

試験結果概要表 (BBPの2世代繁殖試験)

被験物質投与期間	雄：交配前12週間、交配期間（最長2週間）および剖検前日まで 雌：交配前2週間、交配期間（最長1週間）および哺育21日まで F <sub>1</sub> ：離乳日（哺育22日）から剖検前日まで	
使用動物種・系統：ラット・Crj:CD(SD)IGS	1群の動物数 雄：25 雌：25	被験物質純度 98.0 wt % (東京化成工業、Lot No. GF02)
投与経路：強制経口投与		

検査項目		対照群 ♂/♀ ↑：傾向	20 ♂/♀ △：5%有意差	100 ♂/♀ ▲：1%有意差	500 ♂/♀ -：変化なし	(mg/kg)	
F <sub>0</sub>	一般状態	死亡/切迫屠殺 投与直後の流涎 脱毛 痂皮 腫瘤	0/0 0/0 0/0 1/0 0/0	0/0 0/0 0/0 1/0 0/0	0/0 18/10 0/1 0/1 0/0	0/0 25/25 0/0 2/0 0/1	
	体重 摂餌量		-/- -/-	-/- -/-	-/- -/-	▽/- -/-	
	性周期	Not changed Changed	24 1	24 1	24 1	23 2	
	交配成績	交尾率 (%) 受胎率 (%) 交尾までの日数	96.0 91.7 2.5	96.0 83.3 3.2	96.0 95.8 2.6	100.0 96.0 3.2	
		妊娠日数 着床数 分娩率	21.9 14.3 100.0	22.0 15.1 100.0	21.7 15.9 100.0	22.0 15.2 100.0	
	剖検所見	精巣 小型 精巣上体 小型 卵巣 小型 子宮内腔 拡張 胸腺 小型	1/* 1/* */0 */0 0/2	1/* 1/* */1 */0 4/1	0/* 0/* */0 */0 2/2	0/* 0/* */0 */2 1/3	
	器官重量 (実重量)	脳臓 心臓 肺臓 肝臓 脾臓 腎臓 副腎 胸腺 精巣 精巣上体 前立腺 精囊腺 卵巣 子宮 甲状腺 下垂体		-/- -/- -/- -/- -/- -/- -/- -/- -/* -/* -/* -/* */- */- -/- -/-	-/- -/- -/- -/- -/- -/- -/- -/- -/* -/* -/* -/* */- */- -/- -/-	-/- -/- -/- -/- -/- -/- -/- -/- -/* -/* -/* -/* */▽ */- -/- -/-	

検査項目			対照群 ♂/♀ ↑: 傾向, △: 5%有意差, ▲: 1%有意差, -: 変化なし	20 ♂/♀	100 ♂/♀	500 ♂/♀	(mg/kg)
F <sub>0</sub>	組織所見	精巣 精細管萎縮	1/*	*/*	*/*	0/*	
		精巣上体 細胞残屑	1/*	*/*	*/*	0/*	
		前立腺 リンパ球浸潤	4/*	*/*	*/*	4/*	
		肝臓 脂肪化	3/0	*/*	*/*	0/0	
		腎臓 Eosino. b.	7/0	*/*	*/*	5/0	
		卵巣 塩基尿管	8/2	*/*	*/*	8/5	
		閉鎖卵胞の増加	*/1	*/*	*/*	*/1	
		卵胞嚢腫	*/0	*/*	*/*	*/1	
		乳腺 腺腫	0/0	*/*	*/*	0/1	
		好中球浸潤	0/1	*/*	*/*	0/1	
精子検査	運動精子率 (%)	96	94	94	95		
	前進精子率 (%)	83	80	78	81		
	精子数 (x10 <sup>6</sup> /g)	1790.2	1790.2	1700.3	1758.8		
血中ホルモン濃度	テストステロン		-/*	-/*	▼/*		
	PRL		*/-	*/-	*/△		
	LH		▽/-	-/-	-/-		
	FSH		-/-	▲/-	▲/-		
	TSH		-/△	▽/-	-/-		
	T3		-/-	-/-	▼/-		
	T4		-/-	-/-	▼/▼		
	エストロジオール		*/-	*/-	*/-		

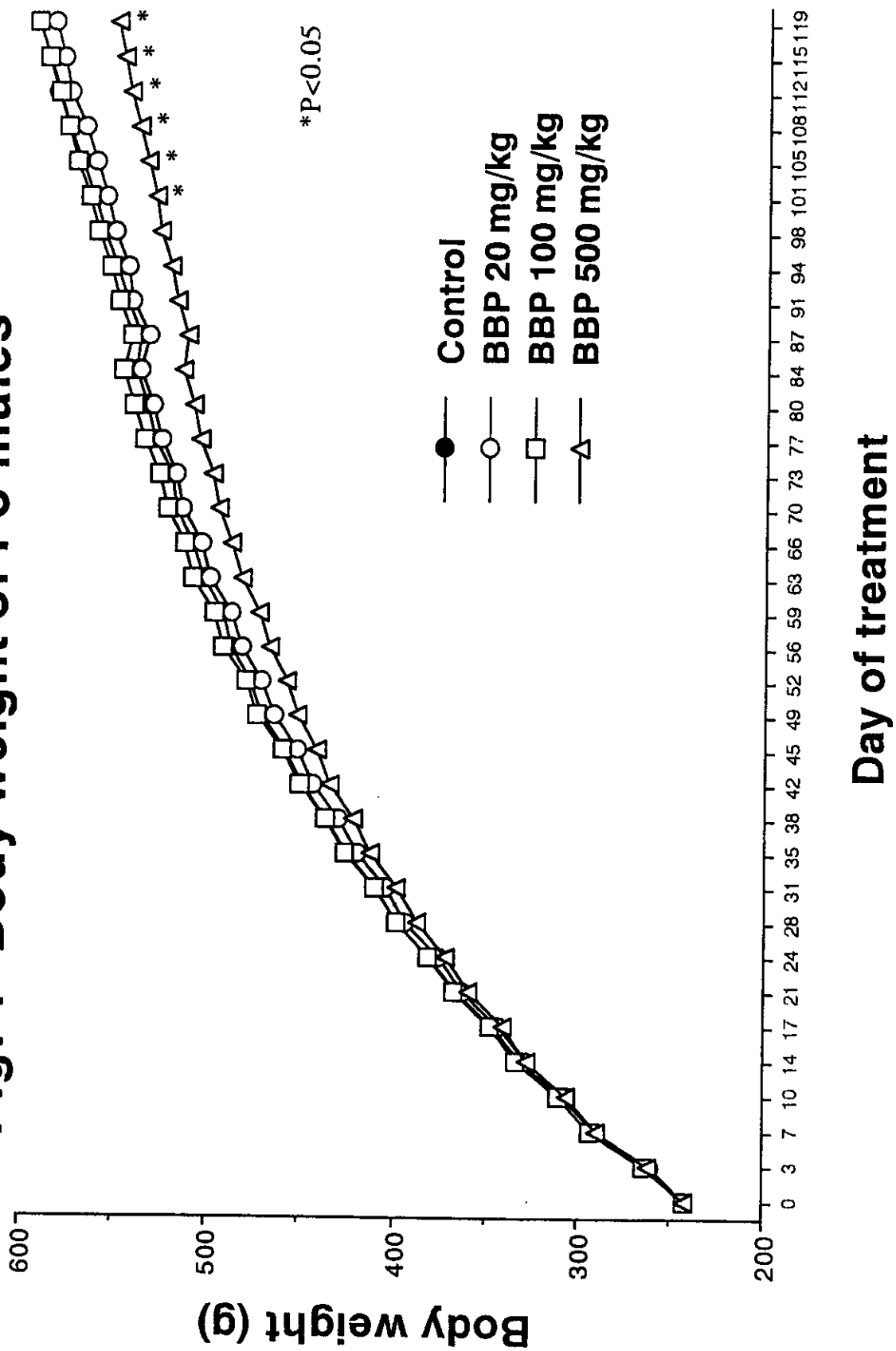
検査項目			対照群 ♂/♀ ↑: 傾向, △: 5%有意差, ▲: 1%有意差, -: 変化なし	20 ♂/♀	100 ♂/♀	500 ♂/♀	(mg/kg)
F <sub>1</sub>	産児所見	総産児数	13.3	14.0	15.1	14.3	
		分娩率 (%)	93.0	92.8	95.4	94.0	
		哺育0日生児数	13.1	13.9	14.9	14.0	
		出生率 (%)	91.3	91.9	93.8	92.7	
		哺育4日生児数	13.1	13.7	14.8	13.5	
		哺育4日生存率 (%)	100.0	99.0	99.5	96.7	▼
		離乳率 (%)	99.4	100.0	100.0	100.0	
	体重 (g)	哺育0日		-/-	▽/▼	▼/▼	
		4日		-/-	-/-	↓/↓	
		7日		-/-	-/-	↓/↓	
14日			-/-	-/-	▼/▼		
21日			-/-	-/-	▼/▼		
肛門生殖突起間距離 (哺育0日)		-/-	-/-	▼/△			
行動発達 (完成日)	正向反射		-/-	-/-	-/-		
	断崖落下回避		-/-	▲/-	-/-		
	背地走性		-/-	-/-	-/-		
身体発達 (完成日)	上顎切歯萌出		-/-	-/-	▼/-		
	外耳道開通		▼/▼	▼/▼	-/-		
	眼瞼開裂		▼/▽	-/-	-/-		

検査項目		対照群 ♂/♀ ↑: 傾向, △: 5%有意差	20 ♂/♀	100 ♂/♀	500 ♂/♀	(mg/kg) ▲: 1%有意差, -: 変化なし
異常児所見	全身浮腫	0	0	1	0	
	胸腺萎縮	0	0	0	1	
	肝臓・横隔膜癒着	0	0	0	1	
	精巣上体萎縮	0	0	0	3	
	腎盂拡張	0	0	1	0	
器官重量 (実重量) (生後22日)	精巣		-/*	-/*	▼/*	
	精巣上体		-/*	-/*	▽/*	
	前立腺+精囊		-/*	-/*	↓/*	
	卵巣		*/-	*/-	*/▼	
	子宮		*/-	*/-	*/-	
組織所見	精巣					
	精細管萎縮	0/*	0/*	0/*	1/*	
	精母細胞減少	0/*	1/*	0/*	9▲/*	
	精祖細胞減少	0/*	0/*	0/*	3/*	
	血中ホルモン濃度 (生後22日)					
	テストステロン		-/*	-/*	-/*	
F <sub>1</sub>	PRL		*/-	*/-	*/-	
	LH		-/-	-/-	-/-	
	FSH		-/-	-/-	▼/-	
	TSH		-/-	▽/-	▼/-	
	T3		▲/-	-/▼	-/▼	
	T4		-/-	-/-	-/-	
	エストラジオール		*/-	*/-	*/-	
一般状態	死亡/切迫屠殺	0/0	0/0	0/0	0/0	
	投与直後の流涎	0/0	0/0	0/0	48/48	
	痂皮	0/0	0/0	0/0	1/0	
体重 摂餌量			-/-	▽/-	▼/▼	
			-/-	-/-	▼/▽	
オープンフィールド	潜時		-/-	▽/-	-/-	
	移動距離		-/-	▲/-	-/-	
	立ち上がり		-/-	-/-	-/-	
	グルーミング		-/-	-/-	-/-	
	排糞		-/▽	-/-	-/▽	
	排尿		-/-	-/-	-/-	
水迷路	エラー数		-/-	-/-	-/▽	
	所要時間		-/-	-/-	-/-	
回転ケージ	回転数		-/-	-/-	-/△	
包皮分離/腔開口 (完成日)			-/-	-/-	△/-	
剖検所見 (10週齢)	精巣	0/*	0/*	0/*	2/*	
	精巣上体	0/*	0/*	0/*	2/*	
	精囊	0/*	0/*	0/*	1/*	
	腎盂拡張	1/0	0/0	2/0	3/0	
	水腎	0/0	0/0	0/0	0/1	
	子宮内腔 拡張	*/0	*/0	*/0	*/1	

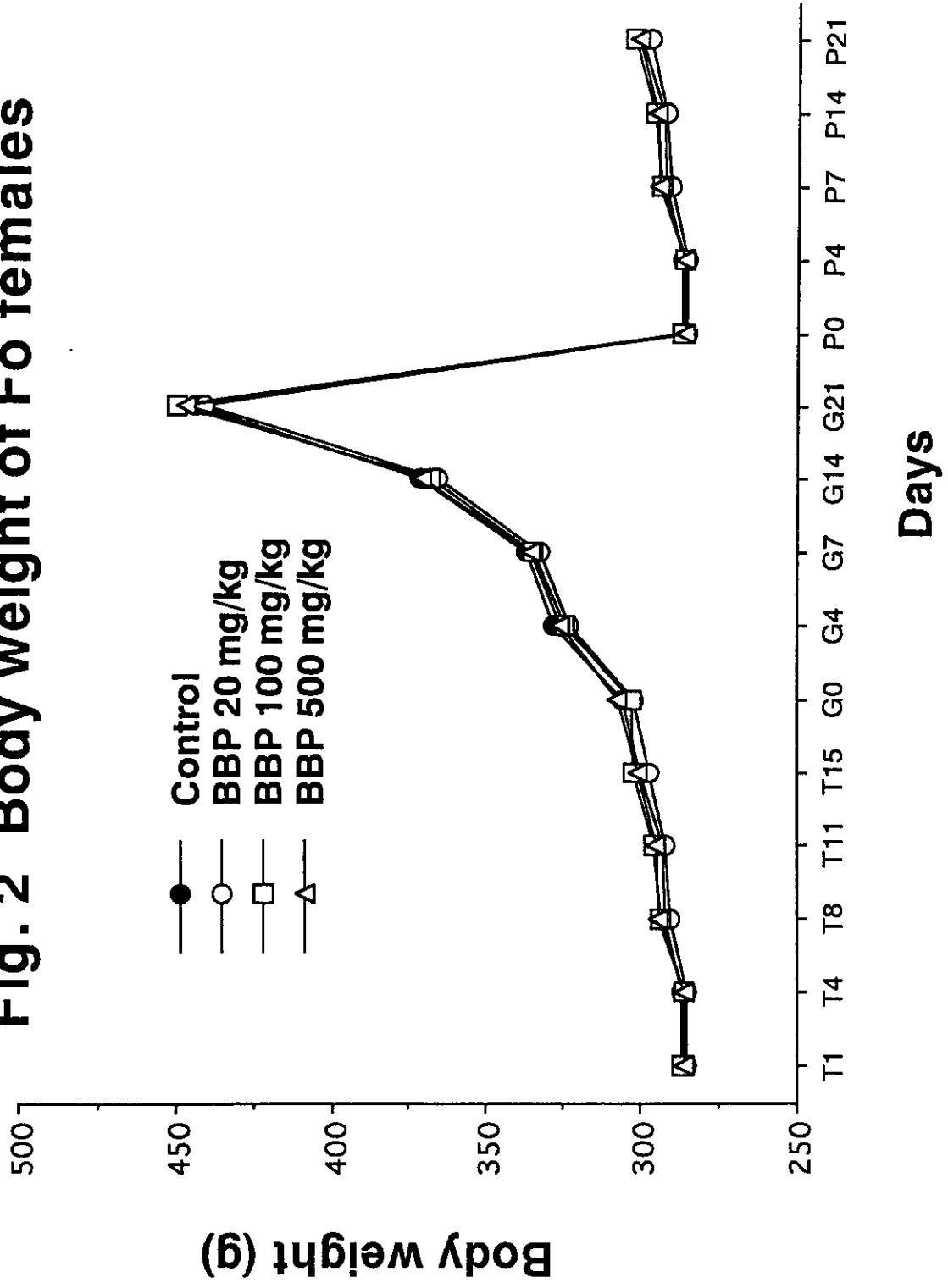
検査項目		対照群 ♂/♀ ↑:傾向, △:5%有意差, ▲:1%有意差, -:変化なし	20 ♂/♀	100 ♂/♀	500 ♂/♀	(mg/kg)
F <sub>1</sub>	器官重量 (実重量) (10週齢)	精巢	-/*	-/*	↓/*	
	精巢上体	-/*	-/*	▼/*		
	前立腺	-/*	-/*	-/*		
	精囊腺	-/*	-/*	▼/*		
	卵巣	*/-	*/-	*/▼		
	子宮	*/-	*/-	*/-		
	性周期	Regular	22	17	22	24
	Monestrus	0	2	1	0	
	Anestrus	0	1	0	0	
	交配成績 (♂)	交尾率 (%)	100.0	94.7	91.3	91.7
受胎率 (%)	77.3	72.2	90.5	72.7		
交尾までの日数	3.6	4.3	3.0	3.2		
交配成績 (♀)	交尾率 (%)	100.0	95.0	91.7	91.7	
受胎率 (%)	77.3	73.7	90.9	72.7		
交尾までの日数	3.6	4.3	3.0	3.2		
妊娠日数	21.9	22.0	21.9	22.1		
着床数	13.9	14.6	13.4	13.1		
分娩率	100.0	100.0	100.0	100.0		
剖検所見	精巢	0/*	0/*	0/*	6/*	
	小型/欠損	0/*	0/*	0/*	1/*	
	大型化	0/*	0/*	0/*	4/*	
	精巢上体	0/*	0/*	0/*	1/*	
	小型化	0/*	0/*	0/*	1/1	
	前立腺	2/2	2/1	0/1	1/1	
	腎盂拡張	0/1	0/0	0/0	0/0	
	胸腺	0/1	0/0	0/0	0/0	
器官重量 (実重量)	脳	-/-	-/-	-/-	-/-	
	心臓	-/-	-/-	▽/-	▼/-	
	肺	-/-	-/-	-/-	-/-	
	肝臓	-/-	-/-	-/-	-/-	
	脾臓	-/-	-/-	-/-	-/-	
	腎臓	-/-	-/-	-/-	▼/-	
	副腎	-/-	-/-	-/-	-/-	
	胸腺	-/-	-/-	-/-	-/-	
	精巢	-/*	-/*	-/*	-/*	
	精巢上体	-/*	-/*	-/*	▼/*	
	前立+精囊	-/*	-/*	-/*	▼/*	
	前立腺腹葉	-/*	-/*	-/*	▽/*	
	精囊腺	-/*	-/*	-/*	▽/*	
	卵巣	-/*	-/*	-/*	-/*	
	子宮	*/-	*/-	*/-	*/-	
	甲状腺	-/-	-/-	-/-	-/-	
	下垂体	-/-	-/-	-/-	-/-	

検査項目			対照群 ♂/♀ ↑: 傾向, Δ: 5%有意差,	20 ♂/♀	100 ♂/♀	500 ♂/♀	(mg/kg)
F <sub>1</sub>	組織所見	精巣	0/*	0/*	0/*	6▲/*	
		精細管萎縮	0/*	0/*	0/*	4Δ/*	
		生殖細胞減少	0/*	0/*	0/*	4Δ/*	
		浮腫	0/*	0/*	0/*	5Δ/*	
		精巣上体	0/*	0/*	0/*	4/*	
		前立腺	3/*	*/*	*/*	0/0	
		肝臓	0/1	*/*	*/*	0/0	
		腎臓	2/0	*/*	*/*	1/0	
		Eosino. b.	3/0	*/*	*/*	10/5	
		塩基尿管	10/4	*/*	*/*		
精子検査	運動精子率 (%)	95	96	97	88		
	前進精子率 (%)	83	83	85	77		
	精子数 (x10 <sup>6</sup> /g)	1876.6	1708.0	1802.9	1710.1		
血中ホルモン濃度	テストステロン		-/*	-/*	▼/*		
	PRL		*/-	*/-	*/-		
	LH		-/-	-/-	▼/-		
	FSH		-/-	-/-	-/-		
	TSH		-/-	-/-	-/-		
	T3		Δ/-	Δ/-	-/-		
	T4		-/-	-/-	▼/-		
エストラジオール		*/-	*/-	*/-			
F <sub>2</sub>	産児所見	総産児数	13.3	13.9	12.1	11.8	
		分娩率 (%)	95.8	95.0	90.0	90.1	
		哺育0日生児数	13.1	13.6	11.9	11.6	
		出生率 (%)	94.2	93.1	88.3	88.7	
		哺育4日生児数	12.8	12.9	11.8	11.4	
		哺育4日生存率 (%)	97.8	95.4	99.7	97.6	
		離乳率 (%)	100.0	100.0	100.0	98.5	
	体重 (g)	哺育0日		-/-	-/-	-/-	
		4日		-/-	-/-	-/-	
		7日		-/-	-/-	-/-	
14日			-/-	-/-	-/-		
21日		-/-	-/-	↓/↓			
異常児所見	矮小	0	0	0	1		
	索状尾&鎖肛	0	0	0	1		
	眼瞼開裂	2	0	0	0		
	精巣 小型化	1	0	1	1		
	腎盂拡張	4	3	7	0		
	胸腺赤色点	0	0	1	0		
分娩率 = (総産児数/着床数) × 100 出生率 = (哺育0日生児数/着床数) × 100 哺育4日生存率 = (哺育4日生児数/哺育0日生児数) × 100 離乳率 = (哺育21日生児数/淘汰後の哺育4日生児数) × 100							

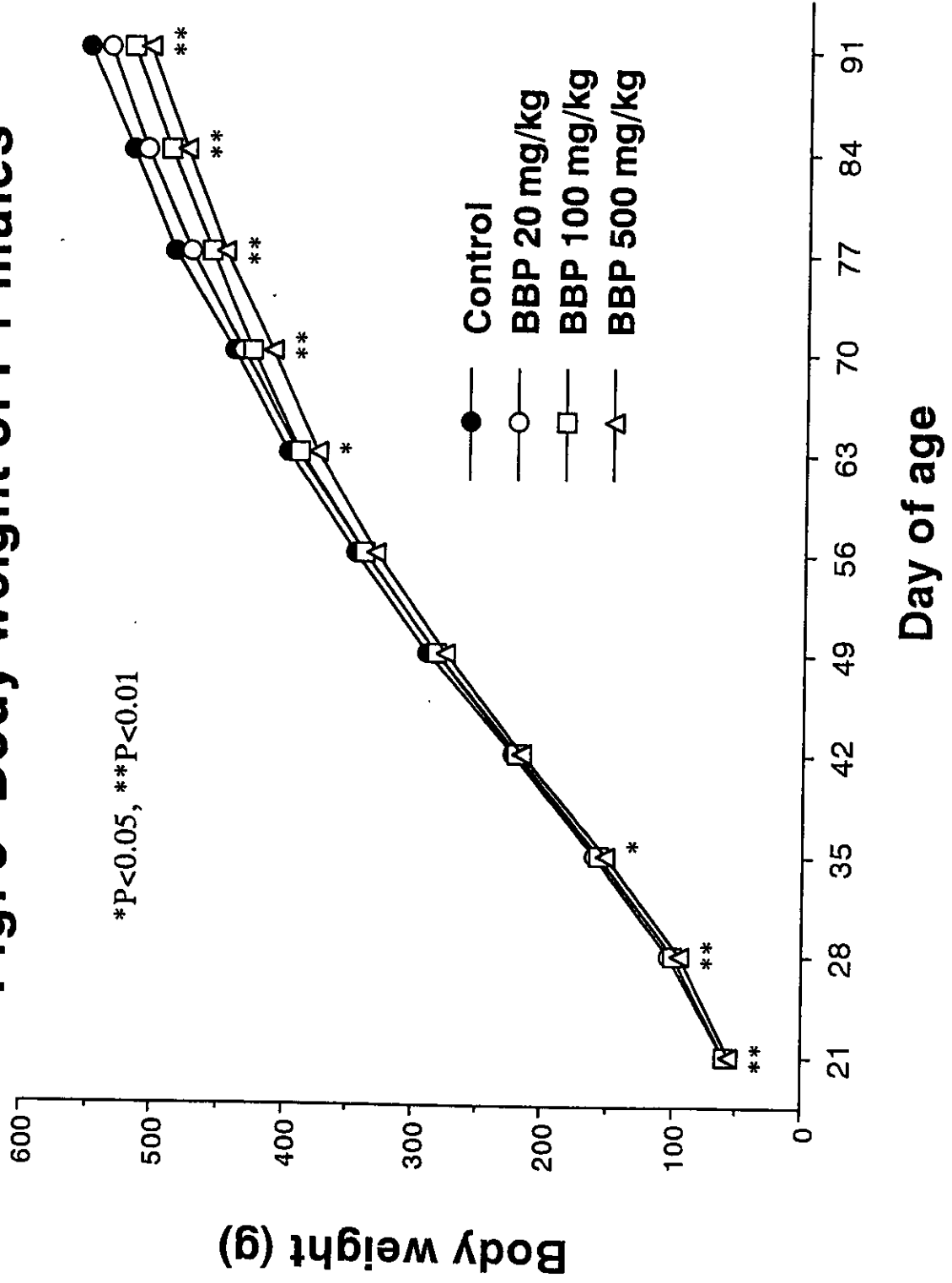
# Fig. 1 Body weight of Fo males



**Fig. 2 Body weight of Fo females**

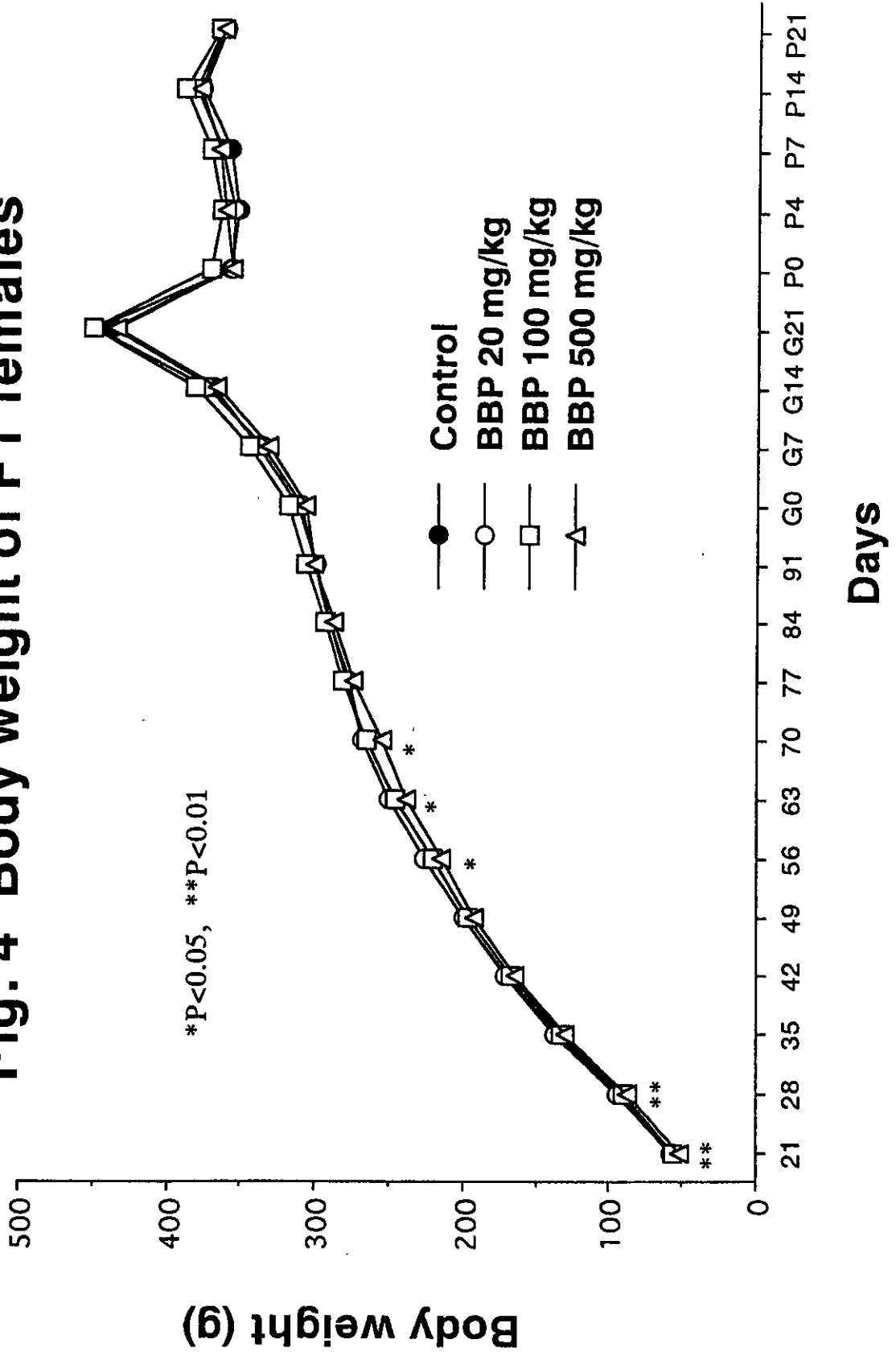


### Fig. 3 Body weight of F1 males





**Fig. 4 Body weight of F1 females**



## Two generation reproductive toxicity study of BBP by oral administration in rats

Table No.	Table title
1	Body weight of F <sub>0</sub> males during treatment period
2	Body weight of F <sub>0</sub> females during pre-mating period
3	Body weight of F <sub>0</sub> females during gestation period
4	Body weight of F <sub>0</sub> females during lactation period
5	Food consumption of F <sub>0</sub> males during treatment period
6	Food consumption of F <sub>0</sub> females during pre-mating period
7	Food consumption of F <sub>0</sub> females during gestation period
8	Food consumption of F <sub>0</sub> females during lactation period
9	Estrous cycle of F <sub>0</sub> females
10	Reproductive performance of F <sub>0</sub> animals
11	Summary of macroscopic findings in F <sub>0</sub> males
12	Summary of macroscopic findings in F <sub>0</sub> females
13	Organ weight of F <sub>0</sub> males
14	Organ weight of F <sub>0</sub> females on day 22 of lactation
15	Summary of histopathological findings in F <sub>0</sub> males
16	Summary of histopathological findings in F <sub>0</sub> females
17	Epididymal sperm findings in F <sub>0</sub> males at 23 weeks of age
18	Serum concentrations of testosterone, luteinizing hormone(LH), follicle-stimulating hormone(FSH), thyroid-stimulating hormone(TSH), triiodothyronine(T3), thyroxine(T4) in F <sub>0</sub> males
19	Serum concentrations of prolactin(PRL), luteinizing hormone(LH), follicle-stimulating hormone(FSH), thyroid-stimulating hormone(TSH), triiodothyronine(T3), thyroxine(T4), estradiol in F <sub>0</sub> females
20	Development F <sub>1</sub> offspring up to weaning
21	Body weight of F <sub>1</sub> offspring up to weaning
22	Anogenital distance of F <sub>1</sub> pups at birth
23	Behavioral and physical development F <sub>1</sub> males offspring
24	Behavioral and physical development F <sub>1</sub> females offspring
25	Morphological observations of F <sub>1</sub> live pups at birth
26	Morphological observations of F <sub>1</sub> dead pups during lactation period
27	Morphological observations of F <sub>1</sub> pups culled on postnatal day 4
28	Morphological observations of F <sub>1</sub> weanlings
29	Organ weight of F <sub>1</sub> male weanlings
30	Organ weight of F <sub>1</sub> female weanlings
31	Summary of histopathological findings in F <sub>1</sub> male at weaning
32	Summary of histopathological findings in F <sub>1</sub> female at weaning
33	Serum concentrations of testosterone, luteinizing hormone(LH), follicle-stimulating hormone(FSH), thyroid-stimulating hormone(TSH), triiodothyronine(T3), thyroxine(T4) in F <sub>1</sub> male weanlings
34	Serum concentrations of prolactin(PRL), luteinizing hormone(LH), follicle-stimulating hormone(FSH), thyroid-stimulating hormone(TSH), triiodothyronine(T3), thyroxine(T4), estradiol in F <sub>1</sub> female weanlings
35	Body weight of F <sub>1</sub> males after weaning
36	Body weight of F <sub>1</sub> females after weaning
37	Body weight of F <sub>1</sub> females during gestation period
38	Body weight of F <sub>1</sub> females during lactation period
39	Food consumption of F <sub>1</sub> males after weaning
40	Food consumption of F <sub>1</sub> females after weaning
41	Food consumption of F <sub>1</sub> females during gestation period
42	Food consumption of F <sub>1</sub> females during lactation period

43	Open field test in F <sub>1</sub> males
44	Open field test in F <sub>1</sub> females
45	Water multiple T-maze test in F <sub>1</sub> males
46	Water multiple T-maze test in F <sub>1</sub> females
47	Spontaneous moter activity test in F <sub>1</sub> males
48	Spontaneous moter activity test in F <sub>1</sub> females
49	Sexual maturation of F <sub>1</sub> males
50	Sexual maturation of F <sub>1</sub> females
51	Organ weight of F <sub>1</sub> males at 10 weeks of age
52	Organ weight of F <sub>1</sub> females at 10 weeks of age
53	Estrous cycle of F <sub>1</sub> females
54	Reproductive performance of F <sub>1</sub> animals
55	Summary of macroscopic findings in F <sub>1</sub> male adult
56	Summary of macroscopic findings in F <sub>1</sub> female adult
57	Organ weight of F <sub>1</sub> males
58	Organ weight of F <sub>1</sub> females on day 22 of lactation
59	Summary of histopathological findings in F <sub>1</sub> male adult
60	Summary of histopathological findings in F <sub>1</sub> female adult
61	Epididymal sperm findings in F <sub>1</sub> males at 18–19 weeks of age
62	Serum concentrations of testosterone, luteinizing hormone(LH), follicle-stimulating hormone(FSH), thyroid-stimulating hormone(TSH), triiodothyronine(T <sub>3</sub> ), thyroxine(T <sub>4</sub> ) in F <sub>1</sub> adult males
63	Serum concentrations of prolactin(PRL), luteinizing hormone(LH), follicle-stimulating hormone(FSH), thyroid-stimulating hormone(TSH), triiodothyronine(T <sub>3</sub> ), thyroxine(T <sub>4</sub> ), estradiol in F <sub>1</sub> adult females
64	Development of F <sub>2</sub> offspring up to weaning
65	Body weight of F <sub>2</sub> offspring up to weaning
66	Morphological observations of F <sub>2</sub> live pups at birth
67	Morphological observations of F <sub>2</sub> dead pups during the lactation period
68	Morphological observations of F <sub>2</sub> pups culled on postnatal day 4
69	Morphological observations of F <sub>2</sub> weanlings

Table 1

Two generation reproductive toxicity study of BBP by oral administration in rats  
 Body weight of F<sub>0</sub> males during treatment period; Means±S.D. (N)

Compound	Butyl benzyl phthalate			
	0 <sup>a</sup>	20	100	500
Days of treatment				
1	241.2 ± 15.9 ( 25)	241.5 ± 15.6 ( 25)	242.1 ± 15.9 ( 25)	241.4 ± 15.8 ( 25)
4	260.8 ± 18.2 ( 25)	261.5 ± 18.1 ( 25)	263.8 ± 17.1 ( 25)	261.3 ± 17.8 ( 25)
8	289.8 ± 19.3 ( 25)	288.9 ± 19.3 ( 25)	292.6 ± 17.4 ( 25)	289.7 ± 20.1 ( 25)
11	308.2 ± 18.7 ( 25)	305.6 ± 21.4 ( 25)	309.9 ± 17.2 ( 25)	305.3 ± 21.1 ( 25)
15	331.2 ± 20.2 ( 25)	327.9 ± 23.2 ( 25)	333.3 ± 19.2 ( 25)	327.3 ± 25.0 ( 25)
18	345.9 ± 20.8 ( 25)	342.2 ± 25.5 ( 25)	347.0 ± 21.7 ( 25)	340.6 ± 27.2 ( 25)
22	366.2 ± 21.7 ( 25)	362.4 ± 27.3 ( 25)	367.1 ± 24.2 ( 25)	359.1 ± 29.3 ( 25)
25	381.3 ± 23.1 ( 25)	375.3 ± 28.8 ( 25)	380.5 ± 27.5 ( 25)	371.1 ± 31.6 ( 25)
29	398.6 ± 25.5 ( 25)	393.2 ± 31.6 ( 25)	398.3 ± 29.6 ( 25)	387.2 ± 33.5 ( 25)
32	409.6 ± 27.4 ( 25)	403.9 ± 32.7 ( 25)	409.9 ± 32.0 ( 25)	398.2 ± 34.3 ( 25)
36	425.4 ± 28.9 ( 25)	419.0 ± 34.8 ( 25)	426.3 ± 33.3 ( 25)	412.6 ± 37.1 ( 25)
39	436.6 ± 29.9 ( 25)	430.0 ± 35.2 ( 25)	437.0 ± 34.8 ( 25)	421.6 ± 36.7 ( 25)
43	449.4 ± 31.0 ( 25)	443.5 ± 35.6 ( 25)	450.7 ± 36.1 ( 25)	433.9 ± 37.9 ( 25)
46	458.2 ± 33.8 ( 25)	451.5 ± 37.4 ( 25)	460.1 ± 38.1 ( 25)	441.4 ± 40.3 ( 25)
50	471.2 ± 36.4 ( 25)	463.8 ± 38.4 ( 25)	473.3 ± 38.4 ( 25)	451.8 ± 40.8 ( 25)
53	477.4 ± 36.9 ( 25)	471.6 ± 38.2 ( 25)	479.8 ± 39.2 ( 25)	457.3 ± 42.4 ( 25)
57	487.5 ± 38.3 ( 25)	482.2 ± 39.7 ( 25)	491.6 ± 41.4 ( 25)	466.8 ± 42.9 ( 25)
60	492.3 ± 38.7 ( 25)	488.0 ± 39.7 ( 25)	496.9 ± 42.5 ( 25)	472.5 ± 43.7 ( 25)

a: vehicle control, corn oil (2 mL/kg)

Table 1 (continued)

Two generation reproductive toxicity study of BBP by oral administration in rats

Body weight of F<sub>0</sub> males during treatment period; Mean±S.D. (N)

Compound	Butyl benzyl phthalate				
	0 <sup>a</sup>	20	100	500	
Days of treatment					
64	502.8 ± 40.5 ( 25)	498.7 ± 40.8 ( 25)	508.4 ± 43.2 ( 25)	481.3 ± 44.5 ( 25)	
67	508.0 ± 41.7 ( 25)	504.1 ± 42.2 ( 25)	512.9 ± 43.6 ( 25)	487.2 ± 44.7 ( 25)	
71	517.2 ± 43.2 ( 25)	514.6 ± 44.0 ( 25)	522.1 ± 44.1 ( 25)	494.6 ± 44.9 ( 25)	
74	520.4 ± 43.9 ( 25)	517.7 ± 44.6 ( 25)	527.3 ± 44.6 ( 25)	498.1 ± 45.0 ( 25)	
78	528.9 ± 45.2 ( 25)	525.8 ± 45.9 ( 25)	535.4 ± 45.8 ( 25)	505.0 ± 45.7 ( 25)	
81	533.8 ± 46.9 ( 25)	530.5 ± 46.6 ( 25)	540.3 ± 46.3 ( 25)	508.0 ± 45.4 ( 25)	
85	539.9 ± 48.0 ( 25)	537.3 ± 46.1 ( 25)	546.2 ± 46.9 ( 25)	514.3 ± 46.3 ( 25)	
88	536.9 ± 47.8 ( 25)	533.2 ± 44.3 ( 25)	542.0 ± 45.6 ( 25)	511.5 ± 45.7 ( 25)	
92	544.9 ± 47.8 ( 25)	541.5 ± 46.4 ( 25)	549.2 ± 46.6 ( 25)	518.0 ± 46.8 ( 25)	
95	550.1 ± 48.4 ( 25)	544.0 ± 46.7 ( 25)	553.1 ± 47.8 ( 25)	521.0 ± 46.1 ( 25)	
99	557.5 ± 48.8 ( 25)	551.7 ± 48.2 ( 25)	560.7 ± 47.8 ( 25)	526.4 ± 47.3 ( 25)	
102	563.1 ± 50.5 ( 25)	555.5 ± 48.4 ( 25)	565.0 ± 47.8 ( 25)	529.2 ± 47.9 * ( 25)	
106	569.6 ± 51.2 ( 25)	562.1 ± 48.7 ( 25)	571.9 ± 49.6 ( 25)	534.3 ± 47.9 * ( 25)	
109	576.3 ± 52.1 ( 25)	567.6 ± 48.4 ( 25)	576.9 ± 48.9 ( 25)	538.2 ± 47.5 * ( 25)	
113	582.9 ± 53.8 ( 25)	575.1 ± 49.6 ( 25)	581.8 ± 49.4 ( 25)	543.1 ± 48.2 * ( 25)	
116	587.2 ± 55.0 ( 25)	579.0 ± 50.7 ( 25)	587.8 ± 51.7 ( 25)	546.8 ± 48.3 * ( 25)	
120	593.2 ± 55.8 ( 25)	584.0 ± 52.6 ( 25)	593.2 ± 52.6 ( 25)	550.3 ± 50.0 * ( 25)	

a: vehicle control, corn oil (2 mL/kg)

\*: significant difference from control, p&lt;0.05

Table 2

Two generation reproductive toxicity study of BBP by oral administration in rats  
 Body weight of F<sub>0</sub> females during pre-mating period; Mean±S.D. (N)

Compound	Butyl benzyl phthalate			
	0 <sup>a</sup>	20	100	500
Days of treatment				
1	287.1 ± 18.6 ( 25)	285.2 ± 15.5 ( 25)	287.2 ± 14.8 ( 25)	286.4 ± 17.1 ( 25)
4	286.6 ± 18.7 ( 25)	285.3 ± 15.6 ( 25)	286.5 ± 16.8 ( 25)	286.5 ± 17.9 ( 25)
8	292.1 ± 18.9 ( 25)	290.6 ± 17.0 ( 25)	293.3 ± 17.3 ( 25)	293.9 ± 17.1 ( 25)
11	292.8 ± 18.2 ( 25)	292.2 ± 18.1 ( 25)	295.8 ± 17.9 ( 25)	295.1 ± 16.6 ( 25)
15	300.5 ± 20.7 ( 25)	296.9 ± 19.1 ( 25)	302.4 ± 18.5 ( 25)	300.9 ± 16.5 ( 25)

a: vehicle control, corn oil (2 mL/kg)

Table 3

Two generation reproductive toxicity study of BBP by oral administration in rats  
 Body weight of F<sub>0</sub> females during gestation period; Mean±S.D. (N)

Compound	Butyl benzyl phthalate				
	0 <sup>a</sup>	20	100	500	
Days of gestation					
0	305.8 ± 22.1 ( 22)	302.6 ± 21.0 ( 20)	303.2 ± 15.3 ( 23)	307.3 ± 18.1 ( 24)	
4	327.9 ± 25.3 ( 22)	322.7 ± 21.0 ( 20)	324.6 ± 17.4 ( 23)	325.6 ± 19.4 ( 24)	
7	337.3 ± 26.2 ( 22)	332.9 ± 21.8 ( 20)	334.6 ± 17.5 ( 23)	335.5 ± 20.1 ( 24)	
14	371.7 ± 26.5 ( 22)	366.0 ± 22.8 ( 20)	368.3 ± 18.7 ( 23)	370.8 ± 21.4 ( 24)	
20	443.9 ± 30.2 ( 22)	441.1 ± 27.2 ( 20)	449.9 ± 23.1 ( 23)	446.6 ± 23.6 ( 24)	

a: vehicle control, corn oil (2 mL/kg)

Table 4

Two generation reproductive toxicity study of BBP by oral administration in rats  
 Body weight of F<sub>0</sub> females during lactation period; Mean±S.D. (N)

Compound	Butyl benzyl phthalate			
	0 <sup>a</sup>	20	100	500
Days of lactation				
0	356.6 ± 36.0 ( 22)	346.4 ± 31.3 ( 20)	352.3 ± 24.4 ( 23)	356.8 ± 25.0 ( 24)
4	361.3 ± 27.2 ( 22)	352.4 ± 18.6 ( 20)	357.0 ± 21.0 ( 23)	359.0 ± 23.9 ( 24)
7	365.4 ± 26.1 ( 22)	358.4 ± 16.1 ( 20)	360.3 ± 20.1 ( 23)	360.8 ± 23.6 ( 24)
14	374.4 ± 27.2 ( 22)	369.8 ± 17.9 ( 20)	372.3 ± 19.5 ( 23)	372.6 ± 21.9 ( 24)
21	354.5 ± 24.3 ( 22)	352.1 ± 21.7 ( 20)	356.2 ± 17.5 ( 23)	359.0 ± 20.2 ( 24)

a: vehicle control, corn oil (2 mL/kg)



Table 5

Two generation reproductive toxicity study of BBP by oral administration in rats  
 Food consumption of F<sub>0</sub> males during treatment period; Mean±S.D. (N)

Compound	Butyl benzyl phthalate			
	0 <sup>a</sup>	20	100	500
Days of treatment				
1-2	24.7 ± 2.7 ( 25)	24.6 ± 2.3 ( 25)	25.1 ± 2.3 ( 25)	24.1 ± 1.8 ( 25)
4-5	24.9 ± 3.1 ( 25)	25.0 ± 2.3 ( 25)	25.8 ± 2.5 ( 25)	25.0 ± 1.7 ( 25)
8-9	25.5 ± 2.5 ( 25)	25.2 ± 2.2 ( 25)	26.6 ± 2.0 ( 25)	25.7 ± 2.1 ( 25)
11-12	24.6 ± 2.0 ( 25)	25.3 ± 2.0 ( 25)	25.4 ± 2.3 ( 25)	25.5 ± 2.0 ( 25)
15-16	26.2 ± 2.7 ( 25)	24.8 ± 2.5 ( 25)	26.3 ± 2.7 ( 25)	26.0 ± 2.4 ( 25)
18-19	26.1 ± 2.4 ( 25)	25.0 ± 2.4 ( 25)	26.2 ± 2.7 ( 25)	25.9 ± 2.4 ( 25)
22-23	25.8 ± 2.4 ( 25)	25.1 ± 2.4 ( 25)	26.7 ± 2.9 ( 25)	26.4 ± 3.0 ( 25)
25-26	25.6 ± 3.1 ( 25)	25.5 ± 3.2 ( 25)	25.6 ± 3.5 ( 25)	26.2 ± 2.9 ( 25)
29-30	26.7 ± 2.9 ( 25)	26.0 ± 3.0 ( 25)	27.0 ± 2.9 ( 25)	27.0 ± 3.4 ( 25)
32-33	25.7 ± 2.6 ( 25)	25.2 ± 2.6 ( 25)	26.1 ± 2.9 ( 25)	25.6 ± 3.4 ( 25)
36-37	26.6 ± 2.5 ( 25)	25.7 ± 2.1 ( 25)	26.8 ± 2.6 ( 25)	26.5 ± 3.0 ( 25)
39-40	25.7 ± 2.2 ( 25)	25.8 ± 2.8 ( 25)	25.7 ± 3.3 ( 25)	25.2 ± 2.7 ( 25)
43-44	26.6 ± 2.4 ( 25)	25.2 ± 2.8 ( 25)	26.8 ± 2.8 ( 25)	26.5 ± 2.6 ( 25)
46-47	26.0 ± 2.5 ( 25)	25.6 ± 2.6 ( 25)	26.1 ± 2.6 ( 25)	25.2 ± 2.8 ( 25)
50-51	26.3 ± 2.9 ( 25)	25.5 ± 2.8 ( 25)	26.9 ± 3.2 ( 25)	26.2 ± 2.4 ( 25)
53-54	25.0 ± 3.0 ( 25)	25.6 ± 2.7 ( 25)	26.5 ± 3.2 ( 25)	26.4 ± 2.6 ( 25)
57-58	26.1 ± 2.6 ( 25)	25.6 ± 2.7 ( 25)	26.6 ± 3.2 ( 25)	26.7 ± 2.4 ( 25)

a: vehicle control, corn oil (2 mL/kg)

Table 5 (continued)

Two generation reproductive toxicity study of BBP by oral administration in rats  
 Food consumption of F<sub>0</sub> males during treatment period; Mean±S.D. (N)

Compound	Butyl benzyl phthalate			
	0 <sup>a</sup>	20	100	500
Days of treatment				
60-61	25.0 ± 2.4 ( 25)	25.1 ± 2.7 ( 25)	26.2 ± 2.8 ( 25)	26.2 ± 2.5 ( 25)
64-65	25.9 ± 2.8 ( 25)	25.9 ± 2.1 ( 25)	26.7 ± 2.7 ( 25)	26.5 ± 3.2 ( 25)
67-68	24.9 ± 3.0 ( 25)	24.8 ± 3.7 ( 25)	26.3 ± 3.3 ( 25)	25.8 ± 3.1 ( 25)
71-72	25.6 ± 3.2 ( 25)	24.9 ± 3.1 ( 25)	26.0 ± 2.9 ( 25)	25.5 ± 3.2 ( 25)
74-75	24.7 ± 2.7 ( 25)	25.0 ± 2.8 ( 25)	25.0 ± 2.8 ( 25)	25.0 ± 3.9 ( 25)
78-79	24.5 ± 2.7 ( 25)	24.4 ± 2.5 ( 25)	25.3 ± 2.2 ( 25)	25.1 ± 2.2 ( 25)
81-82	24.3 ± 3.1 ( 25)	24.3 ± 2.8 ( 25)	24.4 ± 2.9 ( 25)	24.5 ± 3.6 ( 25)
99-100	24.2 ± 2.7 ( 25)	23.4 ± 2.5 ( 25)	23.6 ± 2.2 ( 25)	24.2 ± 2.9 ( 25)
102-103	24.6 ± 2.3 ( 25)	24.8 ± 2.2 ( 25)	25.2 ± 3.1 ( 25)	24.7 ± 3.1 ( 25)
106-107	24.3 ± 2.6 ( 25)	24.3 ± 2.4 ( 25)	24.8 ± 2.8 ( 25)	24.9 ± 4.7 ( 25)
109-110	24.7 ± 2.2 ( 25)	25.3 ± 2.9 ( 25)	25.6 ± 2.9 ( 25)	25.3 ± 2.8 ( 25)
113-114	24.3 ± 2.3 ( 25)	24.6 ± 2.6 ( 25)	25.1 ± 2.8 ( 25)	24.5 ± 2.9 ( 25)
116-117	25.3 ± 3.5 ( 25)	24.3 ± 2.7 ( 25)	25.5 ± 2.7 ( 25)	25.3 ± 3.0 ( 25)

a: vehicle control, corn oil (2 mL/kg)

Table 6

Two generation reproductive toxicity study of BBP by oral administration in rats  
 Food consumption of F<sub>0</sub> females during pre-mating period; Mean±S.D. (N)

Compound	Butyl benzyi phtalate			
	0 <sup>a</sup>	20	100	500
Days of treatment				
1-2	18.3 ± 2.2 ( 25)	18.0 ± 3.3 ( 25)	19.3 ± 3.6 ( 25)	18.4 ± 2.6 ( 25)
4-5	18.2 ± 3.1 ( 25)	19.0 ± 2.5 ( 25)	19.3 ± 2.4 ( 25)	18.2 ± 2.8 ( 25)
8-9	19.0 ± 3.6 ( 25)	18.7 ± 2.6 ( 25)	19.1 ± 2.4 ( 25)	18.7 ± 2.7 ( 25)
11-12	18.7 ± 3.8 ( 25)	18.6 ± 2.6 ( 25)	20.1 ± 2.8 ( 25)	19.9 ± 2.3 ( 25)

a: vehicle control, corn oil (2 mL/kg)

Table 7

Two generation reproductive toxicity study of BBP by oral administration in rats  
 Food consumption of F<sub>0</sub> females during gestation period; Mean±S.D. (N)

Compound	Butyl benzyl phthalate			
	0 <sup>a</sup>	20	100	500
Days of gestation				
1-2	23.4 ± 3.1 ( 22)	23.6 ± 2.9 ( 20)	24.0 ± 2.1 ( 23)	24.2 ± 2.9 ( 24)
7-8	25.0 ± 3.1 ( 22)	24.0 ± 3.1 ( 20)	25.0 ± 2.6 ( 23)	21.6 ± 17.0 ( 24)
13-14	24.9 ± 3.0 ( 22)	24.9 ± 3.2 ( 20)	24.1 ± 2.2 ( 23)	25.9 ± 3.2 ( 24)
19-20	23.2 ± 3.0 ( 22)	23.7 ± 2.9 ( 20)	23.6 ± 2.9 ( 23)	24.7 ± 2.7 ( 24)

a: vehicle control, corn oil (2 mL/kg)