

o-フェニレンジアミン二塩酸塩のマウスを用いた
経口投与による 2 週間毒性試験(混水試験)報告書

試験番号：0 3 3 7

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TABLE 1 SURVIVAL ANIMAL NUMBERS AND BODY WEIGHT CHANGES OF MALE MICE
IN THE 2-WEEK DRINKING WATER STUDY OF *o*-PHENYLENEDIAMINE DIHYDROCHLORIDE

Week on Study	0ppm		500ppm			1000ppm			2000ppm			4000ppm			6000ppm		
	Av. Wt.	No. of	Av. Wt.	% of	No. of	Av. Wt.	% of	No. of	Av. Wt.	% of	No. of	Av. Wt.	% of	No. of	Av. Wt.	% of	No. of
	<5>	Surviv.	<5>	cont.	Surviv.	<5>	cont.	Surviv.	<5>	cont.	Surviv.	<5>	cont.	Surviv.	<5>	cont.	Surviv.
0-0	22.8 (5)	5 / 5	22.8 (5)	100	5 / 5	22.8 (5)	100	5 / 5	22.9 (5)	100	5 / 5	22.8 (5)	100	5 / 5	22.8 (5)	100	5 / 5
1-1	22.4 (5)	5 / 5	21.4 (5)	96	5 / 5	22.0 (5)	98	5 / 5	21.0 (5)	94	5 / 5	19.9 (5)	89	5 / 5	20.0 (5)	89	5 / 5
1-3	23.2 (5)	5 / 5	22.0 (5)	95	5 / 5	22.1 (5)	95	5 / 5	20.9 (5)	90	5 / 5	18.4 (5)	79	5 / 5	17.9 (5)	77	5 / 5
1-7	23.5 (5)	5 / 5	22.5 (5)	96	5 / 5	22.1 (5)	94	5 / 5	21.4 (5)	91	5 / 5	19.4 (5)	83	5 / 5	15.5 (5)	66	5 / 5
2-3	23.5 (5)	5 / 5	22.7 (5)	97	5 / 5	22.8 (5)	97	5 / 5	21.6 (5)	92	5 / 5	19.8 (5)	84	5 / 5	15.4 (5)	66	5 / 5
2-7	24.1 (5)	5 / 5	23.0 (5)	95	5 / 5	23.6 (5)	98	5 / 5	23.3 (5)	97	5 / 5	21.5 (5)	89	5 / 5	15.7 (5)	65	5 / 5
< > : No.of effective animals, () : No.of measured animals Av.Wt.:g																	

TABLE 2 SURVIVAL ANIMAL NUMBERS AND BODY WEIGHT CHANGES OF FEMALE MICE
IN THE 2-WEEK DRINKING WATER STUDY OF *o*-PHENYLENEDIAMINE DIHYDROCHLORIDE

Week on Study	0ppm		500ppm			1000ppm			2000ppm			4000ppm			6000ppm		
	Av. Wt.	No. of	Av. Wt.	% of	No. of	Av. Wt.	% of	No. of	Av. Wt.	% of	No. of	Av. Wt.	% of	No. of	Av. Wt.	% of	No. of
	<5>	Surviv.	<5>	cont.	Surviv.	<5>	cont.	Surviv.	<5>	cont.	Surviv.	<5>	cont.	Surviv.	<5>	cont.	Surviv.
0-0	19.3 (5)	5 / 5	19.3 (5)	100	5 / 5	19.3 (5)	100	5 / 5	19.3 (5)	100	5 / 5	19.3 (5)	100	5 / 5	19.3 (5)	100	5 / 5
1-1	18.6 (5)	5 / 5	19.1 (5)	103	5 / 5	18.5 (5)	99	5 / 5	17.8 (5)	96	5 / 5	16.8 (5)	90	5 / 5	16.3 (5)	88	5 / 5
1-3	19.4 (5)	5 / 5	19.8 (5)	102	5 / 5	19.3 (5)	99	5 / 5	18.6 (5)	96	5 / 5	15.4 (5)	79	5 / 5	14.7 (5)	76	5 / 5
1-7	20.1 (5)	5 / 5	20.3 (5)	101	5 / 5	19.7 (5)	98	5 / 5	19.3 (5)	96	5 / 5	16.5 (5)	82	5 / 5	13.1 (5)	65	5 / 5
2-3	20.9 (5)	5 / 5	20.8 (5)	100	5 / 5	19.8 (5)	95	5 / 5	20.5 (5)	98	5 / 5	17.7 (5)	85	5 / 5	13.6 (4)	65	4 / 5
2-7	20.7 (5)	5 / 5	21.2 (5)	102	5 / 5	20.1 (5)	97	5 / 5	20.4 (5)	99	5 / 5	19.4 (5)	94	5 / 5	14.8 (4)	71	4 / 5
< > : No.of effective animals, () : No.of measured animals Av.Wt.:g																	

TABLE 3 WATER CONSUMPTION CHANGES OF MALE MICE
IN THE 2-WEEK DRINKING WATER STUDY OF *o*-PHENYLENEDIAMINE DIHYDROCHLORIDE

Week on Study	0ppm		500ppm			1000ppm			2000ppm			4000ppm			6000ppm		
	Av. Wc.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.
	<5>		<5>			<5>			<5>			<5>			<5>		
1-3	4.2 (5)	5 / 5	3.2 (5)	76	5 / 5	3.2 (5)	76	5 / 5	1.8 (5)	43	5 / 5	0.9 (5)	21	5 / 5	0.6 (5)	14	5 / 5
1-7	4.0 (5)	5 / 5	3.8 (5)	95	5 / 5	3.1 (5)	78	5 / 5	2.1 (5)	53	5 / 5	1.6 (5)	40	5 / 5	0.6 (5)	15	5 / 5
2-3	3.8 (5)	5 / 5	3.7 (5)	97	5 / 5	3.1 (5)	82	5 / 5	1.8 (5)	47	5 / 5	1.7 (5)	45	5 / 5	0.9 (5)	24	5 / 5
2-7	4.0 (5)	5 / 5	3.5 (5)	88	5 / 5	3.1 (5)	78	5 / 5	2.2 (5)	55	5 / 5	1.9 (5)	48	5 / 5	1.2 (5)	30	5 / 5
< > : No.of effective animals, () : No.of measured animals Av.Wc.:g																	

TABLE 4 WATER CONSUMPTION CHANGES OF FEMALE MICE
IN THE 2-WEEK DRINKING WATER STUDY OF *o*-PHENYLENEDIAMINE DIHYDROCHLORIDE

Week on Study	0ppm		500ppm			1000ppm			2000ppm			4000ppm			6000ppm		
	Av. Wc.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.	Av. Wc.	% of cont.	No. of Surviv.
	<5>		<5>			<5>			<5>			<5>			<5>		
1-3	4.8 (5)	5 / 5	4.2 (5)	88	5 / 5	3.2 (5)	67	5 / 5	2.2 (5)	46	5 / 5	1.0 (5)	21	5 / 5	0.7 (5)	15	5 / 5
1-7	4.8 (5)	5 / 5	4.0 (5)	83	5 / 5	3.0 (5)	63	5 / 5	2.2 (5)	46	5 / 5	1.5 (5)	31	5 / 5	0.7 (5)	15	5 / 5
2-3	4.3 (5)	5 / 5	4.2 (5)	98	5 / 5	2.9 (5)	67	5 / 5	2.1 (5)	49	5 / 5	1.9 (5)	44	5 / 5	1.0 (4)	23	4 / 5
2-7	4.3 (5)	5 / 5	4.0 (5)	93	5 / 5	3.1 (5)	72	5 / 5	2.2 (5)	51	5 / 5	1.9 (5)	44	5 / 5	1.6 (4)	37	4 / 5
< > : No.of effective animals, () : No.of measured animals Av.Wc.:g																	

TABLE 5 FOOD CONSUMPTION CHANGES OF MALE MICE
IN THE 2-WEEK DRINKING WATER STUDY OF *o*-PHENYLENEDIAMINE DIHYDROCHLORIDE

Week on Study	0ppm			500ppm			1000ppm			2000ppm			4000ppm			6000ppm		
	Av. Fc.	No. of Surviv.		Av. Fc.	% of cont.	No. of Surviv.	Av. Fc.	% of cont.	No. of Surviv.	Av. Fc.	% of cont.	No. of Surviv.	Av. Fc.	% of cont.	No. of Surviv.	Av. Fc.	% of cont.	No. of Surviv.
	<5>			<5>			<5>			<5>			<5>			<5>		
1-7	3.8 (5)	5 / 5		3.6 (5)	95	5 / 5	3.5 (5)	92	5 / 5	3.4 (5)	89	5 / 5	2.8 (5)	74	5 / 5	2.2 (5)	58	5 / 5
2-7	3.9 (5)	5 / 5		3.9 (5)	100	5 / 5	4.0 (5)	103	5 / 5	4.4 (5)	113	5 / 5	3.9 (5)	100	5 / 5	2.9 (5)	74	5 / 5
< > : No.of effective animals, () : No.of measured animals Av.Fc.:g																		

TABLE 6 FOOD CONSUMPTION CHANGES OF FEMALE MICE
IN THE 2-WEEK DRINKING WATER STUDY OF *o*-PHENYLENEDIAMINE DIHYDROCHLORIDE

Week on Study	0ppm			500ppm			1000ppm			2000ppm			4000ppm			6000ppm		
	Av. Fc.	No. of Surviv.		Av. Fc.	% of cont.	No. of Surviv.	Av. Fc.	% of cont.	No. of Surviv.	Av. Fc.	% of cont.	No. of Surviv.	Av. Fc.	% of cont.	No. of Surviv.	Av. Fc.	% of cont.	No. of Surviv.
	<5>			<5>			<5>			<5>			<5>			<5>		
1-7	3.4 (5)	5 / 5		3.5 (5)	103	5 / 5	3.4 (5)	100	5 / 5	3.3 (5)	97	5 / 5	2.4 (5)	71	5 / 5	1.8 (5)	53	5 / 5
2-7	3.5 (5)	5 / 5		3.6 (5)	103	5 / 5	3.6 (5)	103	5 / 5	3.6 (5)	103	5 / 5	3.8 (5)	109	5 / 5	2.6 (4)	74	4 / 5
< > : No.of effective animals, () : No.of measured animals Av.Fc.:g																		

TABLE 7 HEMATOLOGY AND BIOCHEMISTRY OF MALE MICE IN THE RECENT 2-WEEK STUDIES
IN JAPAN BIOASSAY RESEARCH CENTER : Crj:BDF1 MALE MICE

Study Number	0337	0287	0299	0308	0315	0333
Dosing route	Drinking water	Inhalation	Feed	Inhalation	Drinking water	Inhalation
No. of examined animals	3	5	5	5	5	5
Red blood cell ($10^6/\mu\text{L}$)	9.98 $\pm$ 0.68	11.33 $\pm$ 0.28	10.31 $\pm$ 0.30	10.99 $\pm$ 0.17	10.07 $\pm$ 0.62	11.02 $\pm$ 0.52
Hemoglobin (g/dL)	16.1 $\pm$ 0.8	17.5 $\pm$ 0.4	15.9 $\pm$ 0.5	16.8 $\pm$ 0.3	15.3 $\pm$ 0.7	16.5 $\pm$ 0.4
Hematocrit (%)	50.2 $\pm$ 3.5	52.9 $\pm$ 1.5	49.3 $\pm$ 0.9	51.8 $\pm$ 1.6	48.1 $\pm$ 3.1	51.8 $\pm$ 2.1
MCV (fL)	50.4 $\pm$ 2.4	46.6 $\pm$ 0.4	47.8 $\pm$ 1.3	47.0 $\pm$ 0.8	47.8 $\pm$ 0.7	47.0 $\pm$ 2.1
MCH (pg)	16.2 $\pm$ 2.0	15.5 $\pm$ 0.2	15.4 $\pm$ 0.3	15.3 $\pm$ 0.2	15.2 $\pm$ 0.6	15.0 $\pm$ 0.5
MCHC (g/dL)	32.2 $\pm$ 3.3	33.1 $\pm$ 0.6	32.8 $\pm$ 0.8	32.6 $\pm$ 0.6	31.8 $\pm$ 1.0	31.9 $\pm$ 0.6
Platlet ($10^3/\mu\text{L}$)	1069 $\pm$ 532	1263 $\pm$ 59	1090 $\pm$ 87	1251 $\pm$ 103	1122 $\pm$ 172	1382 $\pm$ 87
WBC ($10^3/\mu\text{L}$)	1.96 $\pm$ 0.48	1.59 $\pm$ 0.30	2.52 $\pm$ 1.09	0.73 $\pm$ 0.37	2.61 $\pm$ 0.60	1.13 $\pm$ 0.71
Differential WBC (%)						
N-BAND	0 $\pm$ 0	1 $\pm$ 1	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0
N-SEG	23 $\pm$ 14	12 $\pm$ 2	12 $\pm$ 5	14 $\pm$ 5	14 $\pm$ 12	26 $\pm$ 12
EOSINO	2 $\pm$ 3	0 $\pm$ 0	1 $\pm$ 1	1 $\pm$ 1	2 $\pm$ 1	1 $\pm$ 1
BASO	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0
MONO	1 $\pm$ 0	1 $\pm$ 0	3 $\pm$ 1	3 $\pm$ 2	3 $\pm$ 1	2 $\pm$ 1
LYMPHO	74 $\pm$ 17	85 $\pm$ 2	84 $\pm$ 7	82 $\pm$ 6	81 $\pm$ 13	71 $\pm$ 13
OTHER	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0	0 $\pm$ 0
Total protein (g/dL)	5.4 $\pm$ 0.2	5.3 $\pm$ 0.2	4.9 $\pm$ 0.1	5.3 $\pm$ 0.2	4.9 $\pm$ 0.4	5.6 $\pm$ 0.5
Albumin (g/dL)	2.9 $\pm$ 0.2	3.1 $\pm$ 0.1	2.7 $\pm$ 0.0	3.1 $\pm$ 0.1	2.7 $\pm$ 0.1	3.1 $\pm$ 0
A/G ratio	1.2 $\pm$ 0.1	1.4 $\pm$ 0.0	1.2 $\pm$ 0.0	1.4 $\pm$ 0.1	1.3 $\pm$ 0.2	1.2 $\pm$ 2
T-Bilirubin (mg/dL)	0.23 $\pm$ 0.04	0.19 $\pm$ 0.01	0.22 $\pm$ 0.07	0.20 $\pm$ 0.05	0.17 $\pm$ 0.01	0.17 $\pm$ 0.01
Glucose (mg/dL)	178 $\pm$ 144	221 $\pm$ 20	279 $\pm$ 17	237 $\pm$ 26	268 $\pm$ 45	219 $\pm$ 42
T-Cholesterol (mg/dL)	99 $\pm$ 8	82 $\pm$ 82	91 $\pm$ 3	90 $\pm$ 5	93 $\pm$ 14	102 $\pm$ 38
Phospholipid (mg/dL)	201 $\pm$ 15	Not examined	178 $\pm$ 19	178 $\pm$ 12	187 $\pm$ 26	202 $\pm$ 50
GOT (IU/L)	43 $\pm$ 9	40 $\pm$ 4	33 $\pm$ 4	46 $\pm$ 7	30 $\pm$ 2	41 $\pm$ 3
GPT (IU/L)	43 $\pm$ 9	13 $\pm$ 2	19 $\pm$ 3	23 $\pm$ 8	18 $\pm$ 3	19 $\pm$ 2
LDH (IU/L)	517 $\pm$ 273	188 $\pm$ 41	199 $\pm$ 83	388 $\pm$ 149	207 $\pm$ 42	255 $\pm$ 53
γ -GTP(IU/L)	3 $\pm$ 1	Not examined	3 $\pm$ 4	1 $\pm$ 1	2 $\pm$ 1	2 $\pm$ 1
CPK (IU/L)	297 $\pm$ 207	80 $\pm$ 61	89 $\pm$ 44	96 $\pm$ 44	61 $\pm$ 27	75 $\pm$ 26
Urea Nitrogen(mg/L)	29.2 $\pm$ 7.3	28.1 $\pm$ 1.5	19.3 $\pm$ 6	26.8 $\pm$ 2.3	27.5 $\pm$ 10.7	31.3 $\pm$ 4.5
Sodium (mEq/L)	152 $\pm$ 0	151 $\pm$ 2	149 $\pm$ 1	150 $\pm$ 1	147 $\pm$ 1	152 $\pm$ 1
Potassium (mEq/L)	5.2 $\pm$ 0.9	4.7 $\pm$ 0.5	5.2 $\pm$ 0.4	4.6 $\pm$ 0.6	5.4 $\pm$ 0.8	4.2 $\pm$ 0.2
Chloride (mEq/L)	114 $\pm$ 2	124 $\pm$ 1	119 $\pm$ 1	122 $\pm$ 3	116 $\pm$ 2	119 $\pm$ 3
Calcium(mg/dL)	9.5 $\pm$ 0.3	8.8 $\pm$ 0.1	9.4 $\pm$ 0.3	9.0 $\pm$ 0.2	9.4 $\pm$ 0.5	9.4 $\pm$ 0.8
Inorganic phosphorus (mg/dL)	10.3 $\pm$ 2.9	8.6 $\pm$ 1.4	9.1 $\pm$ 1.2	8.3 $\pm$ 0.9	6.3 $\pm$ 1.0	7.0 $\pm$ 1.3