

Table 5

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

Organ weight of Fo males; Mean \pm S.D. (N)

Compound	Nonylphenol				
	Dose (mg/kg)				
	a				
	0	2	10	50	
Terminal body weight (g)	586.9 \pm 60.4 (35)	620.1 \pm 56.6 (25)	574.7 \pm 64.6 (25)	551.0 \pm 68.5 (25)	
Brain (g)	2.03 \pm 0.08 b (35)	2.01 \pm 0.07 (25)	2.01 \pm 0.09 (25)	2.06 \pm 0.08 (25)	
	0.35 \pm 0.04 c (35)	0.33 \pm 0.03 * (25)	0.35 \pm 0.04 (25)	0.38 \pm 0.04 * (25)	
Heart (g)	1.43 \pm 0.16 (35)	1.53 \pm 0.11 * (25)	1.38 \pm 0.13 (25)	1.39 \pm 0.16 (25)	
	0.25 \pm 0.02 (35)	0.25 \pm 0.02 (25)	0.24 \pm 0.02 (25)	0.25 \pm 0.02 (25)	
Lung (g)	1.37 \pm 0.13 (35)	1.41 \pm 0.11 (25)	1.34 \pm 0.09 (25)	1.37 \pm 0.11 (25)	
	0.24 \pm 0.02 (35)	0.23 \pm 0.02 (25)	0.23 \pm 0.02 (25)	0.25 \pm 0.02 * (25)	
Liver (g)	18.45 \pm 2.64 (35)	19.86 \pm 2.53 (25)	18.77 \pm 2.85 (25)	19.13 \pm 2.80 (25)	
	3.13 \pm 0.20 (35)	3.20 \pm 0.23 (25)	3.26 \pm 0.22 (25)	3.47 \pm 0.19 ** (25)	
Spleen (g)	0.84 \pm 0.14 (35)	0.90 \pm 0.07 (25)	0.84 \pm 0.14 (25)	0.84 \pm 0.17 (25)	
	0.14 \pm 0.02 (35)	0.15 \pm 0.01 (25)	0.15 \pm 0.02 (25)	0.15 \pm 0.02 (25)	
Kidney (g)	3.17 \pm 0.32 (35)	3.30 \pm 0.29 (25)	3.21 \pm 0.32 (25)	3.57 \pm 0.35 ** (25)	
	0.54 \pm 0.04 (35)	0.53 \pm 0.04 (25)	0.56 \pm 0.04 (25)	0.65 \pm 0.05 ** (25)	
Adrenal glands (mg)	46.8 \pm 6.2 (35)	53.8 \pm 7.3 ** (25)	45.2 \pm 7.6 (25)	46.6 \pm 6.8 (24)	
	8.0 \pm 1.0 (35)	8.7 \pm 0.9 (25)	7.9 \pm 1.2 (25)	8.6 \pm 1.2 (24)	
Thymus (mg)	216.5 \pm 53.8 (35)	209.2 \pm 54.5 (25)	202.1 \pm 55.0 (25)	165.2 \pm 45.4 ** (25)	
	36.9 \pm 8.2 (35)	33.7 \pm 8.1 (25)	35.6 \pm 10.6 (25)	30.0 \pm 7.2 ** (25)	

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

b: absolute weight

c: relative weight (g or mg per 100g body weight)

*: significant difference from control, p<0.05

**: significant difference from control, p<0.01

Table 5 (continued)
 Two generation reproductive toxicity study of NP by oral administration in rats
 Organ weight of F₀ males; Mean ± S.D. (N)

Compound	Nonylphenol				
	0 ^a	2	10	50	
Dose (mg/kg)					
Terminal body weight (g)	586.9 ± 60.4 (35)	620.1 ± 56.6 (25)	574.7 ± 64.6 (25)	551.0 ± 68.5 (25)	(25)
Testes (g)	3.31 ± 0.47 b (35) 0.57 ± 0.09 c (35)	3.43 ± 0.30 (25) 0.60 ± 0.10 (25)	3.33 ± 0.32 (25) 0.60 ± 0.10 (25)	3.32 ± 0.35 (25) 0.60 ± 0.10 (25)	(25) (25)
Epididymides (g)	1.27 ± 0.17 (35) 0.22 ± 0.03 (35)	1.36 ± 0.08 * (25) 0.22 ± 0.02 (25)	1.29 ± 0.11 (25) 0.23 ± 0.02 (25)	1.30 ± 0.13 (25) 0.24 ± 0.03 (25)	(25) (25)
Ventral prostate (g)	0.61 ± 0.16 (35) 0.11 ± 0.03 (35)	0.65 ± 0.16 (25) 0.11 ± 0.03 (25)	0.63 ± 0.11 (25) 0.11 ± 0.02 (25)	0.65 ± 0.12 (25) 0.12 ± 0.03 (25)	(25) (25)
Seminal vesicle (g)	1.83 ± 0.34 (35) 0.31 ± 0.06 (35)	1.92 ± 0.21 (25) 0.31 ± 0.04 (25)	1.96 ± 0.31 (25) 0.35 ± 0.07 (25)	1.89 ± 0.33 (24) 0.35 ± 0.07 (24)	(24) (24)
Prostate + seminal vesicle (g)	2.94 ± 0.44 (35) 0.50 ± 0.09 (35)	3.09 ± 0.36 (25) 0.50 ± 0.08 (25)	3.07 ± 0.38 (25) 0.54 ± 0.09 (25)	3.07 ± 0.38 (25) 0.56 ± 0.11 ** (25)	(25) (25)
Thyroid gland (mg)	18.4 ± 3.3 (35) 3.1 ± 0.6 (35)	21.6 ± 4.3 * (25) 3.5 ± 0.7 (25)	17.0 ± 3.8 (25) 3.0 ± 0.8 (25)	20.1 ± 5.5 (25) 3.6 ± 0.8 * (25)	(25) (25)
Pituitary gland (mg)	10.6 ± 1.5 (35) 1.8 ± 0.3 (35)	11.6 ± 1.6 (25) 1.9 ± 0.3 (25)	11.3 ± 2.3 (25) 2.0 ± 0.4 (25)	11.9 ± 1.7 (25) 2.2 ± 0.3 ** (25)	(25) (25)

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

b: absolute weight

c: relative weight (g or mg per 100g body weight)

*: significant difference from control, p<0.05

**: significant difference from control, p<0.01

Table 6

Two generation reproductive toxicity study of NP by oral administration in rats
Epididymal sperm findings in F₀ males

Compound	Nonylphenol			
	0 ^a	2	10	50
Dose (mg/kg)				
Number of F ₀ males examined	34	25	25	25
% of motile (Mean ± S.D.)	94 ± 4	97 ± 3	94 ± 5	95 ± 4
% of progressive (Mean ± S.D.)	80 ± 6	85 ± 6	82 ± 7	82 ± 6
Sperm counts (Mean ± S.D.)				
Caudal epididymis weight	0.3022 ± 0.037	0.3331 ± 0.032	0.3034 ± 0.032	0.3058 ± 0.035
No. of sperm per caudal epididymis (x 10 ⁶)	681 ± 184	650 ± 192	746 ± 239	732 ± 168
No. of sperm per caudal epididymis weight (x 10 ⁶ /g)	2270.9 ± 627.0	1957.9 ± 563.4	2483.8 ± 833.2	2416.2 ± 586.5

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

Table 6 (continued)

Two generation reproductive toxicity study of NP by oral administration in rats
Epididymal sperm findings in F0 males

Compound	Nonylphenol
Dose (mg/kg)	250 ^a
Number of F0 males examined	18
% of motile (Mean \pm S.D.)	91 \pm 7
% of progressive (Mean \pm S.D.)	74 \pm 7
Sperm counts (Mean \pm S.D.)	
Caudal epididymis weight	0.1803 \pm 0.038
No. of sperm per caudal epididymis ($\times 10^6$)	492 \pm 127
No. of sperm per caudal epididymis weight ($\times 10^6$ /g)	2802 \pm 826

a: necropsied on 13 or 14 weeks of age
Data in the 250 mg/kg group was excluded from statistical evaluation.

Table 7

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

Serum concentrations of testosterone, luteinizing hormone (LH), follicle-stimulating hormone (FSH), thyroid stimulating hormone (TSH), triiodothyronine (T3), thyroxine (T4) in F0 males; Mean±S.D. (N)

Compound	Norylphenol			
	0 ^a	2	10	50
Testosterone (ng/mL)	4.1 ± 2.3 (35)	6.3 ± 4.1 *	4.2 ± 2.5 (25)	4.0 ± 2.1 (25)
LH (ng/mL)	12.6 ± 4.7 (35)	14.1 ± 3.0 (25)	12.5 ± 3.1 (25)	11.4 ± 3.8 (25)
FSH (ng/mL)	186.9 ± 57.9 (35)	177.5 ± 66.5 (25)	198.1 ± 45.8 (25)	201.3 ± 50.9 (25)
TSH (ng/mL)	11.8 ± 2.0 (35)	12.7 ± 2.0 (25)	13.0 ± 2.1 (25)	14.3 ± 2.3 ** (25)
T3 (ng/mL)	1.0 ± 0.2 (35)	0.8 ± 0.1 ** (24)	1.0 ± 0.1 (25)	0.9 ± 0.1 (25)
T4 (ng/mL)	75.1 ± 10.9 (35)	68.5 ± 9.1 * (25)	72.4 ± 7.8 (25)	75.4 ± 10.5 (25)

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

* : significant difference from control, p<0.05

** : significant difference from control, p<0.01

Table 7 (continued)

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

Serum concentrations of testosterone, luteinizing hormone (LH), follicle-stimulating hormone (FSH), thyroid stimulating hormone (TSH), triiodothyronine (T3), thyroxine (T4) in F0 males; Mean \pm S.D. (N)

Compound	Nonylphenol	
Dose (mg/kg)	250	
Testosterone (ng/mL)	1.9 \pm 1.2	(23)
LH (ng/mL)	17.2 \pm 7.3	(23)
FSH (ng/mL)	306.3 \pm 91.5	(23)
TSH (ng/mL)	21.3 \pm 4.6	(23)
T3 (ng/mL)	1.4 \pm 0.2	(22)
T4 (ng/mL)	72.9 \pm 24.0	(23)

Data in the 250 mg/kg group was excluded from statistical evaluation.

Table 8 - 1
 Two generation reproductive toxicity study of NP by oral administration in rats
 Macroscopic findings in Fo males

Group Grade	0 mg/kg		2 mg/kg		10 mg/kg		50 mg/kg	
	-	+	-	+	-	+	-	+
(Kidney)	[35]		[25]		[25]		[25]	
Rough surface	35	0	25	0	25	0	25	0
Enlargement	35	0	25	0	25	0	25	0
Pale	35	0	25	0	25	0	25	0
Dark	35	0	25	0	25	0	23	2
Edematous/Soft	35	0	25	0	25	0	25	0
Whitish cloudy, papilla	35	0	25	0	25	0	25	0
Cyst, cortex	35	0	25	0	25	0	25	0
Dilatation, renal pelvis	34	1	25	0	25	0	25	0
(Liver)	[35]		[25]		[25]		[25]	
Dark	35	0	25	0	25	0	25	0
Indistinct lobular pattern	35	0	25	0	25	0	25	0
Diaphragmatic nodule	35	0	24	1	25	0	25	0
(Thymus)	[35]		[25]		[25]		[25]	
Small	31	4	25	0	22	3	20	5
(Thyroid gland)	[35]		[25]		[25]		[25]	
Enlargement	35	0	25	0	25	0	24	1
(Stomach)	[35]		[25]		[25]		[25]	
Recessed area/nodule, mucosa, forestomach	34	1	24	1	25	0	25	0
(Testis)	[35]		[25]		[25]		[25]	
Small	34	1	25	0	25	0	25	0
(Epididymis)	[35]		[25]		[25]		[25]	
Small	34	1	25	0	25	0	25	0
Nodule, yellowish white	35	0	25	0	25	0	24	1
(Prostate)	[35]		[25]		[25]		[25]	
Small	34	1	25	0	25	0	25	0

-, Negative; +, Positive
 [], Number of animals examined

Table 8 - 2

Two generation reproductive toxicity study of NP by oral administration in rats
 Macroscopic findings in F0 males

Group	250 mg/kg	
	-	+
(Kidney)	[25]	
Rough surface	1	24
Enlargement	1	24
Pale	6	19
Dark	25	0
Edematous/soft	22	3
Whitish cloudy, papilla	18	7
Cyst, cortex	24	1
Dilatation, renal pelvis	25	0
(Liver)	[25]	
Dark	21	4
Indistinct lobular pattern	23	2
Diaphragmatic nodule	25	0
(Spleen)	[25]	
Small	19	6
Enlargement	24	1
(Thymus)	[25]	
Small	2	23
(Adrenal gland)	[25]	
Enlargement	18	7
Dark	24	1
(Parathyroid gland)	[25]	
Enlargement	23	2
(Thyroid gland)	[25]	
Enlargement	25	0
(Stomach)	[25]	
Pale/white, mucosa, forestomach	16	9
Recessed area/nodule, mucosa, forestomac	25	0
(Ileum/Cecum)	[25]	
Black content	21	4
(Testis)	[25]	
Small	17	8
(Epididymis)	[25]	
Small	18	7
Nodule, yellowish white	25	0
(Prostate)	[25]	
Small	15	10
(Seminal vesicle & Coagulating gland)	[25]	
Small	10	15
(Urinary bladder)	[25]	
Brown urine	23	2
(Bone marrow)	[25]	
Pale	22	3
(Skin)	[25]	
Alopecia	22	3
Soiled fur	24	1

-, Negative; +, Positive

[], Number of animals examined

Table 9 - 1

Two generation reproductive toxicity study of NP by oral administration in rats
 Histopathological findings in F0 males

Group Grade (Testis)	0 mg/kg			2 mg/kg			10 mg/kg			50 mg/kg										
	-	+/-	+	-	+/-	+	-	+/-	+	-	+/-	+								
No remarkable change (Epididymis)	[10]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]								
No remarkable change (Prostate: ventral lobe)	[10]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]								
Cellular infiltration, lymphocyte, interstitium (Seminal vesicle and Coagulating gland)	5	3	2	0	0	5	[0]	[0]	[0]	6	3	1	0	0	4					
No remarkable change (Mammary gland)	[10]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]							
No remarkable change (Liver)	[10]	[0]	[0]	[10]	[0]	[0]	[10]	[0]	[10]	[10]	[0]	[10]	[0]							
Hypertrophy, hepatocyte, centrilobular	10	0	0	0	0	0	10	0	0	0	0	0	0	0	**	8				
Fatty change, periportal (Kidney)	10	0	0	0	0	0	7	0	0	3	0	0	0	0	0	0				
Eosinophilic body	[10]	3	2	4	1	0	7	4	2	4	0	0	6	6	4	0	0	4		
Basophilic tubule, cortex	[10]	4	5	1	0	0	6	7	3	0	0	0	3	5	4	1	0	0	5	
Cast, hyalin, cortex/medulla	[10]	10	0	0	0	0	0	9	1	0	0	0	1	9	1	0	0	0	1	
Mineralization (Spleen)	[10]	10	0	0	0	0	0	9	1	0	0	0	1	10	0	0	0	0	0	1
Hematopoiesis, extramedullary	[10]	0	9	1	0	0	10	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]
Deposit, pigment, brown (Heart)	[10]	0	0	8	2	0	10	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]
Myocardial degeneration/fibrosis	[10]	7	2	1	0	0	3	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]
Hemorrhage, focal (Lung)	[10]	9	1	0	0	0	1	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]
Accumulation, foam cell	[10]	2	5	3	0	0	8	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]
Mineralization, artery	[10]	6	4	0	0	0	4	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]

-, Negative; +/-, Very slight; +, Slight; ++, Moderate; +++, Severe; Pos., Total of positive grade
 [], Number of animals examined

*, Significantly different from control p<0.05 (Two-tailed Mann-Whitney U test)

** , Significantly different from control p<0.01 (Two-tailed Mann-Whitney U test)

##, Significantly different from control p<0.01 (One-tailed Fisher exact test)

Table 9 - 1 (continued)

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

Histopathological findings in F0 males

Group Grade	0 mg/kg		2 mg/kg		10 mg/kg		50 mg/kg		
	-	+/- + + + + +	Pos.	- +/- + + + + +	Pos.	- +/- + + + + +	Pos.	- +/- + + + + +	Pos.
(Urinary bladder)	[10]			[0]		[0]		[10]	
No remarkable change									
(Thymus)				[0]		[0]		[10]	
No remarkable change									
(Adrenal gland)				[0]		[0]		[10]	
No remarkable change									
(Pituitary gland)				[0]		[0]		[10]	
No remarkable change									
(Parathyroid gland)		[4]		[0]		[0]		[6]	
No remarkable change									
(Thyroid gland)		[10]		[0]		[0]		[10]	
No remarkable change									
(Stomach)		[0]		[0]		[0]		[1]	
No remarkable change									

- , Negative; +/-, Very slight; +, Slight; ++, Moderate; +++, Severe; Pos., Total of positive grade
 [], Number of animals examined

Table 9-2

Two generation reproductive toxicity study of NP by oral administration in rats
 Summary of histopathological findings in F0 males of 250 mg/kg

Group	250 mg/kg					Pos.
	-	+/-	+	++	+++	
(Testis)	[25]					
Atrophy, seminiferous tubule	21	2	0	2	0	4
Degeneration, spermatocyte, in seminiferous tubule,	18	5	0	2	0	7
Degeneration, spermatid, in seminiferous tubule,	23	0	0	2	0	2
Decrease, sperm, in seminiferous tubule,	23	0	0	0	2	2
Decrease, spermatocyte & spermatid, in seminiferous tubule,	23	0	1	1	0	2
Multinucleated giant cell, in seminiferous tubule	21	4	0	0	0	4
Vacuolization, germ cell layer, in seminiferous tubule	23	0	2	0	0	2
Atrophy, Leydig cell, diffuse	23	0	0	2	0	2
(Epididymis)	[25]					
Cell debris, lumen	23	0	2	0	0	2
Decrease, sperm, lumen	23	0	0	0	2	2
(Prostate: ventral lobe)	[25]					
Atrophy	0	7	11	7	0	25
Decrease, secretion	0	8	9	7	1	25
Vacuolation, with cell debris, epithelium	11	10	2	2	0	14
Cellular infiltration, lymphocyte, interstitium	19	2	3	1	0	6
(Seminal vesicle and Coagulating gland)	[25]					
Atrophy	2	10	9	3	1	23
Decrease, secretion	2	10	9	1	3	23
Vacuolation, with cell debris, epithelium	18	3	2	2	0	7
(Mammary gland)	[23]					
Atrophy	3	6	7	5	2	20
(Adrenal gland)	[25]					
Hypertrophy, cortical cell	0	11	10	4	0	25
(Liver)	[25]					
Hypertrophy, hepatocyte, centrilobular	0	8	14	3	0	25

-, Negative; +/-, Very slight; +, Slight; ++, Moderate; +++, Severe; Pos., Total of positive grade
 [], Number of animals examined

Table 9-2 (continued)
 Two generation reproductive toxicity study of NP by oral administration in rats
 Summary of histopathological findings in F0 males of 250 mg/kg

Group	250 mg/kg					Pos.
	-	+/-	+	++	+++	
(Kidney)	[25]					
Eosinophilic body	11	6	7	1	0	14
Basophilic tubule, cortex	0	0	3	12	10	25
Basophilic tubule, medulla & papilla	0	2	10	5	8	25
Dilatation, distal tubule, cortex & medulla	0	1	8	6	10	25
Dilatation, collecting tubule, medulla & papilla	0	4	6	3	12	25
Necrosis, epithelium, proximal tubule, cortex	7	11	6	1	0	18
Degeneration, vacuolar, epithelium, proximal tubule	8	7	8	2	0	17
Necrosis, epithelium, distal & collecting tubule	6	7	11	1	0	19
Deposit, pigment, brown, proximal tubular epithelium	4	13	4	4	0	21
Cellular infiltration, neutrophil, lumen, distal & collecting tubule	2	11	4	6	2	23
Cellular infiltration, neutrophil, epithelium & interstitium, cortex	1	9	5	8	2	24
Cellular infiltration, neutrophil, epithelium & interstitium, medulla/papilla	2	6	6	9	2	23
Cell debris, lumen, distal & collecting tubule	3	8	4	6	4	22
Cast, hyalin, cortex/medulla	6	16	3	0	0	19
Mineralization	3	16	3	3	0	22
Metaplasia, transitional epithelium, collecting tubule, papilla	19	1	4	1	0	6
Hyperplasia, transitional epithelium, renal pelvis	7	5	10	3	0	18
Edema, interstitium, medulla & papilla	2	7	3	9	4	23
Fibrosis, interstitium, interstitium, cortex	12	11	1	1	0	13
Cellular infiltration, neutrophil & lymphocyte, transitional epithelium	25	0	0	0	0	0

-, Negative; +/-, Very slight; +, Slight; ++, Moderate; +++, Severe; Pos., Total of positive grade
 [], Number of animals examined

Table 9-2 (continued)
 Two generation reproductive toxicity study of NP by oral administration in rats
 Summary of histopathological findings in F0 males of 250 mg/kg

Group	250 mg/kg					Pos.
	-	+/-	+	++	+++	
(Urinary bladder)	[24]					
Hyperplasia, transitional epithelium, diffuse	0	10	14	0	0	24
(Spleen)	[25]					
Atrophy	10	5	4	6	0	15
Hematopoiesis, extramedullary	0	14	11	0	0	25
Deposit, pigment, brown	0	0	6	15	4	25
(Thymus)	[25]					
Atrophy, with pyknosis/decrease of lymphocyte	10	6	2	3	4	15
(Heart)	[25]					
Myocardial degeneration/fibrosis	20	5	0	0	0	5
Necrosis, myocardium, focal, left papillary muscle	24	0	1	0	0	1
Cellular infiltration, neutrophil, left papillary muscle	24	0	1	0	0	1
Hemorrhage, focal, left papillary muscle	24	0	1	0	0	1
(Lung)	[25]					
Accumulation, foam cell	7	16	2	0	0	18
Mineralization, artery	21	4	0	0	0	4
Metaplasia, osseous	24	1	0	0	0	1
Congestion	22	0	3	0	0	3
(Pituitary gland)	[22]					
No remarkable change						
(Parathyroid gland)	[20]					
No remarkable change						
(Thyroid gland)	[22]					
No remarkable change						
(Stomach)	[9]					
Squamous hyperplasia, forestomach	0	5	4	0	0	9
(Bone marrow of femur)	[2]					
Increase, fat tissue	0	0	1	1	0	2
Decrease, hematopoiesis	0	0	1	1	0	2

-, Negative; +/-, Very slight; +, Slight; ++, Moderate; +++, Severe; Pos., Total of positive grade
 [], Number of animals examined

Table 11

Two generation reproductive toxicity study of NP by oral administration in rats
 Body weight of F₀ females during pre-mating period; Mean±S.D. (N)

Compound	Nonylphenol				
	0 ^a	2	10	50	250
Days of treatment					
1	258.3 ± 12.1 (35)	255.6 ± 7.7 (25)	259.7 ± 13.0 (25)	259.4 ± 13.5 (25)	259.6 ± 12.3 (25)
4	259.3 ± 14.3 (35)	255.6 ± 10.3 (25)	260.8 ± 14.4 (25)	261.1 ± 14.2 (25)	249.2 ± 13.0 * (25)
8	264.3 ± 14.6 (35)	261.8 ± 10.8 (25)	266.4 ± 14.9 (25)	265.5 ± 13.8 (25)	240.5 ± 20.2 ** (14)
11	268.1 ± 15.0 (35)	264.5 ± 11.3 (25)	268.8 ± 15.0 (25)	267.8 ± 13.7 (25)	257.5 ± 12.2 (9)
15	273.2 ± 16.3 (35)	271.1 ± 11.0 (25)	275.5 ± 16.6 (25)	272.9 ± 14.2 (25)	253.1 ± 21.4 ** (9)
18	277.6 ± 15.7 (12)	279.7 ± 11.2 (7)	302.1 (2)	289.2 ± 15.8 (4)	
22	308.8 ± 22.4 (3)	290.8 (2)	325.9 (1)	297.7 (1)	
25	318.1 ± 17.8 (3)	297.9 (2)		297.7 (1)	
29	336.1 ± 21.3 (3)				

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

*: significant difference from control, p<0.05

**: significant difference from control, p<0.01