

Table 1-19

List of genes showing dose-dependent down-regulation by ethinylestradiol (EE) in the microdissected medial preoptic area in males (>2-fold, $p < 0.05$).

Accession No.	EE (ppm)			Gene Name	Description
	0.01	0.1	0.5		
From 0.01 ppm					
M83680	0.4 ^a	0.3	0.1	RAB14	GTPase Rab14
AA893065	0.4	0.3	0.2	Pcmt1	protein-L-isoaspartate (D-aspartate) O-methyltransferase
U66478	0.4	0.5	0.3	Mad1	mothers against dpp-1 homolog
AA859832	0.5	0.4	0.2		EST
X17682	0.5	0.5	0.3	Map2	microtubule-associated protein 2
U62897	0.5	0.5	0.2	Cpd	carboxypeptidase D precursor
AI113289	0.5	0.4	0.1	Ptpn1	protein tyrosine phosphatase, non-receptor type 1
AA957917	0.4	0.2	0.1	Slc7a1	solute carrier family 7 member A1
From 0.1 ppm					
D10706	1.3	0.2	0.0	Oaz1	ornithine decarboxylase antizyme
AI175486	1.0	0.2	0.1	Rps7	ribosomal protein S7
AI008131	0.5	0.3	0.1	Amd1a	S-Adenosylmethionine decarboxylase 1A
AI104389	0.7	0.4	0.1	Th	tyrosine hydroxylase
Y00766	0.7	0.2	0.1	Scn3a	sodium channel, voltage-gated, type III, alpha polypeptide
D17711	0.7	0.3	0.1	CSBP	heterogeneous nuclear ribonucleoprotein K
D13127	0.7	0.4	0.1	Atp5o	ATP synthase, H ⁺ transporting
AA799732	0.5	0.2	0.1		EST
X15013	0.9	0.3	0.2		ribosomal protein L7a
AF090135	0.5	0.3	0.2	Vel1	lin-7-Ba
AA859496	0.8	0.4	0.2	Gch	GTP cyclohydrolase 1
L13619	1.1	0.4	0.2	CL-6	growth response protein
X53428	0.7	0.3	0.2	Gsk3b	glycogen synthase kinase 3 beta
M16112	0.8	0.4	0.2	Camk2b	calcium/calmodulin-dependent protein kinase
L04739	1.0	0.4	0.2		plasma membrane calcium ATPase isoform 1
D26564	1.0	0.4	0.2	Cdc37	brain specific protein
AA892006	0.8	0.4	0.2		EST
AA891812	1.0	0.4	0.2		EST
X73653	0.6	0.4	0.2	Gsk3b	glycogen synthase kinase 3 beta
D00688	0.8	0.4	0.2	Maoa	monoamine oxidase, partial cds.
AI638989	0.5	0.4	0.2		EST
AA848218	0.8	0.4	0.2		EST
Z38067	1.1	0.4	0.3		c-myc
J00797	1.0	0.4	0.3		alpha-tubulin gene
AF055286	0.7	0.5	0.3	Slc22a3	solute carrier family 22
AA799537	1.0	0.4	0.3		EST
AI230614	0.6	0.4	0.3	Atp1b1	ATPase Na ⁺ /K ⁺ transporting beta 1 polypeptide
AF084186	1.3	0.4	0.3	A2A	alpha-fodrin
D10699	1.2	0.5	0.3	Uchl1	ubiquitin carboxy-terminal hydrolase L1
AI639410	0.8	0.5	0.3		EST
M12672	0.9	0.5	0.3	Gnai2	GTP-binding protein alpha-i2
S82383	0.8	0.4	0.3		slow-twitch alpha TM/hTMnm homolog
M17526	0.5	0.5	0.3	Gnao	guanine nucleotide binding protein, alpha o
M89945	0.8	0.5	0.3	Fdps	farnesyl diphosphate synthase gene
X84047	1.1	0.4	0.3	Gas	G protein; XLas protein
AA817892	1.1	0.5	0.3	Gnb2	guanine nucleotide binding protein beta 2

^a Relative expression ratio as compared to the level in untreated controls.

Abbreviation: EE, ethinylestradiol; EST, expressed sequence tag.

Table 1-20

List of genes showing dose-dependent up-regulation by ethinylestradiol (EE) in the microdissected medial preoptic area of females (2-fold, $P < 0.05$).

Accession No.	EE (ppm)			Gene name	Description
	0.01	0.1	0.5		
From 0.01 ppm					
AA799732	5.0*	6.7	4.7		EST, moderately similar to mouse DGCR6 protein
M83680	3.9	5.5	5.0	RAB14	GTPase Rab14
AA892228	3.0	2.3	2.6		EST
M12672	3.0	2.1	2.6	Gnai2	GTP-binding protein alpha-12
L05435	2.7	2.0	2.3	SV2	synaptic vesicle glycoprotein 2 a
U50185	2.2	2.1	2.0	Mypt1	smooth muscle myosin binding subunit
J02827	2.0	2.6	2.0	Bekdha	branched chain alpha-ketoacid dehydrogenase E1 alpha
From 0.1 ppm					
AA799537	1.8	2.1	2.1		EST
AI137790	1.6	2.1	2.1		leydig cell hypercalcemic tumour H-500
X58200	1.9	3.1	2.2	Rpl23	ribosomal protein L23.
AI639282	1.8	3.0	2.1		EST, Moderately similar to DNA-directed RNA polymerase II
AI103498	2.2	4.5	3.3	Rpl5	ribosomal protein L5
AA859896	2.0	4.2	3.0	Macs	myristoylated alanine-rich protein kinase C substrate
AI638985	3.4	4.9	5.2		
AA965154	1.7	2.2	2.1	Ywhae	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activatioprotein
AI170212	2.4	2.6	2.5	Ap3m2	adaptor-related protein complex 3, mu 2
AI137583	2.5	3.0	3.2	Id2	inhibitor of DNA binding 2
AB000776	3.1	3.2	3.1	Sema6b	sema, transmembrane, and cytoplasmic domain,
AA684963	1.1	2.2	2.0		EST
AI176589	1.7	2.3	2.3	Rpl27	ribosomal protein L27

* Relative expression ratio as compared to the level in untreated controls.

Abbreviation: EE, ethinylestradiol; EST, expressed sequence tags.

Table 1-21

List of genes showing sexually dimorphic expression in the medial preoptic area of males and their expression changes by ethinylestradiol (EE) at 0.5 ppm (>2-fold, $p < 0.05$).

Accession No.	Gene name	Description	M>F	Changes at 0.5 ppm EE	
				M	F
Down-regulated in males and up-regulated in females by EE (8)					
M83680	RAB14	GTPase Rab14	10.5 ^a	0.1 ^b	5.0 ^c
M12672	Gai2	GTP-binding protein alpha-i2	2.3	0.3	2.1
U50185	Mypt1	smooth muscle myosin binding subunit	2.5	0.5	2.0
D13309	rDbpB	DNA-binding protein B	2.4	0.4	2.0
AI170212	Ap3m2	adaptor-related protein complex 3, mu 2	3.0	0.3	2.5
AA892394		EST, strong similarity to RNA-binding protein 1	2.5	0.3	2.8
AA799732		EST, similar to DGCR6 protein	3.9	0.1	4.7
AA892228		EST, strong similarity to RNA-binding protein 1	2.0	0.3	2.6
Down-regulated only in males by EE (33)					
AI230614	Atp1b1	ATPase Na+/K+ transporting beta 1 polypeptide	2.7	0.3	-
AI176710	Nr4a3	nuclear receptor subfamily 4, group A, member 3	2.0	0.4	-
AI137331	Rock1	Rho-associated kinase beta	2.8	0.5	-
AI013194	Eif5	eukaryotic initiation factor 5	2.2	0.5	-
AI012183	Nr2f2	nuclear receptor subfamily 2, group F, member 2	3.2	0.4	-
AA925762	Mac3	myristoylated alanine-rich protein kinase C	2.5	0.4	-
AA900900	Ralbp1	RalA binding protein 1	2.2	0.3	-
AA894089	Neurodap1	roten carrying the RING-H2 sequence motif	2.2	0.4	-
AA893065	Pcmt1	protein-L-isoaspartate O-methyltransferase	3.0	0.2	-
AA875659	Inexa	Interexin, alpha	2.6	0.4	-
Y00766	Scn3a	sodium channel, voltage-gated, type III	2.6	0.1	-
X73653	Gsk3b	glycogen synthase kinase 3 beta	2.9	0.2	-
X53428	Gsk3b	glycogen synthase kinase 3 beta	2.3	0.2	-
X17682	Map2	microtubule-associated protein 2	4.3	0.3	-
U66478	Mad1	mothers against decapentaplegic, homolog 1	2.1	0.3	-
U62897	Cpd	carboxypeptidase D precursor	2.2	0.2	-
S81497	LAL	Intracellular hydrolase, lysosomal acid lipase	2.1	0.4	-
M92076	Grm3	Glutamate receptor, metabotropic 3	2.2	0.4	-
M55291	TrkB	neural receptor protein-tyrosine kinase	2.5	0.4	-
M17526	Gnao	guanine nucleotide binding protein, alpha o	2.4	0.3	-
M16112	Camk2b	calcium/calmodulin-dependent protein kinase II	2.0	0.2	-
L13151	GAP	GTPase-activating protein gene	3.6	0.2	-
D10262	CKR	Choline kinase	2.7	0.4	-
AF093268	Ruvb1	RuvB-like protein 1	2.0	0.4	-
AF090135	Veli1	lin-7-Ba	2.8	0.2	-
AB008538	Alcam	activated leukocyte cell adhesion molecule	3.0	0.3	-
AI145494	Syn2	synapsin II	2.5	0.3	-
AA875127		EST	2.4	0.4	-
AA859832		EST	3.5	0.2	-
AA892006		EST	2.5	0.2	-
H31479		EST	2.1	0.5	-
AI639314		EST	2.4	0.3	-
AI638989		EST	2.8	0.2	-
Only up-regulated in females by EE (3)					
AI009191	Fyn	Fyn proto-oncogene	2.5	-	2.1
X58200	Rpl23	ribosomal protein L23	2.1	-	3.1
U38379	Ggh	gamma-glutamyl hydrolase	2.1	-	2.1
Without expression change by EE (13)					
M59980	RK5	potassium voltage gated channel	5.2	-	-
K00994	icabp	intestinal calcium binding protein	4.4	-	-
M83676	RAB12	RAB12, member RAS oncogene family	4.2	-	-
S65355		nonselective-type endothelin receptor	2.9	-	-
AA819643	Prkaa2	AMP-activated protein kinase	2.9	-	-
AA892137		EST	2.8	-	-
X57764	Ednrb	endothelin receptor type B	2.2	-	-
U09793	c-Ki-ras	Kirsten rat sarcoma viral oncogene homologue 2	2.2	-	-
D86041	Ddah1	dimethylarginine dimethylaminohydrolase I	2.1	-	-
AI232078	Ltbp1	latent transforming growth factor beta binding protein 1	2.1	-	-
AI030286	Bdnf	brain derived neurotrophic factor	2.1	-	-
AA894321		EST	2.1	-	-
AA874999		EST	2.0	-	-

EE- ethinylestradiol 0.5 ppm

a. Relative expression ratio in control males as compared to control females

b. Relative expression ratio in EE exposed males as compared to control males

c. Relative expression ratio in EE exposed females as compared to control females

Abbreviations: EE, ethinylestradiol; M, Males; F, females; EST, expressed sequence tag.

Table 1-22

List of genes encoding G proteins and their related molecules among genes to show male-predominant expression in the medial preoptic area, and their expression changes by 0.5 ppm ethinylestradiol (EE).

Accession No.	Gene name	Description	Changes at			Example of reported function	Reference
			M>F	0.5 ppm EE	EE		
			M	F			
M83680	RAB14	GTPase Rab14	10.5 ^a	0.1 ^b	5.0 ^c	Low molecular-weight GTPase subfamily	
M12672	G i2	GTP-binding protein (G <i>α</i> i2)	2.3	0.3	2.1	GTP binding protein	
U50185	Mypt1	myosine phosphatase	2.5	0.5	2.0	Inhibited by GTPase Rho	Kimura et al., 1996
AI137331	Rock1	Rho-associated kinase β	2.8	0.5	-	Rho-associated kinase	
AI013194	Eif5	eukaryotic initiation factor 5	2.2	0.5	-	Functions as a GTPase-activating protein	Paulin et al., 2001
AA925762	Macs	myristoylated alanine-rich protein kinase C	2.5	0.4	-	Phosphorylated by Rho-associated kinase in human neuronal cells	Ikenoya et al., 2002;
AA900900	Ralbp1	RalA binding protein 1	2.2	0.3	-	GTPase	
Y00766	Scn3a	sodium channel, voltage-gated, type III	2.6	0.1	-	Major targets of G protein-coupled receptor	
X73653	Gsk3b	glycogen synthase kinase 3 β	2.9	0.2	-	Activated in neuronal cells by G <i>α</i> 12 and G <i>α</i> 13	Sayas et al., 2002
M92076	Grm3	glutamate receptor, metabotropic 3	2.2	0.4	-	Peculiar family of G protein-coupled receptors	
M55291	TrkB	neural receptor protein-tyrosine kinase	2.5	0.4	-	Activated via a G protein-coupled receptor mechanism	Rogalski et al., 2000
M17526	Gnao	guanine nucleotide binding protein α_o	2.4	0.3	-	GTP binding protein	
M16112	Camk2b	calcium/calmodulin-dependent protein kinase II	2.0	0.2	-	Interacted with Rad-related GTPases	Moyers et al., 1997
L13151	GAP	GTPase-activating protein gene	3.6	0.2	-	GTPase-activating protein	
D10262	CKR	choline kinase	2.7	0.4	-	Regulated by Ras proteins involved in GTPases	
AI009191	Fyn	Fyn proto-oncogene	2.5	-	2.1	Ral-GDS	
M59980	RK5	potassium voltage gated channel	5.2	-	-	Phosphorylate p250GAP in oligodendrocytes	Taniguchi et al., 2003
M83676	RAB12	RAB12, member RAS oncogene family	4.2	-	-	G protein-gated channel	
S65355		nonselective-type endothelin receptor	2.9	-	-	Small GTP-binding proteins	
AA819643	Prkaa2	AMP-activated protein kinase	2.9	-	-	G protein-coupled receptor	Bremnes et al., 2000
X57764	Ednrb	endothelin receptor type B	2.2	-	-	Activated by stimulations of G(q)-coupled receptors.	Kishi et al., 2000
AI030286	Bdnf	Brain derived neurotrophic factor	2.1	-	-	G protein-coupled receptors	Bremnes et al., 2000
						Mediated its neurotrophic signaling by Rho GTPases	Ozdinler and Erzurumlu 2001

^a Relative expression ratio in control males as compared to control females

^b Relative expression ratio in EE exposed males as compared to control males

^c Relative expression ratio in EE exposed females as compared to control females

Table 1-23

List of genes showing down-regulation in males and up-regulation in females by ethinylestradiol (EE) at 0.5 ppm without sexual dimorphic expression.

Accession No.	Gene name	Description	M>F	Changes at 0.5 ppm EE	
				M	F
L13619	CL-6	growth response protein (CL-6)	-	0.18 ^a	2.31 ^b
D00688	Maoa	Monoamine oxidase	-	0.23	2.68
AA799537		EST	-	0.26	2.05
D87991		highly similar to UDP-N-acetylglucosamine transporter	-	0.27	2.10
L05435	SV2	synaptic vesicle glycoprotein 2 a	-	0.28	2.31
AI008074		EST, highly similar to heat shock protein HSP 90-beta	-	0.28	2.39
AF077354	Irp94	ischemia responsive 94 kDa protein	-	0.30	2.31
S73007	SYN1	synuclein	-	0.31	2.99
D14418	PP2A ARa	regulatory subunit of protein phosphatase 2A		0.38	2.18
U14398	Syt4	synaptotagmin 4	-	0.39	2.31
AA859896	Macs	myristoylated alanine-rich protein kinase C substrate	-	0.41	2.95
AI177503	H3f3b	H3 histone, family 3B	-	0.42	2.17
AA965154	Ywhae	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein	-	0.46	2.07
H31489		EST	-	0.49	2.14

^a Relative expression ratio in EE exposed males as compared to control males.

^b Relative expression ratio in EE exposed females as compared to control females.

Abbreviations: EE, ethinylestradiol; M, Males; F, females; EST, expressed sequence tag.

Table 1-24

Number of genes showing altered expression in the microdissected medial preoptic area of rats by di(2-ethylhexyl)phthalate (DHEP) at 6000 ppm (>2-fold, $p<0.05$).

DEHP at 6000 ppm	Males	Females
Up-regulated	4	3
Down-regulated	12	348

Abbreviation: DEHP, di(2-ethylhexyl)phthalate.

Table 1-25

List of genes showing altered expression in the microdissected medial preoptic area of male rats by di(2-ethylhexyl)phthalate (DEHP).

Accession No.	Fold	P-value	Gene name	Description
Up-regulated (4)				
AA799971	2.06	0.027		EST
AA800250	2.33	0.034	Sdha	succinate dehydrogenase complex
AA800243	2.26	0.042		EST
AA892332	2.03	0.049	Zyx	zyxin
Down-regulated (12)				
L13151	0.43	0.005	GAP	GTPase-activating protein (GAP) gene
S65355	0.35	0.010	ETB receptor	nonselective-type endothelin receptor
AF090135	0.38	0.011	Vel1	lin-7-Ba
AI638989	0.44	0.012		EST
U66478	0.45	0.012	Mad1	MAD (mothers against decapentaplegic)
X57764	0.47	0.016	Ednrb	endothelin receptor type B
AF090134	0.50	0.026	Vel1	lin-7-Ba
AA957917	0.46	0.029	Slc7a1	Solute carrier family 7 member A1
AA925762	0.45	0.030	Macs	Myristoylated alanine-rich protein kinase C substrate
Y00766	0.45	0.032	Scn3a	Sodium channel, type III, alpha polypeptide
M83680	0.43	0.045	RAB14	GTPase Rab14
X17682	0.50	0.047	Map2	microtubule-associated protein 2

Table 1-26

List of genes showing altered expression in the microdissected medial preoptic area of female rats by di(2-ethylhexyl)phthalate (DEHP).

Accession No.	Fold	P-value	Gene name	Description
Up regulated (3) >2-fold				
AA965147	3.09	0.037	Hnrpa1	heterogeneous nuclear ribonucleoprotein A1
M25892	2.08	0.006	Il4	Interleukin 4
M84725	2.03	0.013	NP25	transgelin 3
Down regulated (148) >3-fold				
D45247	0.07	0.017	Psmb5	proteasome subunit RCX
AA891812	0.09	0.005		EST
M19533	0.09	0.023	Ppia	ribosomal protein L18
J00797	0.10	0.015		aminolevulinic acid synthase 1
L24896	0.11	0.022	Gpx4	phosphofructokinase C (PFK-C)
X51536	0.11	0.020	Rps3	ribosomal protein L9
AA946532	0.12	0.018	Abcd3	ATP-binding cassette, sub-family D (ALD), member 3
AB017711	0.12	0.048	RPB6	polymerase II
X62146	0.12	0.008		dynactin 1
AA893194	0.12	0.007		EST
S45392	0.14	0.010	hsp90	synaptic glycoprotein
D10699	0.14	0.003	Uchl1	ubiquitin carboxy-terminal hydrolase L1
U36482	0.14	0.022	Erp29	mitogen activated protein kinase kinase 5
AI234604	0.15	0.017	Hspa8	heat shock 70kD protein 8
S76511	0.15	0.014	bax	apolipoprotein E
AA892394	0.15	0.038		EST
AI232012	0.15	0.025		EST
D13120	0.16	0.014	Atp5jd	ATP synthase subunit d
X51706	0.16	0.041	Rpl9	ribosomal protein L28
S45663	0.16	0.027	SC2	S-100 beta subunit
S77858	0.17	0.020		protein phosphatase 1 alpha
X58465	0.17	0.045	Rps5	putative zinc finger protein
U78977	0.17	0.017	Atp9a	RalA binding protein 1
X53232	0.17	0.019		ribosomal protein L12
AI104528	0.17	0.019		EST
AF052042	0.17	0.021	RLZF-Y	zinc finger protein Y1
S78218	0.17	0.018	PP1 beta	endogenous agonist of opioid receptor-like ORL1 receptor
X62145	0.18	0.026	Rpl8	ribosomal protein L11
S71021	0.18	0.007		apoptosis inducer
AJ007291	0.18	0.007	CAP1	fertility protein SP22
M57664	0.18	0.002	CKB	ubiquitin conjugating enzyme
AI230256	0.18	0.019	Id2	inhibitor of DNA binding 2
AA946040	0.19	0.033		EST
AB010119	0.19	0.020	Tctex1	t-complex testis expressed 1
X13549	0.19	0.014	Rps10	ribosomal protein S4
D10754	0.19	0.012	Psmb6	proteasome subunit R-DELTA
AA892123	0.19	0.003	Rpl36	ribosomal protein L36
L11007	0.19	0.036	cdk4	signal peptidase complex (18kD)
AI176308	0.20	0.010		EST
X14210	0.20	0.023	Rps4x	ribosomal protein L7a.
AA892378	0.20	0.024		EST
X62160	0.20	0.013	Dctn1	High Mobility Group Protein I (Y)
D21799	0.20	0.009	Psmb2	proteasome subunit RC7-I
S76779	0.20	0.014	rApoE	non-muscle myosin alkali light chain
X52619	0.20	0.005	Rpl28	preoptic regulatory factor-2 (PORF-2)
AA944361	0.21	0.016		EST
AA800738	0.21	0.003		EST
AB020504	0.21	0.046	Pmf31	PMF32 protein
AF007107	0.21	0.010	Cyb5	cytochrome b5
D13985	0.21	0.007	Clns1a	chloride channel, nucleotide-sensitive, 1A
AI104389	0.21	0.000	Th	tyrosine hydroxylase
X02231	0.21	0.026	Gapd	protein disulfide isomerase
AA817892	0.21	0.008	Gnb2	guanine nucleotide binding protein beta 2
AA799279	0.21	0.033		EST
E05646	0.21	0.210		
AB011528	0.21	0.014	MEGF2	cadherin EGF LAG seven-pass G-type receptor 3
D13124	0.22	0.014	Atp5g2	ATP synthase, H ⁺ transporting

U75917	0.22	0.028	AP17	cAMP-regulated guanine nucleotide exchange factor II
AF007758	0.22	0.029	Snca	synuclein, alpha
D00636	0.23	0.012	b5R	NADH-cytochrome b5 reductase
AA800175	0.23	0.008		EST
D30804	0.23	0.019	Psm7	proteasome subunit RC6-1
AF045564	0.23	0.027	AF045564	development-related protein
AA875019	0.23	0.026		EST
M28647	0.23	0.033	Na,K-ATPase	nucleolin gene.
U95161	0.23	0.013	LOC56769	cytoplasmic beta-actin.
X57432	0.23	0.035		ribosomal protein L17.
L20821	0.24	0.001	Stx4a	glutathione peroxidase 4
U52663	0.24	0.008	PAM	calpain, small subunit 1
M55015	0.24	0.026	Ncl	creatine kinase, brain
U41164	0.24	0.003	rKr1	peptidylglycine alpha-amidating monooxygenase
AF016047	0.24	0.010	PAF-AH	platelet-activating factor acetylhydrolase
AA945806	0.24	0.022	Rps14	ribosomal protein S14
E01534	0.24	0.002		EST
AI172411	0.25	0.032	Gpxp	plasma glutathione peroxidase precursor
X73411	0.25	0.010	FE 294	
L11319	0.25	0.018	Spc18	immature protein, tricarboxylate transport protein
L17127	0.25	0.028	Psmb4	syntaxin 4
Y09332	0.25	0.014	Bach	DAD-1 gene.
U00926	0.25	0.011	Atp5d	selectin, endothelial cell, ligand
AA892680	0.25	0.047		EST
M94918	0.26	0.029	Hbb	beta-globin gene, exons 1-3.
X02918	0.26	0.018	P4hb	glutathione peroxidase 1
AA875126	0.26	0.004		EST
M24542	0.26	0.010		cyclin (PCNA, proliferating cell nuclear antigen).
D45254	0.26	0.024	Cnbp	cellular nucleic acid binding protein
AJ006971	0.27	0.011	dlk	death-associated like kinase
AI169631	0.27	0.048	Phb	prohibitin
AA799389	0.27	0.006	Rab3b	Rab3B protein
D45412	0.27	0.005	Ptpro	protein tyrosine phosphatase
AA892234	0.27	0.006		EST
AB004267	0.27	0.046	Camk1b	calcium/calmodulin-dependent protein kinase 1, beta
U18314	0.27	0.045	LAP2	RAB26, member RAS oncogene family
X60212	0.27	0.044	ASI	ribosomal protein L8.
AI171630	0.27	0.009	Mapk14	mitogen activated protein kinase 14
M94919	0.27	0.025		syntaxin 2
D87991	0.27	0.020		UDP-galactose transporter related isozyme 1
M20156	0.27	0.011	Rpl18	mitochondrial NADH dehydrogenase
M83298	0.28	0.031	PP2A	cofactor mRNA sequence.
AJ000485	0.28	0.038	CLIP-115	cytoplasmic linker 2
AA892814	0.28	0.004	Capns1	calpain, small subunit 1
AA891871	0.28	0.039	Prpsap1	phosphoribosylpyrophosphate synthetase-associated protein
X84047	0.28	0.021	Gas	CDC-like kinase 3
X97772	0.28	0.011	Phgdh	brain acyl-CoA hydrolase
AA859788	0.28	0.007		EST
X15013	0.28	0.043		ribosomal protein L21.
U37464	0.28	0.007	MEK5	DNA polymerase beta
S61973	0.28	0.016		malignancy-related C140 product
L08814	0.29	0.003	CIIDBP	neurogranin (protein kinase C substrate, RC3)
AA891226	0.29	0.017		EST
X15216	0.29	0.013	Rpl21	phosphoribosyl pyrophosphate synthetase 1
U37462	0.29	0.016	MEK5	mitogen activated protein kinase kinase 5
L25633	0.30	0.010	RESP18	transcription elongation factor B polypeptide 2
AA849648	0.30	0.010	Rpl21	ribosomal protein L21
AA800190	0.30	0.004		EST
U83883	0.30	0.009	U83883	glutathione S-transferase, mu 5
X63281	0.30	0.013	N-myc	cytosolic resiniferatoxin-binding protein
U26397	0.30	0.042	Inpp4a	DNA-damage inducible transcript 3
J03190	0.30	0.012	Alas1	protein phosphatase type 1A
AA892373	0.30	0.025	Sdcbp	syntenin
X58389	0.31	0.038		ribosomal protein S5.
X68283	0.31	0.024	Rpl29	snRNP-associated polypeptide N
AI112237	0.31	0.004		EST
X07365	0.31	0.008	Gpx1	amyloidogenic glycoprotein
AI013297	0.31	0.016		EST

S78215	0.31	0.005	PP1 alpha	protein phosphatase 1 beta
M17701	0.31	0.036	Gapd	peptidylprolyl isomerase A (cyclophilin A)
D30647	0.31	0.006	VLCAD	acyl-CoA dehydrogenase, Very long chain
AA891727	0.31	0.027		EST
AA800291	0.31	0.011		EST
AA800198	0.32	0.040		EST
D10926	0.32	0.015	Tfpi	tissue factor pathway inhibitor
AI102031	0.32	0.019	Bin1	myc box dependent interacting protein 1
X54250	0.32	0.012		ribosomal protein P2.
AA892753	0.32	0.005		EST
AA858641	0.32	0.005		EST
AA874794	0.32	0.021	Ngfrap1	nerve growth factor receptor associated protein 1
AA799671	0.32	0.019		EST
AI007614	0.32	0.001		
AA859700	0.33	0.032		EST
D26180	0.33	0.008	Prkcl1	protein kinase C-like 1
AI102505	0.33	0.021	Cox8a	cytochrome c oxidase, subunit VIIIa
D32249	0.33	0.012	Neurodap1	rotein carrying the RING-H2 sequence motif
AA875286	0.33	0.035		EST
M75168	0.33	0.025	liver nuclear protein p47	fatty acid synthase
AB008807	0.33	0.020	Gsto1	glutathione-dependent dehydroascorbate reductase
L42855	0.33	0.013	TCEB2	protein kinase C, type I (gamma type)
AF062740	0.33	0.008	PDP1	pyruvate dehydrogenase phosphatase isoenzyme 1

Table 1-27

Genes showing down-regulation in the medial preoptic area of males by DEHP among genes expressed predominantly in males.

Accession No.	Gene name	Description
Down-regulated by DEHP in males (10)		
U66478	Mad1	MAD (mothers against decapentaplegic, Drosophila) homolog 1
L13151	GAP	GTPase-activating protein
AF090135	Veli1	lin-7-Ba
X17682	Map2	microtubule-associated protein 2
X57764	Ednrb	Endothelin receptor type B
S65355		nonselective-type endothelin receptor, ETB receptor
M83680	RAB14	GTPase Rab14
AA925762	Macs	myristoylated alanine-rich protein kinase C substrate
AI638989		ESTs,
Y00766	Scn3a	Sodium channel III

Fig. 2-1

実験計画

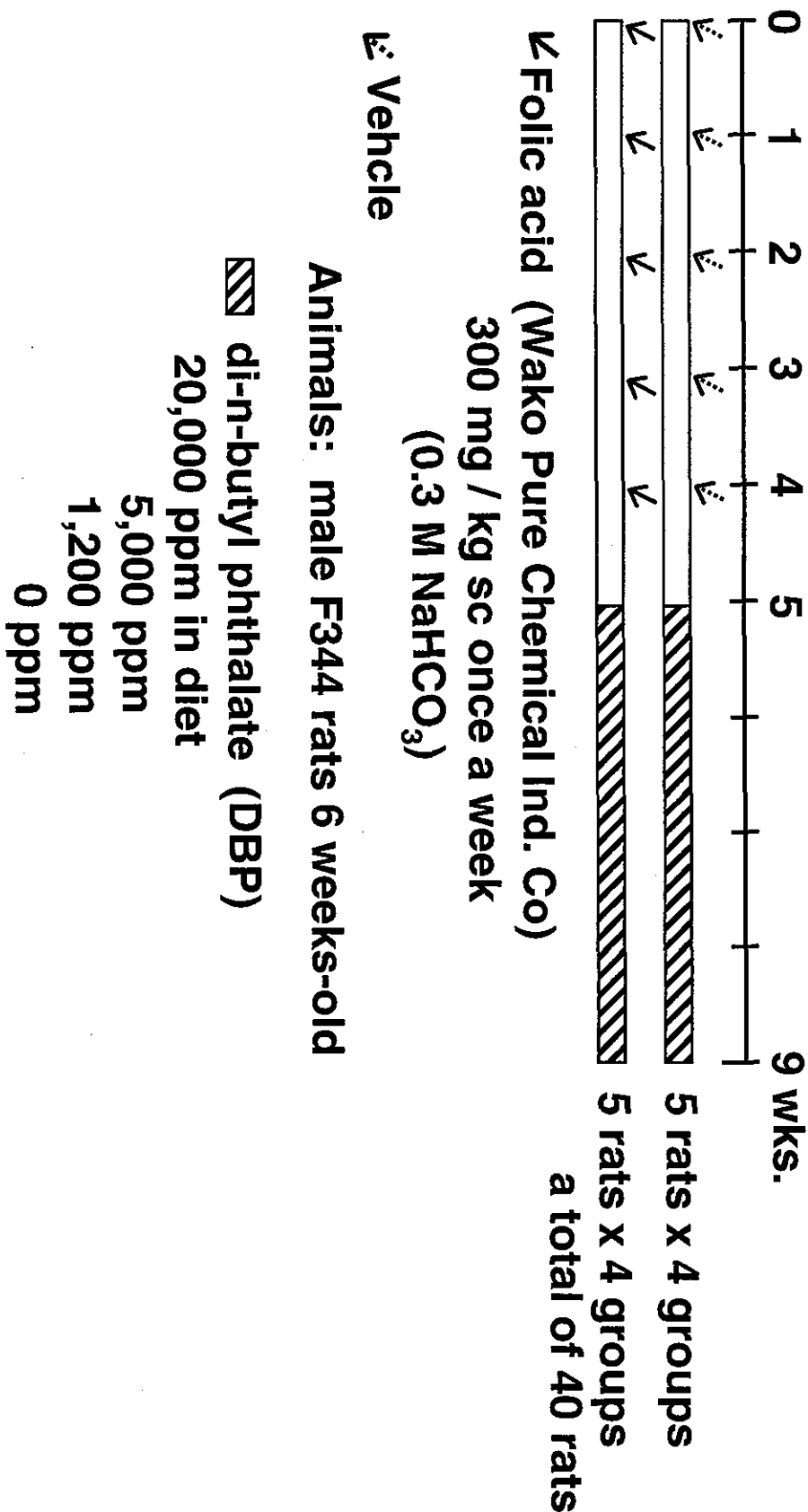
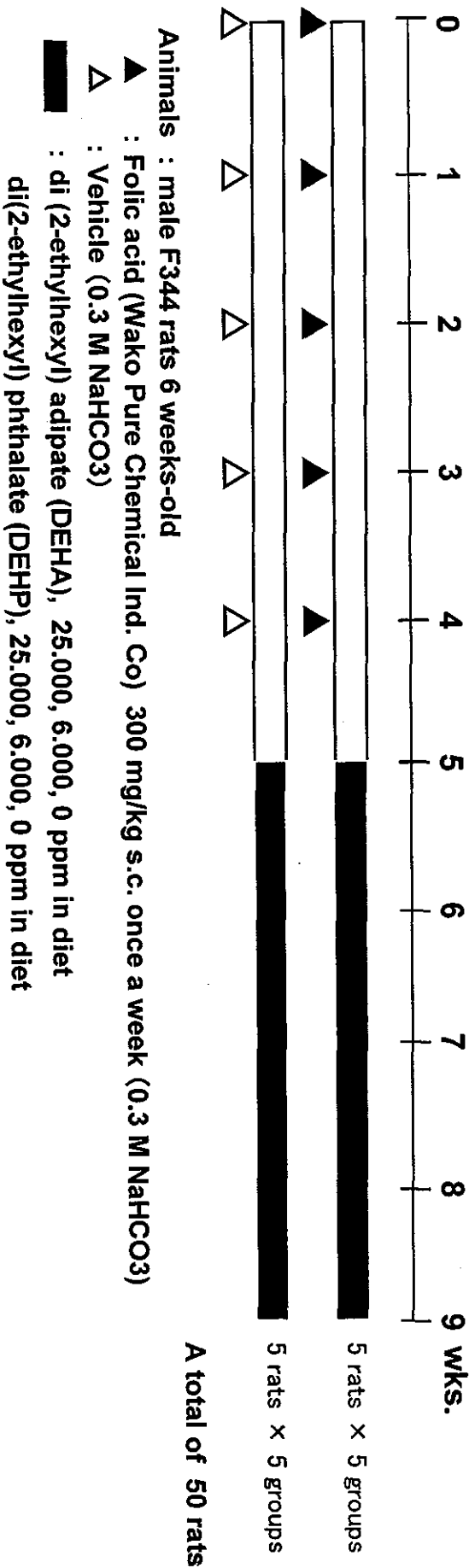


Fig. 2-2

実験計画



体重推移

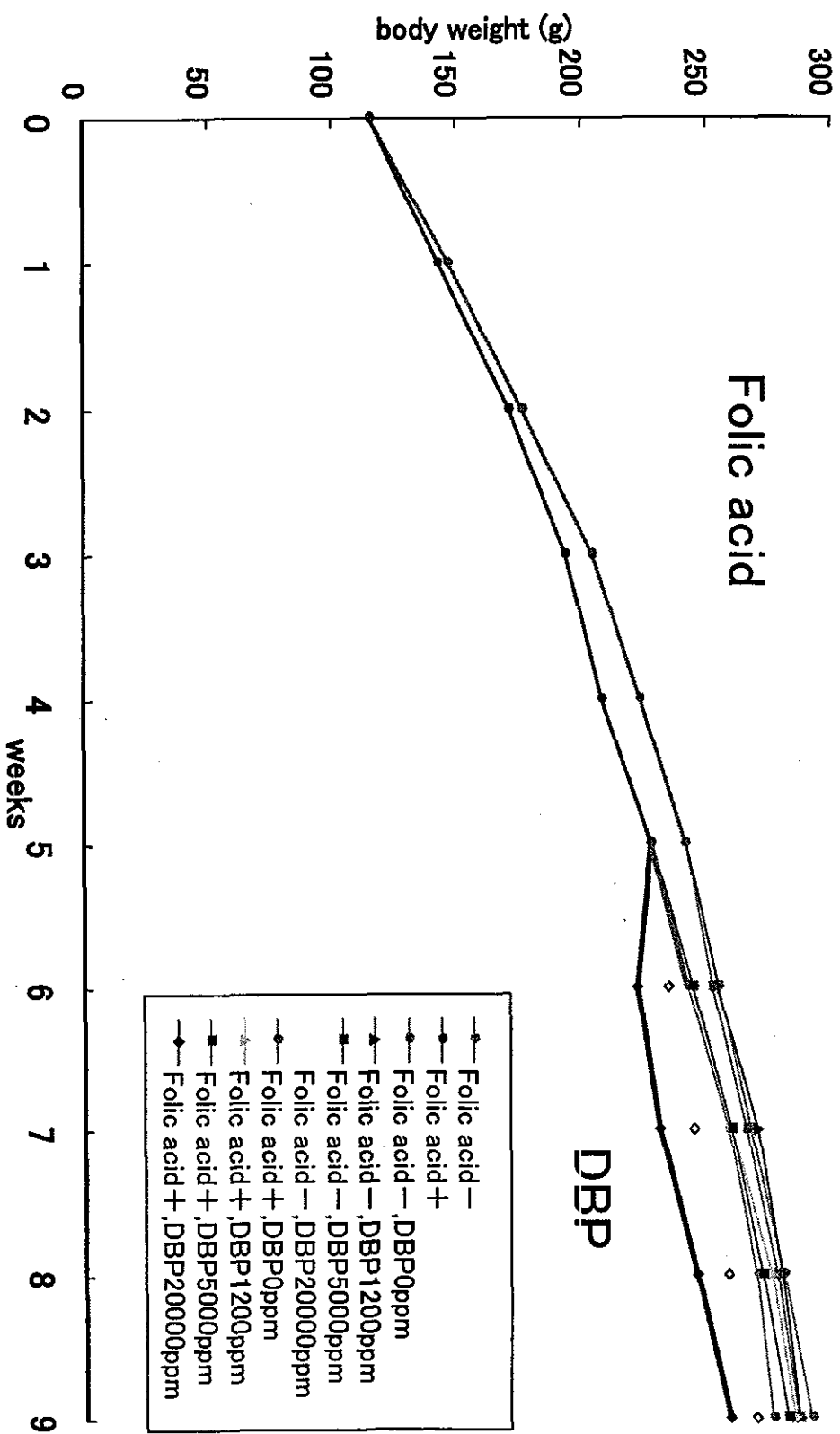


Fig. 2-4

葉酸投与後4週の腎障害

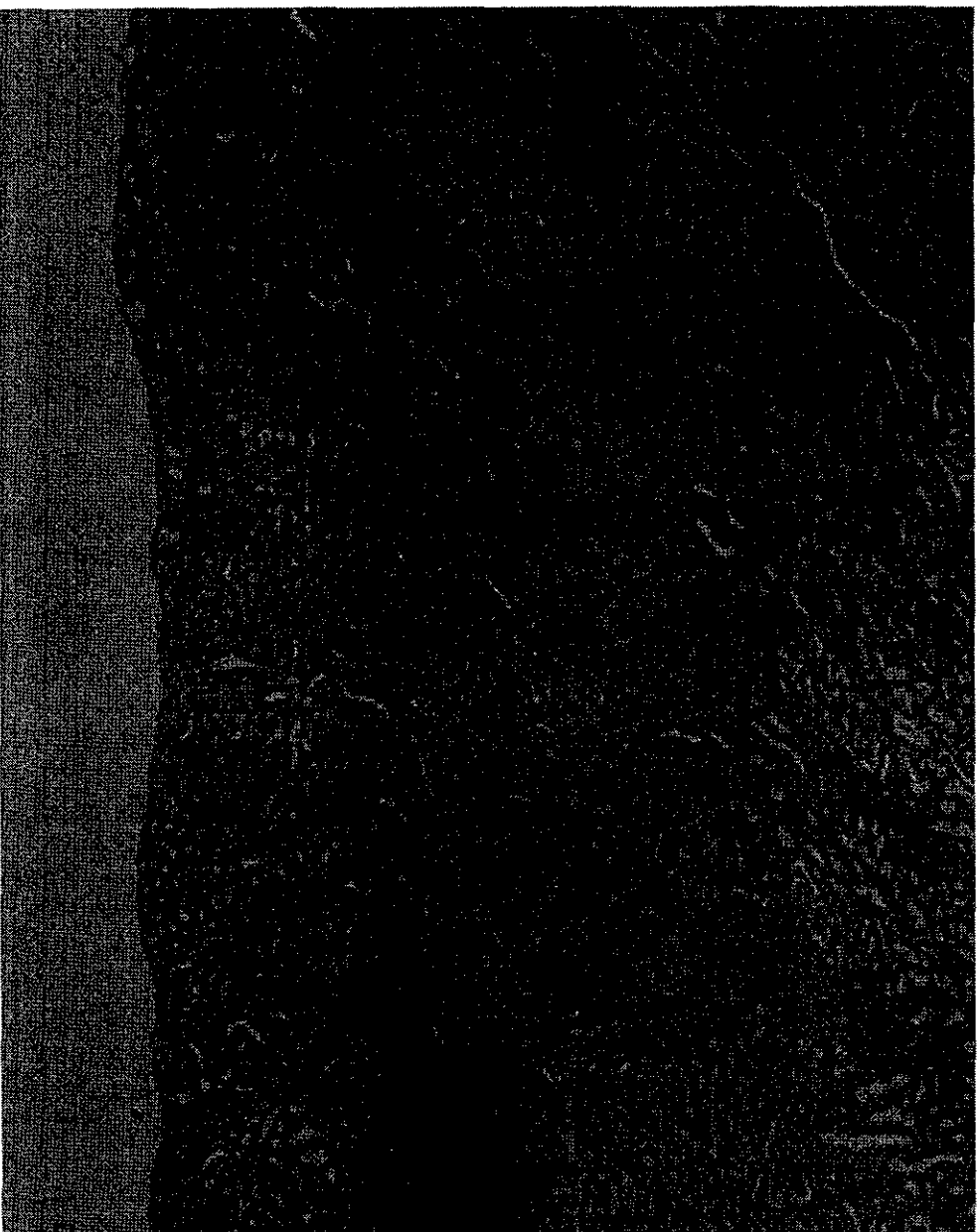


Fig. 2-5

精巢の断面

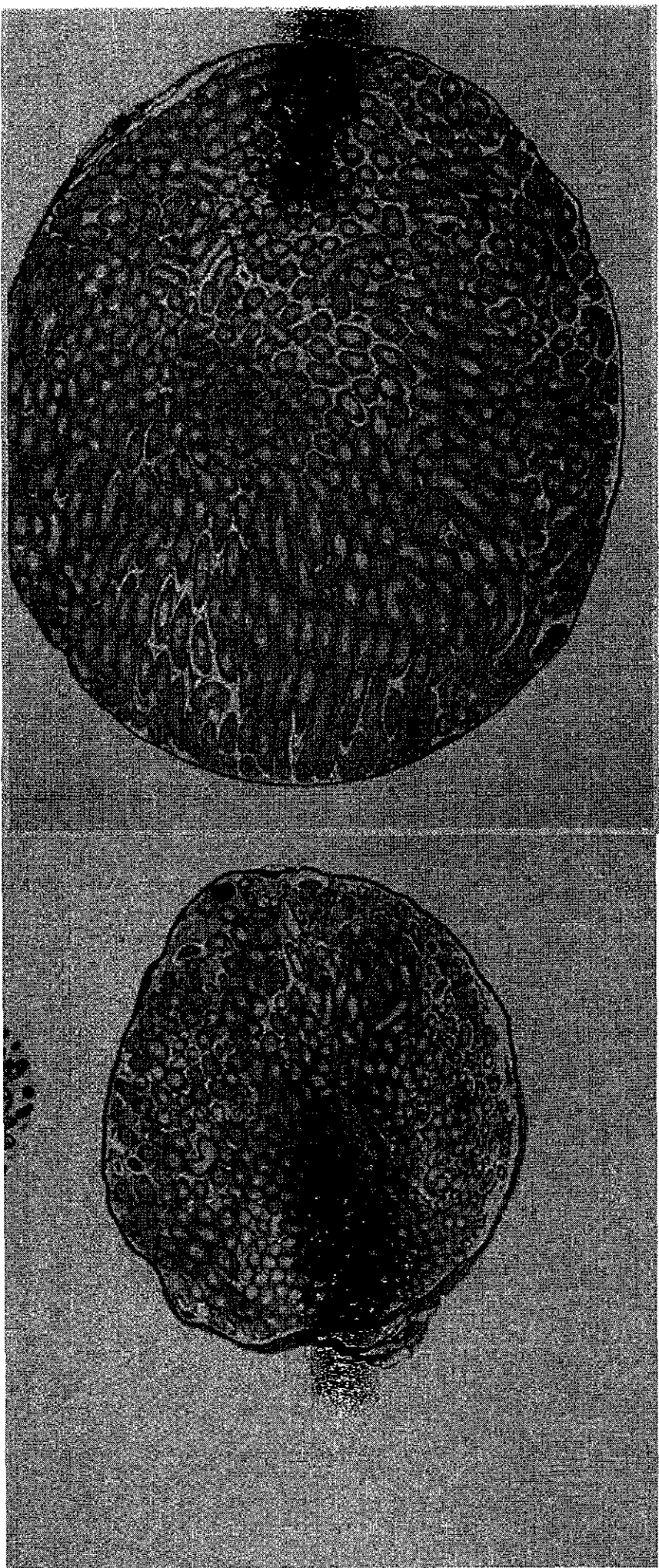
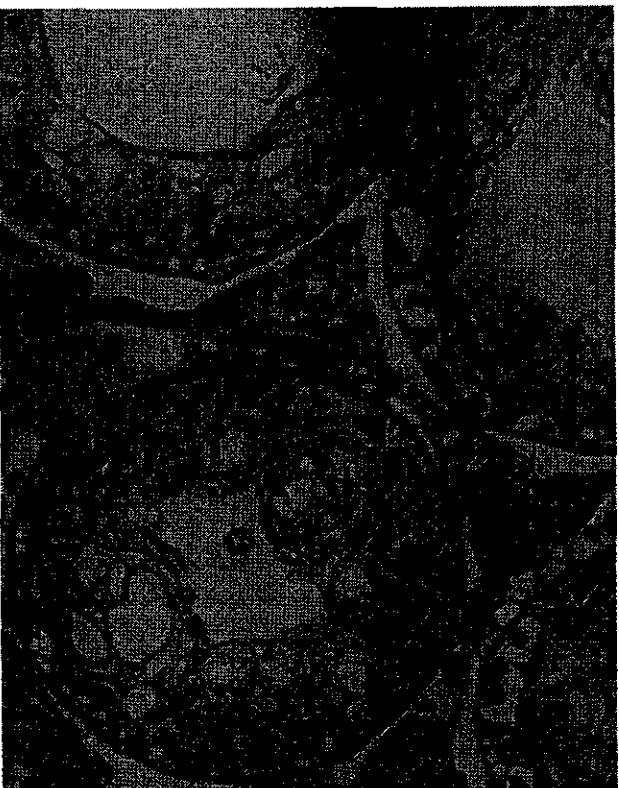


Fig. 2-6

葉酸+DBP20,000 ppmによる精巢障害増強

Testis



Epididymis

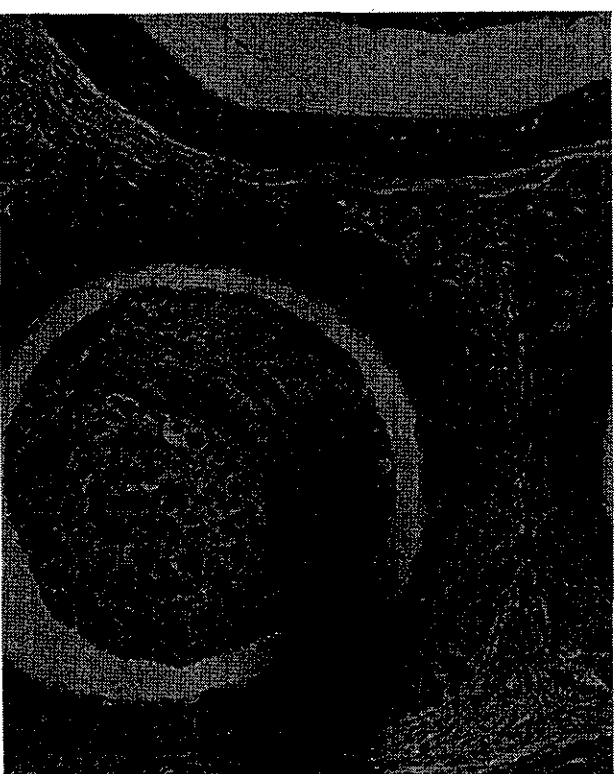
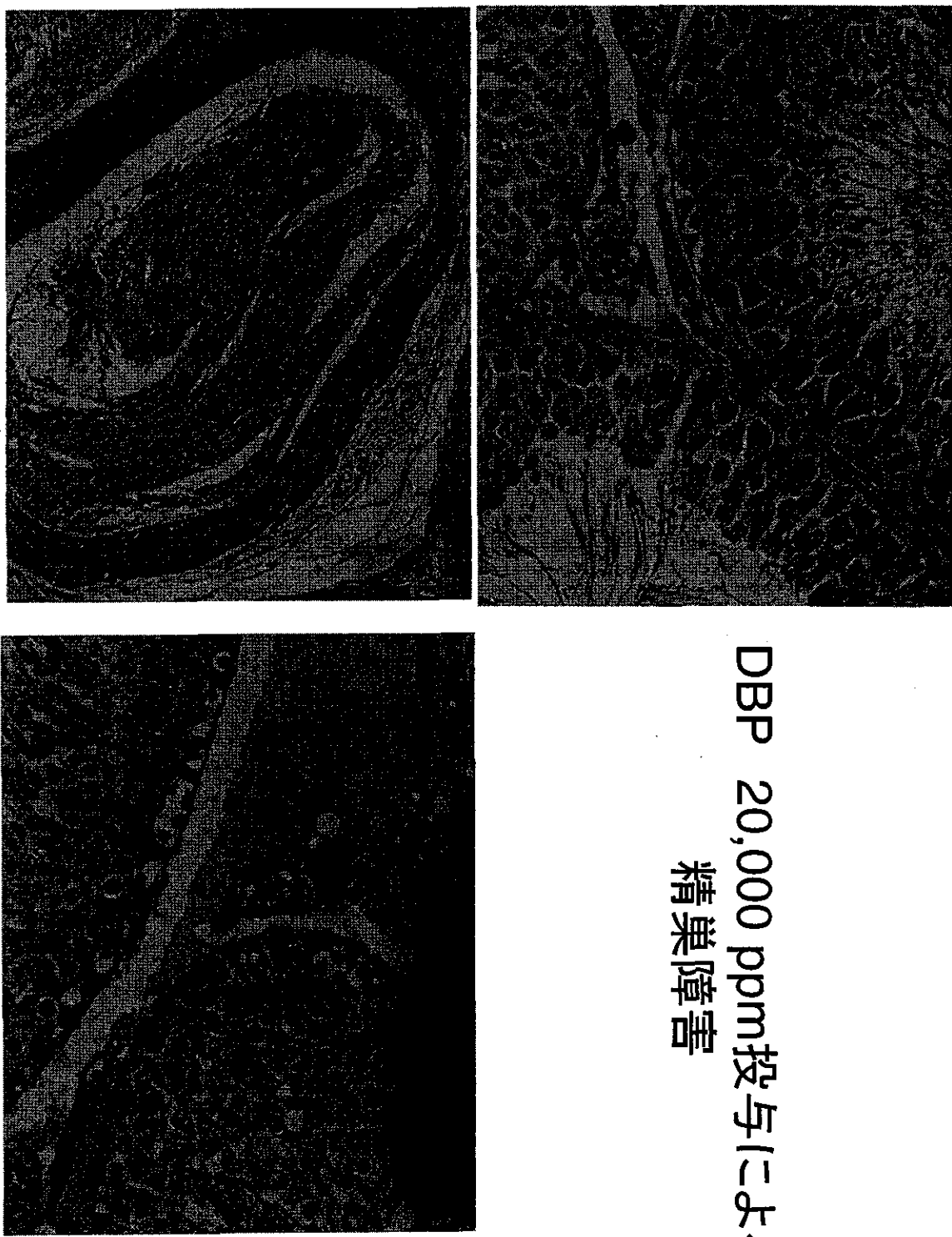
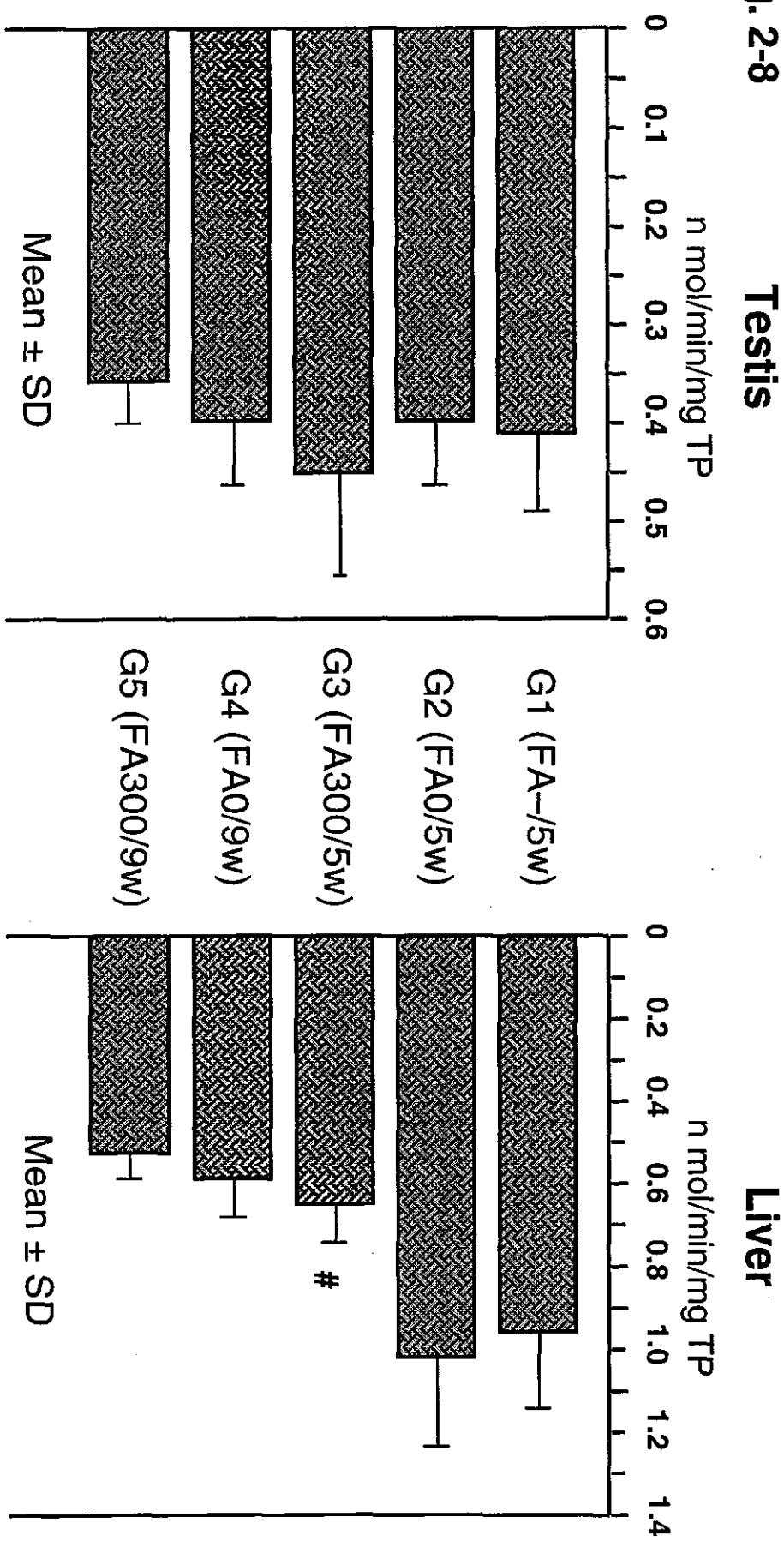


Fig. 2-7



DBP 20,000 ppm投与による
精巢障害

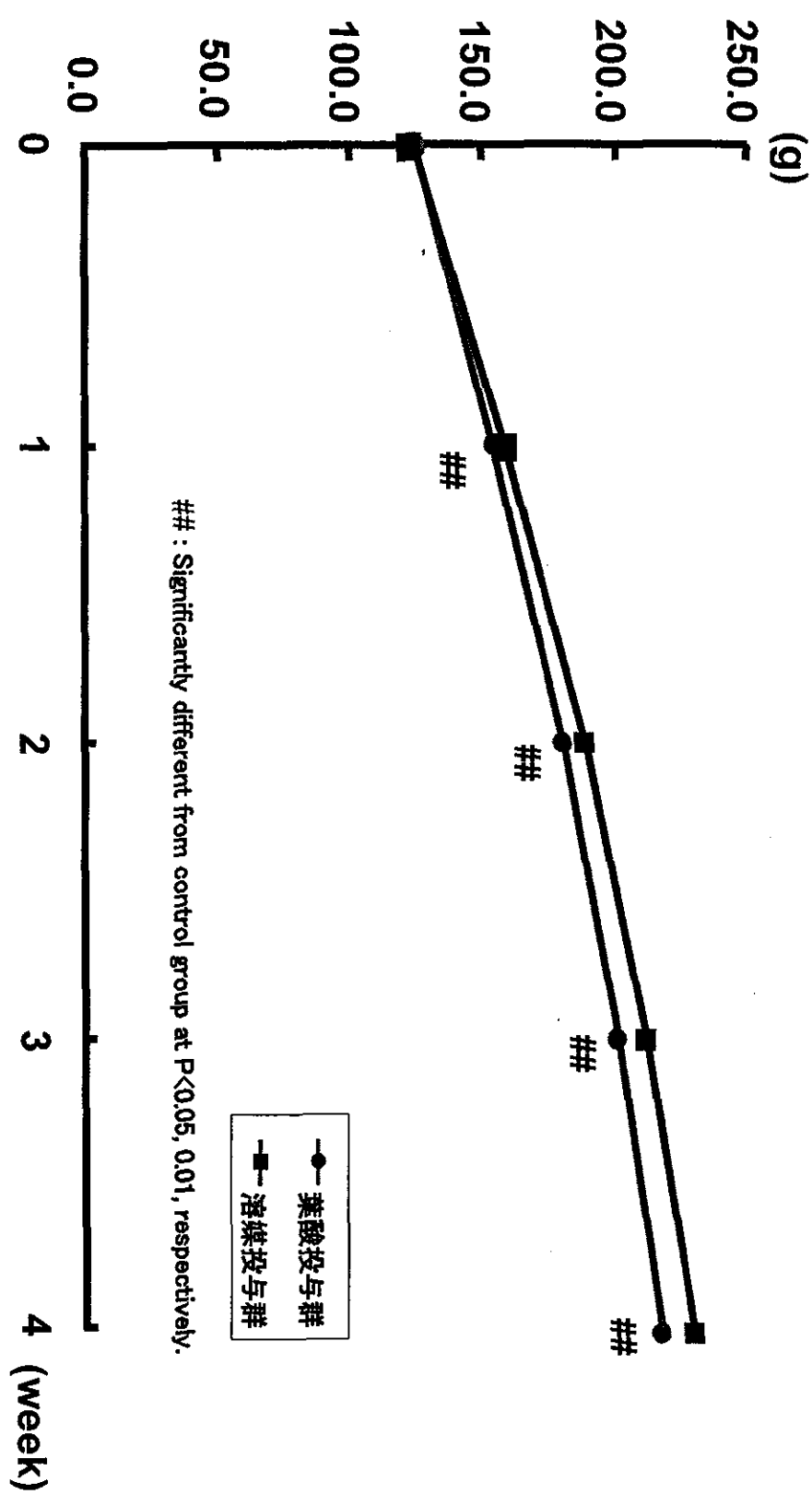
Fig. 2-8



: Significantly different from control group (group 2) at P<0.05.

β-Glucuronidase Activities

Fig. 2-9



葉酸投与による体重増加抑制