±	0.2	0.19±	0.04	164±	28	60±	13	29±	15
667ppm	20	5.1±	0.8	2.9±	0.4	1.3±	0.2	0.21±	0.07	155±	43	68±	31	29±	13
2000ppm	22	5.5±	1.1*	3.1±	0.5*	1.3±	0.2	0.21±	0.04	152±	48	104±	65**	26±	10
6000ppm	31	5.8±	1.4**	3.4±	0.7**	1.4±	0.2	0.29±	0.21**	131±	41**	129±	100**	24±	9

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	GOT IU/ℓ		GPT IU/ℓ		LDH IU/ℓ		ALP IU/ℓ		CPK IU/ℓ		UREA NITROGEN mg/dℓ		SODIUM mEq/ℓ	
Control	28	75±	27	32±	18	268±	98	242±	90	68±	46	14.9±	2.0	152±	2
667ppm	20	120±	110	56±	46	461±	452	256±	121	108±	211	14.8±	3.4	152±	2
2000ppm	22	211±	373**	134±	231**	838±	2000	428±	499	110±	173	21.0±	20.5	152±	3
6000ppm	31	325±	448**	206±	280**	1416±	4161*	556±	228**	147±	169	23.8±	11.7**	155±	4**

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

(HCL074)

BAIS3

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 109-2
SEX : FEMALE REPORT TYPE : A1

BIOCHEMISTRY (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	POTASSIUM mEq／ℓ	CHLORIDE mEq／ℓ	CALCIUM mg／dℓ	INORGANIC PHOSPHORUS mg／dℓ
Control	28	4.1± 0.3	125± 3	9.0± 0.2	6.6± 0.8
667ppm	20	4.3± 0.4	124± 3	9.1± 0.4	6.4± 1.0
2000ppm	22	4.1± 0.7	122± 6	9.5± 0.7**	6.6± 1.4
6000ppm	31	4.0± 0.5	124± 5	9.6± 1.1**	6.5± 1.7

Significant defference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX G 1

URINALYSIS (TOW-YERA STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0205 URINALYSIS
ANIMAL : RAT F344
SAMPLING DATE : 104-7
SEX : MALE REPORT TYPE : A1

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Bilirubin −	+	2+	3+	CHI
Control	37	0	0	3	4	8	22	0		0	0	0	0	26	11		37	0	0	0	0	0		37	0	0	0	0	0		37	0	0	0	
500ppm	41	0	0	1	5	14	21	0		0	0	0	3	36	2	**	41	0	0	0	0	0		41	0	0	0	0	0		40	1	0	0	
1500ppm	41	0	2	2	5	11	21	0		0	0	1	9	31	0	**	41	0	0	0	0	0		40	1	0	0	0	0		36	4	1	0	
4500ppm	31	0	0	1	0	6	17	7	*	0	0	14	16	1	0	**	31	0	0	0	0	0		31	0	0	0	0	0		31	0	0	0	

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

STUDY NO. : 0205 URINALYSIS
ANIMAL : RAT F344
SAMPLING DATE : 104-7
SEX : MALE REPORT TYPE : A1

Group Name	NO. of Animals	Occult blood −	±	+	2+	3+	CHI	Urobilinogen ±	+	2+	3+	4+	CHI
Control	37	36	0	0	1	0		37	0	0	0	0	
500ppm	41	40	0	0	1	0		40	1	0	0	0	
1500ppm	41	39	0	0	1	1		37	4	0	0	0	
4500ppm	31	6	2	2	2	19	**	31	0	0	0	0	

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

APPENDIX G 2

URINALYSIS (TOW-YERA STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0205 URINALYSIS
ANIMAL : RAT F344
SAMPLING DATE : 104-7
SEX : FEMALE REPORT TYPE : A1

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Bilirubin −	+	2+	3+	CHI
Control	45	1	1	7	12	11	11	2		0	2	2	5	18	18		45	0	0	0	0	0		38	6	1	0	0	0		43	1	1	0	
500ppm	38	0	3	10	9	8	8	0		0	0	1	8	17	12		38	0	0	0	0	0		31	7	0	0	0	0		38	0	0	0	
1500ppm	45	0	1	11	12	11	6	4		0	1	6	9	23	6	*	45	0	0	0	0	0		33	12	0	0	0	0		42	1	1	1	
4500ppm	37	0	1	9	6	12	9	0		0	9	20	5	3	0	**	37	0	0	0	0	0		34	1	1	1	0	0		37	0	0	0	

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

STUDY NO. : 0205 URINALYSIS
ANIMAL : RAT F344
SAMPLING DATE : 104-7
SEX : FEMALE REPORT TYPE : A1

Group Name	NO. of Animals	Occult blood −	±	+	2+	3+	CHI	Urobilinogen ±	+	2+	3+	4+	CHI
Control	45	41	3	0	1	0		44	1	0	0	0	
500ppm	38	35	3	0	0	0		38	0	0	0	0	
1500ppm	45	42	3	0	0	0		44	1	0	0	0	
4500ppm	37	24	3	1	2	7	*	37	0	0	0	0	

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

APPENDIX G 3

URINALYSIS (TOW-YERA STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0206 URINALYSIS
ANIMAL : MOUSE BDF1
SAMPLING DATE : 104-7
SEX : MALE REPORT TYPE : A1

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Occult blood −	±	+	2+	3+	CHI
Control	35	0	17	12	5	1	0	0		0	5	28	2	0	0		35	0	0	0	0	0		10	23	2	0	0	0		33	1	0	0	1	
667ppm	41	0	14	19	8	0	0	0		0	7	29	5	0	0		41	0	0	0	0	0		9	29	3	0	0	0		37	0	0	0	4	
2000ppm	41	0	22	15	3	1	0	0		0	7	32	2	0	0		41	0	0	0	0	0		8	33	0	0	0	0		39	0	0	0	2	
6000ppm	39	0	25	9	4	1	0	0		0	34	5	0	0	0	**	39	0	0	0	0	0		28	11	0	0	0	0	**	38	0	0	1	0	

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

STUDY NO. : 0206 URINALYSIS
ANIMAL : MOUSE BDF1
SAMPLING DATE : 104-7
SEX : MALE REPORT TYPE : A1

Group Name	NO. of Animals	Urobilinogen ±	+	2+	3+	4+	CHI
Control	35	35	0	0	0	0	
667ppm	41	41	0	0	0	0	
2000ppm	41	41	0	0	0	0	
6000ppm	39	39	0	0	0	0	

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

APPENDIX G 4

URINALYSIS (TOW-YERA STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0206 URINALYSIS
ANIMAL : MOUSE BDF1
SAMPLING DATE : 104-7
SEX : FEMALE REPORT TYPE : A1

Group Name	NO. of Animals	pH 5.0	6.0	6.5	7.0	7.5	8.0	8.5	CHI	Protein −	±	+	2+	3+	4+	CHI	Glucose −	±	+	2+	3+	4+	CHI	Ketone body −	±	+	2+	3+	4+	CHI	Occult blood −	±	+	2+	3+	CHI
Control	31	0	11	7	12	1	0	0		0	5	17	9	0	0		31	0	0	0	0	0		5	21	4	1	0	0		25	2	1	0	3	
667ppm	22	0	12	8	1	1	0	0	*	0	0	11	10	1	0		22	0	0	0	0	0		3	11	4	4	0	0		11	3	1	1	6	
2000ppm	26	0	17	7	1	1	0	0	*	0	2	17	6	1	0		26	0	0	0	0	0		6	16	4	0	0	0		23	0	0	0	3	
6000ppm	32	1	17	9	5	0	0	0		0	18	14	0	0	0	**	32	0	0	0	0	0		20	12	0	0	0	0	**	32	0	0	0	0	

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
SAMPLING DATE : 104-7
SEX : FEMALE REPORT TYPE : A1

URINALYSIS

Group Name	NO. of Animals	Urobilinogen ±	+	2+	3+	4+	CHI
Control	31	31	0	0	0	0	
667ppm	22	22	0	0	0	0	
2000ppm	26	25	1	0	0	0	
6000ppm	32	32	0	0	0	0	

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of CHI SQUARE

APPENDIX H 1

GROSS FINDINGS (TOW-YERA STUDY: SUMMARY)

RAT : MALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0-105W)

Organ	Findings	Group Name / NO. of Animals	Control 13 (%)	500ppm 9 (%)	1500ppm 12 (%)	4500ppm 19 (%)
skin/app	nodule		0 (0)	0 (0)	1 (8)	0 (0)
subcutis	jaundice		0 (0)	0 (0)	0 (0)	1 (5)
	mass		5 (38)	4 (44)	2 (17)	0 (0)
lung	red		1 (8)	0 (0)	0 (0)	0 (0)
	white zone		0 (0)	0 (0)	0 (0)	1 (5)
	black zone		0 (0)	1 (11)	0 (0)	0 (0)
	nodule		0 (0)	0 (0)	1 (8)	0 (0)
	voluminus		0 (0)	0 (0)	0 (0)	1 (5)
lymph node	enlarged		2 (15)	1 (11)	1 (8)	2 (11)
spleen	enlarged		3 (23)	3 (33)	1 (8)	4 (21)
	turbid		0 (0)	0 (0)	0 (0)	1 (5)
	black zone		0 (0)	0 (0)	0 (0)	1 (5)
	nodule		1 (8)	0 (0)	0 (0)	0 (0)
forestomach	adhesion		1 (8)	0 (0)	0 (0)	0 (0)
	rupture		1 (8)	0 (0)	0 (0)	0 (0)
	ulcer		2 (15)	0 (0)	0 (0)	0 (0)
gl stomach	hemorrhage		0 (0)	1 (11)	0 (0)	0 (0)
	ulcer		0 (0)	0 (0)	1 (8)	1 (5)
duodenum	dilated		1 (8)	0 (0)	0 (0)	0 (0)
liver	enlarged		1 (8)	0 (0)	1 (8)	1 (5)
	pale		0 (0)	0 (0)	0 (0)	1 (5)
	nodule		1 (8)	0 (0)	0 (0)	0 (0)

Organ	Findings	Group Name / NO. of Animals	Control 13	(%)	500ppm 9	(%)	1500ppm 12	(%)	4500ppm 19	(%)
liver	granular		0	(0)	1	(11)	0	(0)	0	(0)
	adhesion		1	(8)	0	(0)	0	(0)	0	(0)
	herniation		0	(0)	0	(0)	1	(8)	0	(0)
pancreas	nodule		0	(0)	0	(0)	1	(8)	1	(5)
kidney	white zone		0	(0)	0	(0)	0	(0)	1	(5)
	nodule		1	(8)	1	(11)	0	(0)	1	(5)
	granular		2	(15)	1	(11)	1	(8)	0	(0)
	hydronephrosis		0	(0)	0	(0)	0	(0)	2	(11)
ureter	dilated		0	(0)	0	(0)	0	(0)	1	(5)
urin bladd	nodule		0	(0)	0	(0)	0	(0)	17	(89)
	dilated		0	(0)	0	(0)	0	(0)	1	(5)
	calculus		0	(0)	0	(0)	0	(0)	14	(74)
	thick		0	(0)	0	(0)	0	(0)	1	(5)
	urine:marked retention		0	(0)	0	(0)	0	(0)	1	(5)
	urine:red		0	(0)	0	(0)	0	(0)	2	(11)
pituitary	enlarged		3	(23)	2	(22)	2	(17)	0	(0)
	nodule		2	(15)	0	(0)	2	(17)	0	(0)
thyroid	enlarged		1	(8)	2	(22)	0	(0)	0	(0)
adrenal	enlarged		1	(8)	2	(22)	0	(0)	0	(0)
testis	atrophic		2	(15)	0	(0)	0	(0)	2	(11)
	nodule		5	(38)	3	(33)	4	(33)	11	(58)
epididymis	black		0	(0)	0	(0)	0	(0)	1	(5)

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0-105W)

Organ	Findings	Group Name / NO. of Animals	Control 13	(%)	500ppm 9	(%)	1500ppm 12	(%)	4500ppm 19	(%)
prep/cli gl	nodule		1	(8)	0	(0)	0	(0)	0	(0)
brain	nodule		0	(0)	1	(11)	0	(0)	0	(0)
	deformed		0	(0)	0	(0)	0	(0)	1	(5)
spinal cord	red zone		0	(0)	0	(0)	0	(0)	1	(5)
eye	turbid		0	(0)	0	(0)	0	(0)	1	(5)
Zymbal gl	nodule		0	(0)	1	(11)	1	(8)	0	(0)
bone	nodule		0	(0)	0	(0)	0	(0)	1	(5)
vertebra	nodule		0	(0)	0	(0)	1	(8)	0	(0)
pleura	nodule		1	(8)	0	(0)	0	(0)	0	(0)
peritoneum	nodule		0	(0)	0	(0)	2	(17)	0	(0)
abdominal c	hemorrhage		2	(15)	0	(0)	0	(0)	0	(0)
	ascites		1	(8)	0	(0)	1	(8)	0	(0)
thoracic ca	hemorrhage		0	(0)	0	(0)	1	(8)	0	(0)
	pleural fluid		4	(31)	1	(11)	1	(8)	0	(0)
other	nodule		0	(0)	0	(0)	0	(0)	1	(5)
whole body	jaundice		0	(0)	0	(0)	1	(8)	0	(0)

APPENDIX H 2

GROSS FINDINGS (TOW-YERA STUDY: SUMMARY)

RAT : FEMALE : DEAD AND MORIBUND ANIMALS

Organ	Findings	Group Name / NO. of Animals	Control 6 (%)	500ppm 12 (%)	1500ppm 6 (%)	4500ppm 13 (%)
subcutis	jaundice		1 (17)	1 (8)	1 (17)	0 (0)
	mass		3 (50)	2 (17)	0 (0)	2 (15)
lung	red zone		0 (0)	0 (0)	0 (0)	1 (8)
	nodule		0 (0)	0 (0)	1 (17)	0 (0)
	voluminus		0 (0)	0 (0)	0 (0)	1 (8)
lymph node	enlarged		1 (17)	2 (17)	1 (17)	2 (15)
spleen	enlarged		4 (67)	5 (42)	4 (67)	2 (15)
	nodule		1 (17)	0 (0)	0 (0)	0 (0)
tongue	nodule		0 (0)	1 (8)	0 (0)	0 (0)
forestomach	adhesion		1 (17)	0 (0)	0 (0)	0 (0)
	rupture		1 (17)	0 (0)	0 (0)	0 (0)
	ulcer		1 (17)	1 (8)	1 (17)	0 (0)
gl stomach	ulcer		0 (0)	1 (8)	0 (0)	0 (0)
liver	enlarged		1 (17)	1 (8)	0 (0)	0 (0)
	yellow zone		2 (33)	0 (0)	0 (0)	0 (0)
	nodule		1 (17)	0 (0)	1 (17)	1 (8)
	rough		0 (0)	2 (17)	3 (50)	0 (0)
	herniation		0 (0)	0 (0)	0 (0)	2 (15)
pancreas	nodule		0 (0)	1 (8)	0 (0)	0 (0)
kidney	white zone		1 (17)	0 (0)	0 (0)	0 (0)
	nodule		0 (0)	0 (0)	0 (0)	1 (8)
	deformed		0 (0)	1 (8)	0 (0)	2 (15)

Organ	Findings	Group Name / NO. of Animals	Control 6 (%)	500ppm 12 (%)	1500ppm 6 (%)	4500ppm 13 (%)
urin bladd	nodule		0 (0)	0 (0)	0 (0)	1 (8)
	calculus		0 (0)	0 (0)	0 (0)	3 (23)
	urine:red		0 (0)	1 (8)	0 (0)	0 (0)
pituitary	enlarged		2 (33)	2 (17)	1 (17)	1 (8)
	nodule		1 (17)	1 (8)	0 (0)	0 (0)
thyroid	enlarged		0 (0)	0 (0)	0 (0)	1 (8)
	nodule		1 (17)	1 (8)	0 (0)	0 (0)
ovary	enlarged		0 (0)	1 (8)	0 (0)	0 (0)
uterus	enlarged		0 (0)	1 (8)	0 (0)	1 (8)
	nodule		0 (0)	2 (17)	1 (17)	2 (15)
brain	red zone		0 (0)	1 (8)	0 (0)	0 (0)
	hemorrhage		0 (0)	0 (0)	1 (17)	0 (0)
	nodule		0 (0)	0 (0)	0 (0)	1 (8)
spinal cord	red zone		0 (0)	1 (8)	0 (0)	0 (0)
	brown zone		0 (0)	1 (8)	0 (0)	0 (0)
muscle	nodule		0 (0)	0 (0)	1 (17)	1 (8)
retroperit	mass		0 (0)	1 (8)	0 (0)	2 (15)
	adhesion		0 (0)	0 (0)	0 (0)	1 (8)
abdominal c	hemorrhage		0 (0)	1 (8)	0 (0)	0 (0)
	ascites		0 (0)	0 (0)	0 (0)	1 (8)
adipose	nodule		0 (0)	1 (8)	0 (0)	0 (0)
thoracic ca	pleural fluid		0 (0)	1 (8)	0 (0)	0 (0)

Organ	Findings	Group Name / NO. of Animals	Control 6 (%)	500ppm 12 (%)	1500ppm 6 (%)	4500ppm 13 (%)
other	lower jaw:nodule		0 (0)	0 (0)	0 (0)	1 (8)
whole body	anemic		1 (17)	0 (0)	0 (0)	0 (0)
	jaundice		0 (0)	0 (0)	1 (17)	0 (0)
	wasting		0 (0)	0 (0)	0 (0)	2 (15)

APPENDIX H 3

GROSS FINDINGS (TOW-YERA STUDY: SUMMARY)

RAT : MALE : SACRIFICED ANIMALS

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 37	(%)	500ppm 41	(%)	1500ppm 38	(%)	4500ppm 31	(%)
skin/app	nodule		4	(11)	3	(7)	0	(0)	2	(6)
subcutis	white		0	(0)	1	(2)	0	(0)	0	(0)
	mass		7	(19)	4	(10)	6	(16)	3	(10)
lung	red zone		0	(0)	0	(0)	1	(3)	0	(0)
	nodule		0	(0)	1	(2)	2	(5)	1	(3)
lymph node	enlarged		0	(0)	0	(0)	1	(3)	0	(0)
spleen	enlarged		1	(3)	5	(12)	8	(21)	0	(0)
	white zone		0	(0)	0	(0)	1	(3)	0	(0)
	brown zone		1	(3)	0	(0)	1	(3)	1	(3)
	nodule		0	(0)	1	(2)	1	(3)	0	(0)
tongue	nodule		0	(0)	0	(0)	2	(5)	0	(0)
forestomach	nodule		0	(0)	1	(2)	0	(0)	0	(0)
gl stomach	nodule		0	(0)	1	(2)	0	(0)	0	(0)
liver	enlarged		0	(0)	2	(5)	4	(11)	1	(3)
	white zone		2	(5)	0	(0)	0	(0)	0	(0)
	nodule		0	(0)	4	(10)	2	(5)	1	(3)
	cyst		1	(3)	0	(0)	0	(0)	1	(3)
	rough		2	(5)	2	(5)	3	(8)	2	(6)
	herniation		0	(0)	2	(5)	1	(3)	2	(6)
pancreas	nodule		1	(3)	0	(0)	0	(0)	0	(0)
	cyst		0	(0)	1	(2)	0	(0)	0	(0)
kidney	enlarged		0	(0)	0	(0)	0	(0)	1	(3)

Organ	Findings	Group Name / NO. of Animals	Control 37 (%)	500ppm 41 (%)	1500ppm 38 (%)	4500ppm 31 (%)
kidney	cyst		0 (0)	0 (0)	0 (0)	1 (3)
	deformed		0 (0)	0 (0)	0 (0)	4 (13)
	granular		14 (38)	16 (39)	18 (47)	9 (29)
	calculus		0 (0)	0 (0)	0 (0)	1 (3)
ureter	dilated		0 (0)	0 (0)	0 (0)	4 (13)
urin bladd	nodule		0 (0)	0 (0)	0 (0)	24 (77)
	calculus		0 (0)	0 (0)	0 (0)	29 (94)
	thick		0 (0)	0 (0)	0 (0)	7 (23)
pituitary	enlarged		1 (3)	1 (2)	2 (5)	0 (0)
	nodule		2 (5)	3 (7)	3 (8)	4 (13)
thyroid	enlarged		0 (0)	1 (2)	1 (3)	0 (0)
	nodule		0 (0)	0 (0)	0 (0)	2 (6)
adrenal	enlarged		0 (0)	0 (0)	2 (5)	0 (0)
testis	atrophic		0 (0)	0 (0)	1 (3)	0 (0)
	nodule		35 (95)	38 (93)	36 (95)	31 (100)
prostate	nodule		0 (0)	0 (0)	0 (0)	1 (3)
eye	turbid		0 (0)	1 (2)	0 (0)	0 (0)
	white		2 (5)	5 (12)	3 (8)	2 (6)
Zymbal gl	nodule		3 (8)	0 (0)	0 (0)	0 (0)
muscle	nodule		0 (0)	0 (0)	1 (3)	0 (0)
peritoneum	nodule		1 (3)	1 (2)	0 (0)	2 (6)
retroperit	nodule		1 (3)	0 (0)	0 (0)	0 (0)

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 37 (%)	500ppm 41 (%)	1500ppm 38 (%)	4500ppm 31 (%)
abdominal c	ascites		0 (0)	1 (2)	0 (0)	1 (3)
adipose	nodule		0 (0)	0 (0)	0 (0)	1 (3)
thoracic ca	pleural fluid		1 (3)	2 (5)	1 (3)	0 (0)
other	forelimb:nodule		0 (0)	1 (2)	0 (0)	0 (0)
whole body	anemic		0 (0)	0 (0)	2 (5)	0 (0)

APPENDIX H 4

GROSS FINDINGS (TOW-YERA STUDY: SUMMARY)

RAT : FEMALE : SACRIFICED ANIMALS

Organ	Findings	Group Name / NO. of Animals	Control 44 (%)	500ppm 38 (%)	1500ppm 44 (%)	4500ppm 37 (%)
skin/app	nodule		0 (0)	1 (3)	0 (0)	0 (0)
subcutis	mass		11 (25)	8 (21)	8 (18)	6 (16)
lung	white zone		0 (0)	0 (0)	0 (0)	1 (3)
	edema		0 (0)	0 (0)	0 (0)	1 (3)
spleen	enlarged		2 (5)	0 (0)	3 (7)	1 (3)
	brown zone		0 (0)	1 (3)	0 (0)	0 (0)
	nodule		0 (0)	1 (3)	0 (0)	0 (0)
heart	white zone		0 (0)	1 (3)	0 (0)	0 (0)
forestomach	ulcer		0 (0)	0 (0)	2 (5)	0 (0)
liver	red zone		0 (0)	1 (3)	0 (0)	0 (0)
	nodule		2 (5)	0 (0)	0 (0)	2 (5)
	rough		3 (7)	2 (5)	4 (9)	1 (3)
	nodular		1 (2)	0 (0)	0 (0)	0 (0)
	herniation		4 (9)	3 (8)	3 (7)	0 (0)
kidney	enlarged		0 (0)	0 (0)	0 (0)	1 (3)
	cyst		1 (2)	0 (0)	0 (0)	0 (0)
	deformed		0 (0)	0 (0)	0 (0)	12 (32)
	granular		7 (16)	1 (3)	3 (7)	3 (8)
ureter	dilated		0 (0)	0 (0)	0 (0)	2 (5)
urin bladd	calculus		0 (0)	0 (0)	0 (0)	5 (14)
	thick		0 (0)	0 (0)	0 (0)	4 (11)
pituitary	enlarged		6 (14)	4 (11)	4 (9)	4 (11)

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 44 (%)	500ppm 38 (%)	1500ppm 44 (%)	4500ppm 37 (%)
pituitary	red zone		3 (7)	7 (18)	4 (9)	7 (19)
	black zone		0 (0)	1 (3)	1 (2)	1 (3)
	nodule		12 (27)	7 (18)	12 (27)	6 (16)
thyroid	enlarged		2 (5)	1 (3)	2 (5)	1 (3)
ovary	enlarged		0 (0)	0 (0)	0 (0)	1 (3)
uterus	nodule		2 (5)	2 (5)	2 (5)	2 (5)
	dilated lumen		0 (0)	0 (0)	1 (2)	0 (0)
vagina	nodule		0 (0)	0 (0)	0 (0)	1 (3)
prep/cli gl	nodule		0 (0)	0 (0)	1 (2)	0 (0)
eye	turbid		0 (0)	0 (0)	0 (0)	1 (3)
	white		6 (14)	2 (5)	2 (5)	1 (3)
adipose	nodule		1 (2)	1 (3)	0 (0)	0 (0)
other	tail:nodule		1 (2)	0 (0)	0 (0)	0 (0)
	lower jaw:nodule		0 (0)	1 (3)	0 (0)	0 (0)
whole body	anemic		0 (0)	0 (0)	1 (2)	0 (0)

APPENDIX H 5

GROSS FINDINGS(TOW-YERA STUDY: SUMMARY)

MOSUE : MALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0-105W)

Organ	Findings	Group Name	Control	667ppm	2000ppm	6000ppm
		NO. of Animals	15 (%)	9 (%)	9 (%)	11 (%)
skin/app	nodule		0 (0)	0 (0)	1 (11)	0 (0)
	scab		0 (0)	0 (0)	0 (0)	1 (9)
subcutis	edema		0 (0)	1 (11)	1 (11)	0 (0)
lung	red zone		1 (7)	0 (0)	0 (0)	0 (0)
	nodule		0 (0)	0 (0)	2 (22)	0 (0)
lymph node	enlarged		1 (7)	0 (0)	2 (22)	3 (27)
	nodule		1 (7)	0 (0)	0 (0)	0 (0)
thymus	nodule		1 (7)	0 (0)	0 (0)	0 (0)
spleen	enlarged		0 (0)	1 (11)	0 (0)	3 (27)
	white zone		0 (0)	0 (0)	1 (11)	0 (0)
	red zone		1 (7)	0 (0)	0 (0)	0 (0)
	black zone		1 (7)	0 (0)	0 (0)	0 (0)
	nodule		1 (7)	0 (0)	0 (0)	1 (9)
salivary gl	nodule		0 (0)	1 (11)	0 (0)	0 (0)
forestomach	nodule		0 (0)	0 (0)	0 (0)	1 (9)
	ulcer		1 (7)	0 (0)	0 (0)	0 (0)
gl stomach	nodule		1 (7)	0 (0)	0 (0)	0 (0)
	thick		0 (0)	1 (11)	0 (0)	0 (0)
small intes	nodule		1 (7)	0 (0)	0 (0)	0 (0)
liver	enlarged		2 (13)	1 (11)	2 (22)	1 (9)
	pale		1 (7)	1 (11)	0 (0)	0 (0)
	white zone		0 (0)	0 (0)	1 (11)	1 (9)

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0-105W)

Organ	Findings	Group Name / NO. of Animals	Control 15 (%)	667ppm 9 (%)	2000ppm 9 (%)	6000ppm 11 (%)
liver	red zone		0 (0)	0 (0)	1 (11)	0 (0)
	nodule		4 (27)	3 (33)	5 (56)	2 (18)
kidney	yellow		0 (0)	1 (11)	0 (0)	0 (0)
	white zone		0 (0)	0 (0)	0 (0)	1 (9)
	hydronephrosis		0 (0)	1 (11)	0 (0)	0 (0)
urin bladd	urine:marked retention		1 (7)	1 (11)	1 (11)	2 (18)
testis	atrophic		0 (0)	1 (11)	0 (0)	0 (0)
epididymis	nodule		0 (0)	0 (0)	1 (11)	0 (0)
semin ves	red		1 (7)	0 (0)	0 (0)	0 (0)
prep/cli gl	nodule		0 (0)	0 (0)	0 (0)	2 (18)
brain	nodule		1 (7)	0 (0)	0 (0)	0 (0)
periph nerv	nodule		1 (7)	0 (0)	0 (0)	1 (9)
Harder gl	nodule		0 (0)	0 (0)	0 (0)	1 (9)
muscle	nodule		0 (0)	0 (0)	0 (0)	2 (18)
mediastinum	mass		1 (7)	0 (0)	0 (0)	1 (9)
abdominal c	hemorrhage		1 (7)	1 (11)	2 (22)	1 (9)
	ascites		0 (0)	1 (11)	0 (0)	1 (9)
thoracic ca	mass		0 (0)	0 (0)	0 (0)	1 (9)
	pleural fluid		3 (20)	2 (22)	3 (33)	5 (45)
whole body	anemic		1 (7)	1 (11)	0 (0)	1 (9)

APPENDIX H 6

GROSS FINDINGS (TOW-YERA STUDY: SUMMARY)

MOSUE : FEMALE : DEAD AND MORIBUND ANIMALS

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0-105W)

Organ	Findings	Group Name / NO. of Animals	Control 19	(%)	667ppm 28	(%)	2000ppm 25	(%)	6000ppm 17	(%)
subcutis	edema		1	(5)	6	(21)	0	(0)	3	(18)
	mass		1	(5)	0	(0)	1	(4)	0	(0)
lung	red		1	(5)	0	(0)	1	(4)	0	(0)
	edema		1	(5)	0	(0)	0	(0)	0	(0)
	nodule		1	(5)	3	(11)	0	(0)	0	(0)
	adhesion		0	(0)	0	(0)	1	(4)	0	(0)
lymph node	enlarged		6	(32)	9	(32)	6	(24)	6	(35)
thymus	enlarged		1	(5)	0	(0)	0	(0)	0	(0)
spleen	enlarged		3	(16)	9	(32)	9	(36)	6	(35)
	white zone		1	(5)	0	(0)	0	(0)	0	(0)
	nodule		0	(0)	1	(4)	0	(0)	0	(0)
	accentuation of white pulp		0	(0)	0	(0)	0	(0)	1	(6)
stomach	hemorrhage		0	(0)	0	(0)	1	(4)	0	(0)
small intes	nodule		1	(5)	1	(4)	0	(0)	0	(0)
cecum	nodule		0	(0)	1	(4)	0	(0)	0	(0)
	adhesion		0	(0)	1	(4)	0	(0)	0	(0)
liver	enlarged		4	(21)	4	(14)	5	(20)	6	(35)
	pale		1	(5)	1	(4)	0	(0)	1	(6)
	white zone		4	(21)	6	(21)	5	(20)	6	(35)
	red zone		0	(0)	2	(7)	0	(0)	1	(6)
	nodule		3	(16)	5	(18)	7	(28)	3	(18)
	nodular		0	(0)	0	(0)	1	(4)	0	(0)

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE

GROSS FINDINGS (SUMMARY)
DEAD AND MORIBUND ANIMALS (0-105W)

Organ	Findings	Group Name / NO. of Animals	Control 19	(%)	667ppm 28	(%)	2000ppm 25	(%)	6000ppm 17	(%)
liver	herniation		1	(5)	0	(0)	0	(0)	0	(0)
gall bladd	dilated		1	(5)	0	(0)	0	(0)	0	(0)
pancreas	nodule		0	(0)	1	(4)	2	(8)	0	(0)
kidney	enlarged		0	(0)	1	(4)	1	(4)	0	(0)
	pale		0	(0)	1	(4)	0	(0)	0	(0)
	white zone		0	(0)	1	(4)	2	(8)	0	(0)
	nodule		1	(5)	0	(0)	1	(4)	0	(0)
	deformed		0	(0)	1	(4)	1	(4)	0	(0)
	hydronephrosis		1	(5)	2	(7)	1	(4)	0	(0)
urin bladd	urine:marked retention		0	(0)	1	(4)	1	(4)	0	(0)
pituitary	enlarged		0	(0)	1	(4)	0	(0)	0	(0)
	red zone		0	(0)	1	(4)	0	(0)	0	(0)
	nodule		0	(0)	1	(4)	0	(0)	1	(6)
adrenal	enlarged		0	(0)	0	(0)	1	(4)	0	(0)
ovary	enlarged		3	(16)	1	(4)	2	(8)	4	(24)
	nodule		0	(0)	0	(0)	0	(0)	1	(6)
	cyst		0	(0)	1	(4)	1	(4)	1	(6)
uterus	enlarged		0	(0)	2	(7)	0	(0)	0	(0)
	nodule		7	(37)	10	(36)	10	(40)	9	(53)
	cyst		0	(0)	1	(4)	0	(0)	0	(0)
brain	red zone		1	(5)	0	(0)	1	(4)	0	(0)
spinal cord	red zone		0	(0)	0	(0)	1	(4)	0	(0)

Organ	Findings	Group Name / NO. of Animals	Control 19	(%)	667ppm 28	(%)	2000ppm 25	(%)	6000ppm 17	(%)
spinal cord	nodule		0	(0)	0	(0)	1	(4)	0	(0)
periph nerv	nodule		0	(0)	0	(0)	1	(4)	0	(0)
mediastinum	mass		0	(0)	2	(7)	0	(0)	0	(0)
retroperit	mass		0	(0)	0	(0)	1	(4)	0	(0)
abdominal c	hemorrhage		1	(5)	2	(7)	0	(0)	1	(6)
	ascites		6	(32)	12	(43)	10	(40)	4	(24)
thoracic ca	hemorrhage		1	(5)	0	(0)	0	(0)	0	(0)
	pleural fluid		8	(42)	6	(21)	7	(28)	7	(41)
whole body	anemic		0	(0)	1	(4)	1	(4)	0	(0)
	wasting		0	(0)	0	(0)	1	(4)	0	(0)

APPENDIX H 7

GROSS FINDINGS (TOW-YERA STUDY: SUMMARY)

MOSUE : MALE : SACRIFICED ANIMALS

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE

GROSS FINDINGS (SUMMARY)
SACRIFICED ANIMALS (105W)

Organ	Findings	Group Name / NO. of Animals	Control 35	(%)	667ppm 41	(%)	2000ppm 41	(%)	6000ppm 39	(%)
skin/app	ulcer		0	(0)	0	(0)	1	(2)	0	(0)
lung	nodule		2	(6)	9	(22)	4	(10)	2	(5)
lymph node	enlarged		0	(0)	3	(7)	4	(10)	3	(8)
spleen	enlarged		0	(0)	1	(2)	2	(5)	0	(0)
	black zone		1	(3)	2	(5)	1	(2)	0	(0)
	nodule		0	(0)	0	(0)	2	(5)	0	(0)
	deformed		0	(0)	1	(2)	3	(7)	0	(0)
	accentuation of white pulp		0	(0)	3	(7)	2	(5)	5	(13)
gl stomach	nodule		0	(0)	1	(2)	0	(0)	0	(0)
small intes	nodule		0	(0)	0	(0)	0	(0)	1	(3)
cecum	nodule		0	(0)	0	(0)	1	(2)	0	(0)
large intes	nodule		1	(3)	0	(0)	0	(0)	0	(0)
liver	white zone		1	(3)	1	(2)	1	(2)	2	(5)
	nodule		16	(46)	13	(32)	9	(22)	9	(23)
pancreas	nodule		2	(6)	0	(0)	2	(5)	0	(0)
kidney	nodule		0	(0)	0	(0)	1	(2)	2	(5)
	deformed		0	(0)	0	(0)	0	(0)	1	(3)
	rough		0	(0)	0	(0)	0	(0)	1	(3)
	hydronephrosis		0	(0)	0	(0)	1	(2)	1	(3)
urin bladd	nodule		0	(0)	2	(5)	0	(0)	0	(0)
	urine:marked retention		0	(0)	1	(2)	0	(0)	0	(0)
pituitary	nodule		0	(0)	1	(2)	0	(0)	0	(0)

Organ	Findings	Group Name / NO. of Animals	Control 35	(%)	667ppm 41	(%)	2000ppm 41	(%)	6000ppm 39	(%)
testis	atrophic		0	(0)	0	(0)	1	(2)	0	(0)
	nodule		0	(0)	0	(0)	0	(0)	1	(3)
epididymis	nodule		2	(6)	0	(0)	1	(2)	0	(0)
prostate	nodule		0	(0)	0	(0)	1	(2)	0	(0)
prep/cli gl	nodule		8	(23)	14	(34)	12	(29)	8	(21)
Harder gl	enlarged		0	(0)	2	(5)	0	(0)	0	(0)
	nodule		0	(0)	2	(5)	1	(2)	0	(0)
mediastinum	mass		0	(0)	1	(2)	0	(0)	0	(0)
retroperit	mass		0	(0)	0	(0)	1	(2)	0	(0)
abdominal c	hemorrhage		0	(0)	1	(2)	0	(0)	0	(0)
	ascites		0	(0)	0	(0)	2	(5)	0	(0)
thoracic ca	pleural fluid		0	(0)	0	(0)	1	(2)	1	(3)

APPENDIX H 8

GROSS FINDINGS(TOW-YERA STUDY: SUMMARY)

MOSUE : FEMALE : SACRIFICED ANIMALS

Organ	Findings	Group Name / NO. of Animals	Control 31	(%)	667ppm 22	(%)	2000ppm 25	(%)	6000ppm 32	(%)
skin/app	nodule		1	(3)	0	(0)	0	(0)	0	(0)
subcutis	mass		0	(0)	2	(9)	2	(8)	0	(0)
lung	white zone		1	(3)	0	(0)	0	(0)	0	(0)
	nodule		3	(10)	0	(0)	2	(8)	2	(6)
lymph node	enlarged		0	(0)	2	(9)	1	(4)	1	(3)
spleen	enlarged		0	(0)	2	(9)	1	(4)	1	(3)
	black zone		0	(0)	1	(5)	0	(0)	0	(0)
	nodule		1	(3)	0	(0)	0	(0)	0	(0)
	accentuation of white pulp		0	(0)	1	(5)	1	(4)	1	(3)
forestomach	nodule		0	(0)	0	(0)	0	(0)	1	(3)
liver	enlarged		0	(0)	0	(0)	0	(0)	1	(3)
	white zone		2	(6)	2	(9)	1	(4)	1	(3)
	red zone		0	(0)	0	(0)	1	(4)	0	(0)
	nodule		4	(13)	8	(36)	17	(68)	23	(72)
	cyst		0	(0)	0	(0)	1	(4)	0	(0)
	nodular		0	(0)	0	(0)	1	(4)	0	(0)
pancreas	nodule		1	(3)	0	(0)	0	(0)	0	(0)
kidney	pale		0	(0)	1	(5)	0	(0)	0	(0)
	nodule		0	(0)	1	(5)	0	(0)	0	(0)
	hydronephrosis		1	(3)	0	(0)	0	(0)	0	(0)
pituitary	enlarged		0	(0)	0	(0)	1	(4)	0	(0)
	nodule		1	(3)	0	(0)	2	(8)	1	(3)

Organ	Findings	Group Name / NO. of Animals	Control 31	(%)	667ppm 22	(%)	2000ppm 25	(%)	6000ppm 32	(%)
ovary	enlarged		0	(0)	0	(0)	0	(0)	1	(3)
	cyst		7	(23)	4	(18)	2	(8)	3	(9)
uterus	nodule		1	(3)	2	(9)	4	(16)	9	(28)
	cyst		0	(0)	0	(0)	1	(4)	0	(0)
eye	white zone		0	(0)	2	(9)	0	(0)	0	(0)
Harder gl	enlarged		0	(0)	0	(0)	1	(4)	0	(0)
	nodule		0	(0)	3	(14)	0	(0)	1	(3)
retroperit	mass		0	(0)	1	(5)	0	(0)	0	(0)
abdominal c	ascites		0	(0)	1	(5)	3	(12)	2	(6)
thoracic ca	pleural fluid		1	(3)	2	(9)	1	(4)	4	(13)
other	tail:nodule		1	(3)	0	(0)	0	(0)	0	(0)

APPENDIX I 1

ORGAN WEIGHT, ABSOLUTE, (TOW-YERA STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	Body Weight	ADRENALS	TESTES	HEART	LUNGS	KIDNEYS
Control	37	418± 35	0.076± 0.010	4.966± 1.450	1.255± 0.141	1.492± 0.112	2.915± 0.217
500ppm	41	422± 30	0.078± 0.015	4.770± 1.474	1.268± 0.131	1.594± 0.279	3.004± 0.265
1500ppm	38	393± 44*	0.083± 0.034	5.249± 2.106	1.203± 0.107	1.586± 0.252	3.039± 0.276
4500ppm	31	337± 40**	0.073± 0.016	5.645± 1.736	1.133± 0.103**	1.431± 0.112	3.152± 0.375**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	37	1.249±	0.414	12.107±	1.658	2.051±	0.051
500ppm	41	2.264±	4.446	12.852±	2.060	2.051±	0.059
1500ppm	38	1.970±	1.793	14.318±	6.811*	2.051±	0.072
4500ppm	31	1.117±	0.365	11.795±	2.510	2.036±	0.048

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX I 2

ORGAN WEIGHT, ABSOLUTE (TOW-YERA STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	Body Weight	ADRENALS	OVARIES	HEART	LUNGS	KIDNEYS
Control	44	311± 32	0.079± 0.009	0.126± 0.032	0.912± 0.086	1.080± 0.111	1.996± 0.172
500ppm	38	296± 41	0.080± 0.011	0.132± 0.058	0.933± 0.115	1.127± 0.154	2.022± 0.136
1500ppm	44	288± 40	0.081± 0.011	0.119± 0.022	0.945± 0.109	1.093± 0.159	2.034± 0.165
4500ppm	37	235± 25**	0.079± 0.011	0.133± 0.123	0.899± 0.094	1.078± 0.094	2.116± 0.223

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	44	0.847±	0.980	7.558±	0.870	1.858±	0.040
500ppm	38	0.817±	0.588	7.526±	0.756	1.874±	0.049
1500ppm	44	0.781±	0.613	8.026±	1.271	1.876±	0.045
4500ppm	37	0.725±	0.654	7.459±	0.943	1.870±	0.056

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX I 3

ORGAN WEIGHT, ABSOLUTE (TOW-YERA STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	Body Weight	ADRENALS	TESTES	HEART	LUNGS	KIDNEYS
Control	35	44.7± 5.1	0.008± 0.002	0.214± 0.029	0.203± 0.027	0.216± 0.042	0.570± 0.044
667ppm	41	41.2± 7.5	0.008± 0.002	0.210± 0.029	0.193± 0.018	0.247± 0.146	0.556± 0.056
2000ppm	41	41.0± 5.9	0.008± 0.003	0.213± 0.036	0.190± 0.015	0.212± 0.043	0.674± 0.759
6000ppm	39	30.6± 3.4**	0.008± 0.002	0.219± 0.032	0.173± 0.018**	0.198± 0.025	0.543± 0.348**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	35	0.086±	0.089	1.682±	0.800	0.456±	0.015
667ppm	41	0.121±	0.183	1.562±	0.709	0.456±	0.014
2000ppm	41	0.179±	0.323	1.617±	0.842	0.452±	0.014
6000ppm	39	0.086±	0.073	1.332±	0.230	0.451±	0.017

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX I 4

ORGAN WEIGHT, ABSOLUTE (TOW-YERA STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	Body Weight	ADRENALS	OVARIES	HEART	LUNGS	KIDNEYS
Control	31	32.0± 3.9	0.011± 0.003	0.062± 0.075	0.172± 0.024	0.220± 0.050	0.426± 0.047
667ppm	22	31.1± 3.2	0.011± 0.003	0.056± 0.072	0.177± 0.036	0.228± 0.053	0.454± 0.094
2000ppm	25	28.1± 2.9**	0.010± 0.002	0.036± 0.029	0.162± 0.017	0.226± 0.123	0.424± 0.051
6000ppm	32	23.8± 2.7**	0.008± 0.002**	0.045± 0.071	0.144± 0.014**	0.197± 0.041**	0.352± 0.035**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: g

ORGAN WEIGHT:ABSOLUTE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	SPLEEN		LIVER		BRAIN	
Control	31	0.112±	0.062	1.271±	0.197	0.476±	0.012
667ppm	22	0.219±	0.180	1.590±	0.638	0.469±	0.021
2000ppm	25	0.183±	0.296	1.530±	0.637	0.468±	0.015
6000ppm	32	0.105±	0.100	1.509±	0.587	0.456±	0.018**

Significant difference : * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX J 1

ORGAN WEIGHT, RELATIVE (TOW-YERA STUDY: SUMMARY)

RAT : MALE

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	TESTES	HEART	LUNGS	KIDNEYS
Control	37	418± 35	0.018± 0.002	1.189± 0.334	0.303± 0.050	0.359± 0.043	0.701± 0.077
500ppm	41	422± 30	0.019± 0.004	1.135± 0.355	0.302± 0.042	0.382± 0.090	0.715± 0.074
1500ppm	38	393± 44*	0.022± 0.010	1.316± 0.487	0.308± 0.027	0.413± 0.108**	0.784± 0.122**
4500ppm	31	337± 40**	0.022± 0.005**	1.687± 0.536**	0.340± 0.048**	0.431± 0.064**	0.942± 0.115**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	37	0.299± 0.100	2.897± 0.341	0.494± 0.045
500ppm	41	0.580± 1.315	3.059± 0.543	0.488± 0.035
1500ppm	38	0.527± 0.549	3.732± 2.167**	0.529± 0.067
4500ppm	31	0.338± 0.127	3.495± 0.600**	0.612± 0.072**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX J 2

ORGAN WEIGHT, RELATIVE (TOW-YERA STUDY: SUMMARY)

RAT : FEMALE

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	OVARIES	HEART	LUNGS	KIDNEYS
Control	44	311± 32	0.026± 0.004	0.041± 0.011	0.296± 0.040	0.351± 0.052	0.649± 0.094
500ppm	38	296± 41	0.027± 0.005	0.046± 0.025	0.320± 0.044	0.388± 0.074*	0.695± 0.092
1500ppm	44	288± 40	0.029± 0.006*	0.042± 0.008	0.335± 0.071**	0.390± 0.113	0.719± 0.120*
4500ppm	37	235± 25**	0.034± 0.007**	0.056± 0.048**	0.386± 0.049**	0.464± 0.070**	0.913± 0.157**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0205
ANIMAL : RAT F344
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	44	0.281± 0.345	2.449± 0.351	0.604± 0.063
500ppm	38	0.288± 0.241	2.571± 0.264	0.645± 0.089
1500ppm	44	0.281± 0.244	2.819± 0.507**	0.665± 0.108*
4500ppm	37	0.315± 0.286	3.212± 0.575**	0.805± 0.089**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX J 3

ORGAN WEIGHT, RELATIVE (TOW-YERA STUDY: SUMMARY)

MOSUE : MALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	TESTES	HEART	LUNGS	KIDNEYS
Control	35	44.7± 5.1	0.018± 0.006	0.484± 0.087	0.459± 0.085	0.490± 0.123	1.289± 0.172
667ppm	41	41.2± 7.5	0.019± 0.006	0.523± 0.107	0.483± 0.103	0.628± 0.413	1.395± 0.306
2000ppm	41	41.0± 5.9	0.020± 0.007	0.527± 0.113	0.472± 0.072	0.528± 0.121	1.764± 2.521
6000ppm	39	30.6± 3.4**	0.027± 0.010**	0.718± 0.103**	0.572± 0.084**	0.655± 0.110**	1.787± 1.146**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : MALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	35	0.191± 0.183	3.899± 2.325	1.032± 0.131
667ppm	41	0.297± 0.420	4.015± 2.581	1.155± 0.279
2000ppm	41	0.463± 0.848	4.035± 2.277	1.128± 0.177
6000ppm	39	0.287± 0.260	4.388± 0.881**	1.491± 0.170**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

APPENDIX J 4

ORGAN WEIGHT, RELATIVE (TOW-YERA STUDY: SUMMARY)

MOSUE : FEMALE

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	Body Weight (g)	ADRENALS	OVARIES	HEART	LUNGS	KIDNEYS
Control	31	32.0± 3.9	0.035± 0.010	0.187± 0.218	0.545± 0.089	0.703± 0.206	1.353± 0.240
667ppm	22	31.1± 3.2	0.035± 0.007	0.176± 0.203	0.577± 0.154	0.745± 0.211	1.475± 0.350
2000ppm	25	28.1± 2.9**	0.037± 0.009	0.127± 0.110	0.580± 0.075	0.809± 0.423	1.520± 0.186**
6000ppm	32	23.8± 2.7**	0.035± 0.008	0.187± 0.290	0.612± 0.107	0.836± 0.196**	1.492± 0.207*

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett

STUDY NO. : 0206
ANIMAL : MOUSE BDF1
REPORT TYPE : A1
SEX : FEMALE
UNIT: %

ORGAN WEIGHT:RELATIVE (SUMMARY)
SURVIVAL ANIMALS (105)

Group Name	NO. of Animals	SPLEEN	LIVER	BRAIN
Control	31	0.356± 0.195	4.022± 0.755	1.511± 0.189
667ppm	22	0.724± 0.618	5.216± 2.282	1.521± 0.177
2000ppm	25	0.639± 1.002	5.505± 2.374**	1.684± 0.174**
6000ppm	32	0.445± 0.443	6.482± 2.900**	1.936± 0.233**

Significant difference ; * : P ≦ 0.05 ** : P ≦ 0.01 Test of Dunnett