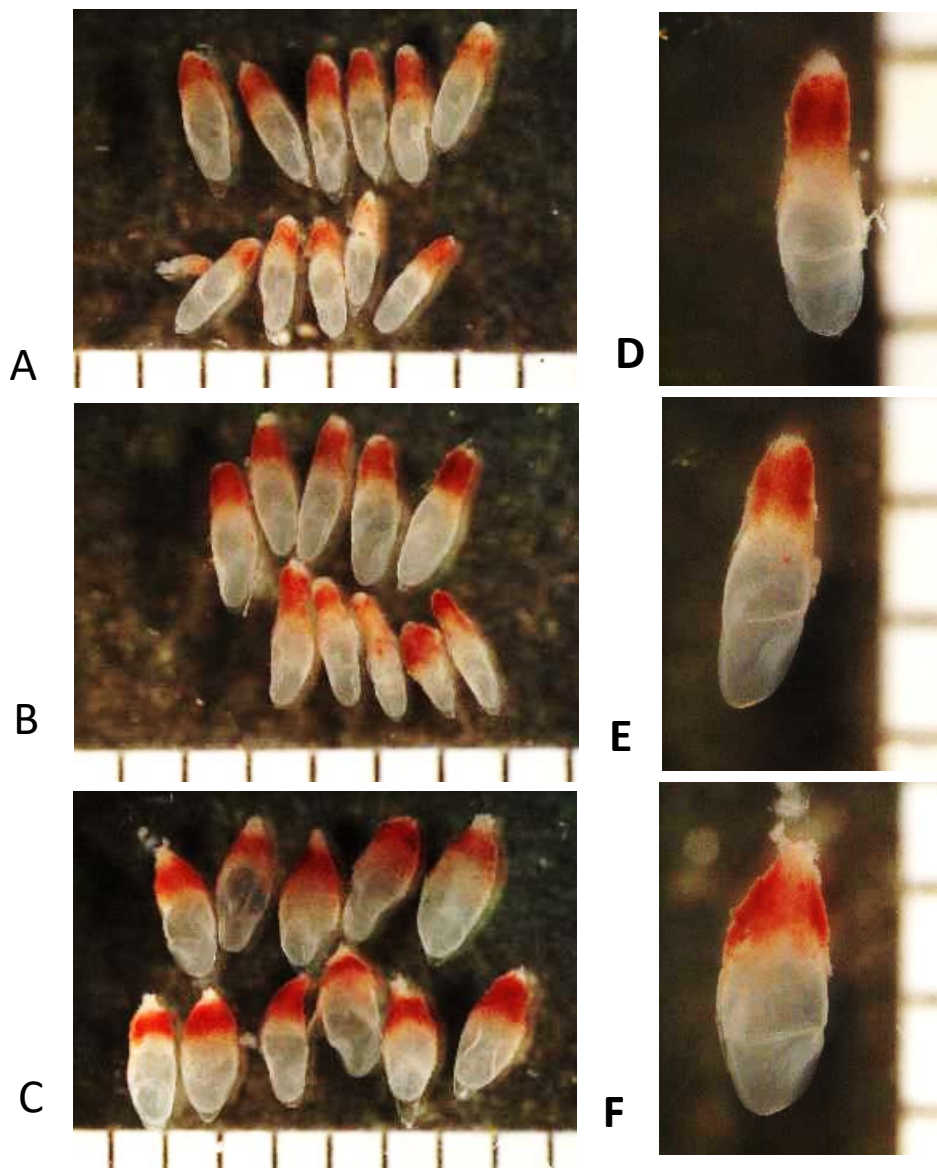




図表 1 ラット妊娠9日における同腹内の胚発達の違い

7時(A)、13時(B)、19時(C)に帝王切開した時の同腹内の胚。
D, E, Fは各腹の代表児を示す。

Group	Control	5-FC-a	5-FC-b	5-FC-c
Number of dams	9	9	8	7
Number of corpora lutea				
Total	120	125	104	83
Mean ± S.D.	13.3 ± 1.8	13.9 ± 1.9	13.0 ± 1.2	11.9 ± 1.3
Number of implantation sites				
Total	118	119	103	77
Mean ± S.D.	13.1 ± 1.8	13.2 ± 1.9	12.9 ± 1.1	11.0 ± 1.4
Implantation rate ^{a)}				
Mean (%) ± S.D.	98.3 ± 3.3	95.2 ± 5.6	99.1 ± 2.5	93.3 ± 11.3
Post-implantation loss				
Total	7	20	3	6
Mean ± S.D.	0.8 ± 1.1	2.2 ± 4.5	0.4 ± 0.5	0.9 ± 0.7
Post-implantation loss rate ^{b)}				
Mean (%) ± S.D.	5.8 ± 7.7	16.5 ± 31.9	2.8 ± 3.8	8.1 ± 6.1
Number of live fetuses				
Total	111	99	100	71
Mean ± S.D.	12.3 ± 1.9	11.0 ± 4.7	12.5 ± 0.9	10.1 ± 1.8
Sex ratio ^{c)} (Mean ± S.D.)	0.50 ± 0.11	0.47 ± 0.19	0.52 ± 0.13	0.52 ± 0.17
Fetal body weight (g)				
Male (Mean ± S.D.)	3.85 ± 0.50	3.59 ± 0.42	3.83 ± 0.71	3.69 ± 0.71
Female (Mean ± S.D.)	3.60 ± 0.47	3.39 ± 0.37	3.61 ± 0.66	3.50 ± 0.65
Placental weight (g)				
Male (Mean ± S.D.)	0.468 ± 0.036	0.416 ± 0.067	0.451 ± 0.033	0.512 ± 0.075
Female (Mean ± S.D.)	0.454 ± 0.036	0.410 ± 0.079	0.444 ± 0.034	0.480 ± 0.057
Number of fetuses with external abnormalities	0	0	0	0

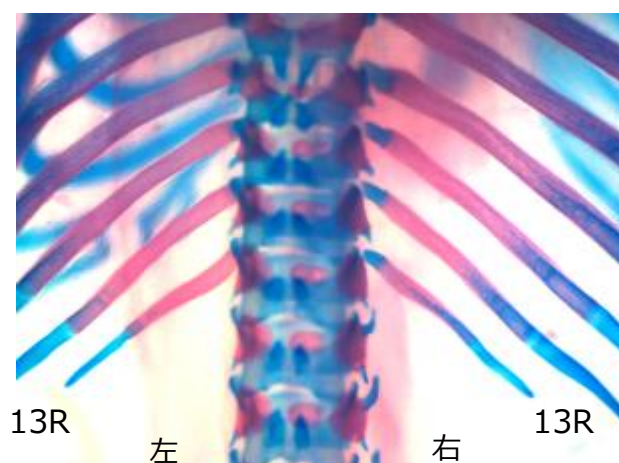
5-FC-a, treated with 5-FC at 7:00 _{AM}; 5-FC-b, treated with 5-FC at 1:00 _{PM}; 5-FC-c, treated with 5-FC at 7:00 _{PM}.

- a), (Number of implantation sites/number of corpora lutea) × 100.
- b), (Number of post-implantation losses/number of implantation sites) × 100.
- c), Number of males/(number of males + number of females).

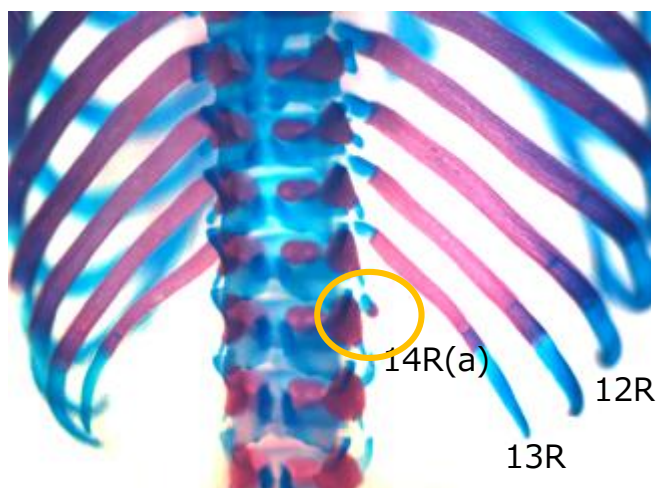
Not significantly different from the control group.

図表2 ラット妊娠9日投与実験の帝王切開所見（妊娠20日）

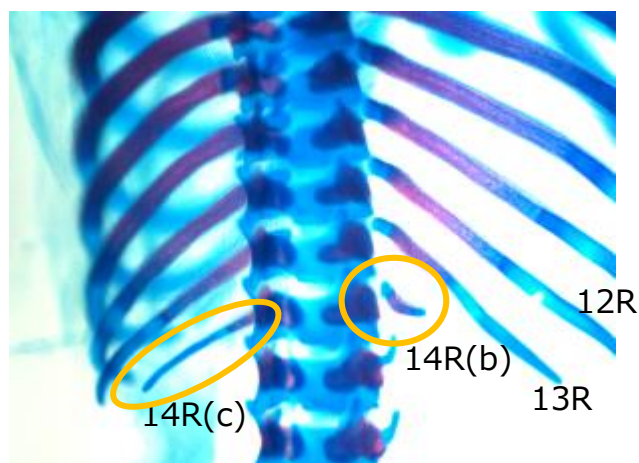
A.正常



B.過剰肋骨（3段階に分類：a, 痕跡；b, 短小；c, 完全）



14R (a): 痕跡



14R (b): 13Rの半分以下

14R (c): 13Rの半分以上

(妊娠20日胎児骨格二重染色標本)

図表3 5-FC妊娠9日投与実験にて胎児に観察された過剰肋骨

Table S3 Skeletal examination of rat fetuses following exposure of dams to 5-FC at three treatment times on GD9.

Group	Control	5-FC-a	5-FC-b	5-FC-c
Number of dams	9	8	8	7
Number of fetuses examined	111	99	100	71
Number of fetuses with anormalities	27 ^{a)} 24.7 ± 23.0 ^{b)}	76 79.2 ± 26.1 **	54 54.2 ± 28.0	32 44.2 ± 25.9
Each type of anomalies				
TSR (total)	2 1.6 ± 4.8	73 75.8 ± 25.7 **	26 25.7 ± 32.5	9 13.5 ± 29.0 ##
Types of TSR ^{c)}				
Rudimentary	0 0.0 ± 0.0	48 46.8 ± 19.6 **	18 18.0 ± 14.9	0 7.1 ± 13.1 ##
Short	2 1.6 ± 4.8	14 14.6 ± 13.9	1 1.0 ± 2.7	2 3.2 ± 8.4
Full	0 0.0 ± 0.0	30 34.3 ± 32.0 **	11 10.7 ± 26.9	4 6.3 ± 16.8
Exoccipital bone and atlas, Fusion	0 0.0 ± 0.0	2 1.7 ± 4.7	0 0.0 ± 0.0	0 0.0 ± 0.0
Atlas, Small	0 0.0 ± 0.0	14 14.2 ± 17.1 **	0 0.0 ± 0.0 #	0 0.0 ± 0.0 #
Atlas, Absent	0 0.0 ± 0.0	2 3.1 ± 8.8	0 0.0 ± 0.0	0 0.0 ± 0.0
Cervical arch, Fusion	0 0.0 ± 0.0	2 2.7 ± 5.1	2 1.9 ± 5.4	0 0.0 ± 0.0
Cervical arch, Cartilaginous fusion	0 0.0 ± 0.0	24 25.2 ± 24.4 **	2 2.1 ± 3.9 #	0 0.0 ± 0.0 ##
Thoracic arch, Fusion	0 0.0 ± 0.0	1 1.1 ± 3.2	0 0.0 ± 0.0	0 0.0 ± 0.0
Rib, Short	0 0.0 ± 0.0	0 0.0 ± 0.0	1 1.0 ± 2.9	0 0.0 ± 0.0
Rib, Fusion	0 0.0 ± 0.0	6 9.0 ± 21.9	11 10.6 ± 29.9	0 0.0 ± 0.0
Costal cartilage, Not fused to sternum	11 10.0 ± 10.2	3 2.6 ± 5.1	6 5.9 ± 7.1	6 8.9 ± 11.1
Costal cartilage, Interrupt	15 13.9 ± 19.7	25 24.8 ± 24.6	38 38.5 ± 26.8	28 38.5 ± 28.7
Lumber vertebrae, Supernumerary	0 0.0 ± 0.0	20 24.1 ± 28.6 **	5 5.1 ± 8.3	1 1.6 ± 4.2
Sacral vertebrae, Lumbarization	0 0.0 ± 0.0	2 2.1 ± 3.9	1 1.0 ± 2.9	0 0.0 ± 0.0
Number of fetuses with abnormal ossifications	4 3.4 ± 7.4	15 15.0 ± 9.8	19 18.3 ± 25.6	5 6.9 ± 11.7
Each type of anomalies				
Thoracic centrum, Dumbbell Shape	3 2.4 ± 7.1	9 9.2 ± 4.8	9 8.7 ± 10.3	4 5.1 ± 9.2
Thoracic centrum, Bipartite ossification	1 1.0 ± 3.0	8 7.7 ± 10.5	11 10.5 ± 26.9	1 1.8 ± 4.7
Number of presacral vertebrae	26.0 ± 0.0	26.2 ± 0.2	26.0 ± 0.1	26.0 ± 0.0

a), No. of fetuses; b), Mean (%) ±S.D.
c), rudimentary; vestigial TSR, short; less than half the length of the 13th thoracic rib, full; half or greater than half the length of the 13th thoracic rib
*P<0.05, ** P<0.01compared with the control group
P<0.05, ##P<0.01 compared with the 5-FC-a group.
5-FC-a, treated with 5-FC at 7:00 AM; 5-FC-b, treated with 5-FC at 1:00 PM; 5-FC-c, treated with 5-FC at 7:00 PM.

Group	Control	5FC-a	5FC-b	5FC-c
Number of dams	3	4	4	4
Number of corpora lutea				
Total	41	57	56	50
Mean $\pm$ S.D. per dam	13.7 $\pm$ 2.1	14.3 $\pm$ 2.2	14.0 $\pm$ 1.8	12.5 $\pm$ 1.7
Number of implantation sites				
Total	41	56	56	50
Mean $\pm$ S.D. per dam	13.7 $\pm$ 2.1	14.0 $\pm$ 1.8	14.0 $\pm$ 1.8	12.5 $\pm$ 1.7
Implantation rate ^{a)}				
Mean % $\pm$ S.D. per dam	100.0 $\pm$ 0.0	98.5 $\pm$ 3.0	100.0 $\pm$ 0.0	100.0 $\pm$ 0.0
Post-implantation loss				
Total	3	5	5	5
Mean $\pm$ S.D. per dam	1.0 $\pm$ 1.0	1.3 $\pm$ 2.5	1.3 $\pm$ 1.3	1.3 $\pm$ 1.5
Implantation scars	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
Placental remnant	1.0 $\pm$ 1.0	1.3 $\pm$ 2.5	1.3 $\pm$ 1.3	1.3 $\pm$ 1.5
Dead fetuses	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
Post-implantation loss rate ^{b)}				
Mean % $\pm$ S.D. per dam	8.1 $\pm$ 8.4	8.3 $\pm$ 16.7	9.0 $\pm$ 8.2	10.4 $\pm$ 13.1
Number of live fetuses				
Total	38	51	51	45
Mean $\pm$ S.D. per dam	12.7 $\pm$ 3.1	12.8 $\pm$ 2.5	12.8 $\pm$ 2.2	11.3 $\pm$ 2.5
Sex ratio ^{c)} (Mean $\pm$ S.D. per dam)	0.49 $\pm$ 0.08	0.48 $\pm$ 0.07	0.52 $\pm$ 0.22	0.48 $\pm$ 0.08
Mean fetal body weight (g)				
Male (Mean $\pm$ S.D. per dam)	3.52 $\pm$ 0.27	2.70 $\pm$ 0.37	3.37 $\pm$ 0.37	3.53 $\pm$ 0.34 (3)
Female (Mean $\pm$ S.D. per dam)	3.42 $\pm$ 0.22	2.59 $\pm$ 0.40	3.14 $\pm$ 0.39	3.47 $\pm$ 0.19 (3)
Mean placental weight (g)				
Male (Mean $\pm$ S.D. per dam)	0.468 $\pm$ 0.030	0.402 $\pm$ 0.039	0.434 $\pm$ 0.032	0.470 $\pm$ 0.028 (3)
Female (Mean $\pm$ S.D. per dam)	0.460 $\pm$ 0.009	0.398 $\pm$ 0.002	0.419 $\pm$ 0.048	0.462 $\pm$ 0.060 (3)
Number of fetuses with digital abnormalities [§]	0	51	9	0
Mean % $\pm$ S.D. per dam ^{d)}	0.0 $\pm$ 0.0	100.0 $\pm$ 0.0 *	20.3 $\pm$ 35.2	0.0 $\pm$ 0.0

§ : adactyly, ectrodactyly, syndactyly, pendulous digit, brachydactyly

a): (Number of implantation sites/number of corpora lutea) $\times$ 100.

b): (Number of post-implantation losses/number of implantation sites) $\times$ 100.

c): Number of males/(number of males + number of females).

d): (Number of fetuses with external abnormalities/number of live fetuses) $\times$ 100.

* P<0.05 compared with the control group.

図表5 ラット妊娠13日5-FC投与実験の帝王切開所見（妊娠20日）

Group	Control	5FC-a	5FC-b	5FC-c
Number of dams	3	4	4	3
Number of fetuses examined	38	51	51	37
Number of fetuses with abnormalities	6 16.4 ± 3.8	51 100.0 ± 0.0 *	17 36.8 ± 39.6	7 19.8 ± 11.1
Forelimb, Malformation	0 0.0 ± 0.0	42 85.4 ± 23.9 *	3 6.8 ± 13.7 #	0 0.0 ± 0.0 #
Hindlimb, Malformation	0 0.0 ± 0.0	49 95.0 ± 10.0 *	6 13.5 ± 21.7	0 0.0 ± 0.0 #
Rib, Wavy	0 0.0 ± 0.0	9 18.1 ± 21.4	0 0.0 ± 0.0	1 3.0 ± 5.3
Rib, Short	0 0.0 ± 0.0	2 3.9 ± 7.7	0 0.0 ± 0.0	0 0.0 ± 0.0
Rib, Interrupt	0 0.0 ± 0.0	9 17.3 ± 34.6	0 0.0 ± 0.0	0 0.0 ± 0.0
Costal cartilage, Interrupt	2 4.2 ± 7.2	10 19.2 ± 38.5	1 1.6 ± 3.2	5 14.0 ± 6.0
Costal cartilage, Not fused to sternum	3 9.4 ± 10.0	2 3.7 ± 4.3	0 0.0 ± 0.0	0 0.0 ± 0.0
Thoracolumbar supernumerary rib	1 2.8 ± 4.8	2 5.0 ± 10.0	0 0.0 ± 0.0	2 5.8 ± 5.0
Lumber centrum and lumber arch, Fused	0 0.0 ± 0.0	10 20.8 ± 41.7	0 0.0 ± 0.0	0 0.0 ± 0.0
Caudal centrum, Fused	0 0.0 ± 0.0	45 89.9 ± 12.3 *	8 17.2 ± 15.7	0 0.0 ± 0.0 ##
Number of presacral vertebrae	26.0 ± 0.0	26.0 ± 0.0	26.0 ± 0.0	26.0 ± 0.0

Each value shows mean (%) ±S.D. (Litter unit)

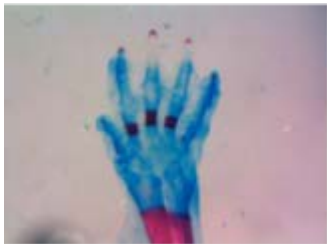
* ; Significantly different from the control group at P<0.05.

#, ##; Significantly different from the 5FC-a at P<0.05 or P<0.01.

図表6 ラット妊娠13日5-FC投与実験の骨格所見

前肢

対照群（正常）



5-FC投与群



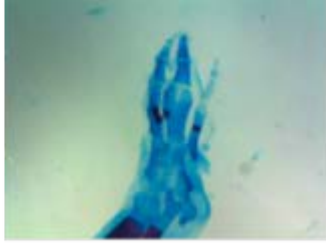
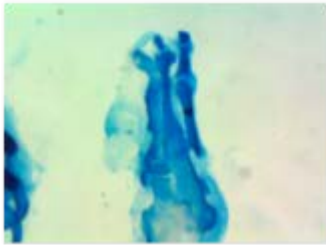
指節骨・中手骨・手根骨
欠損/短小/癒合

後肢

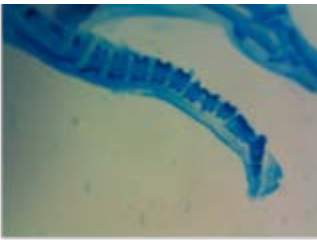
対照群（正常）



5-FC投与群

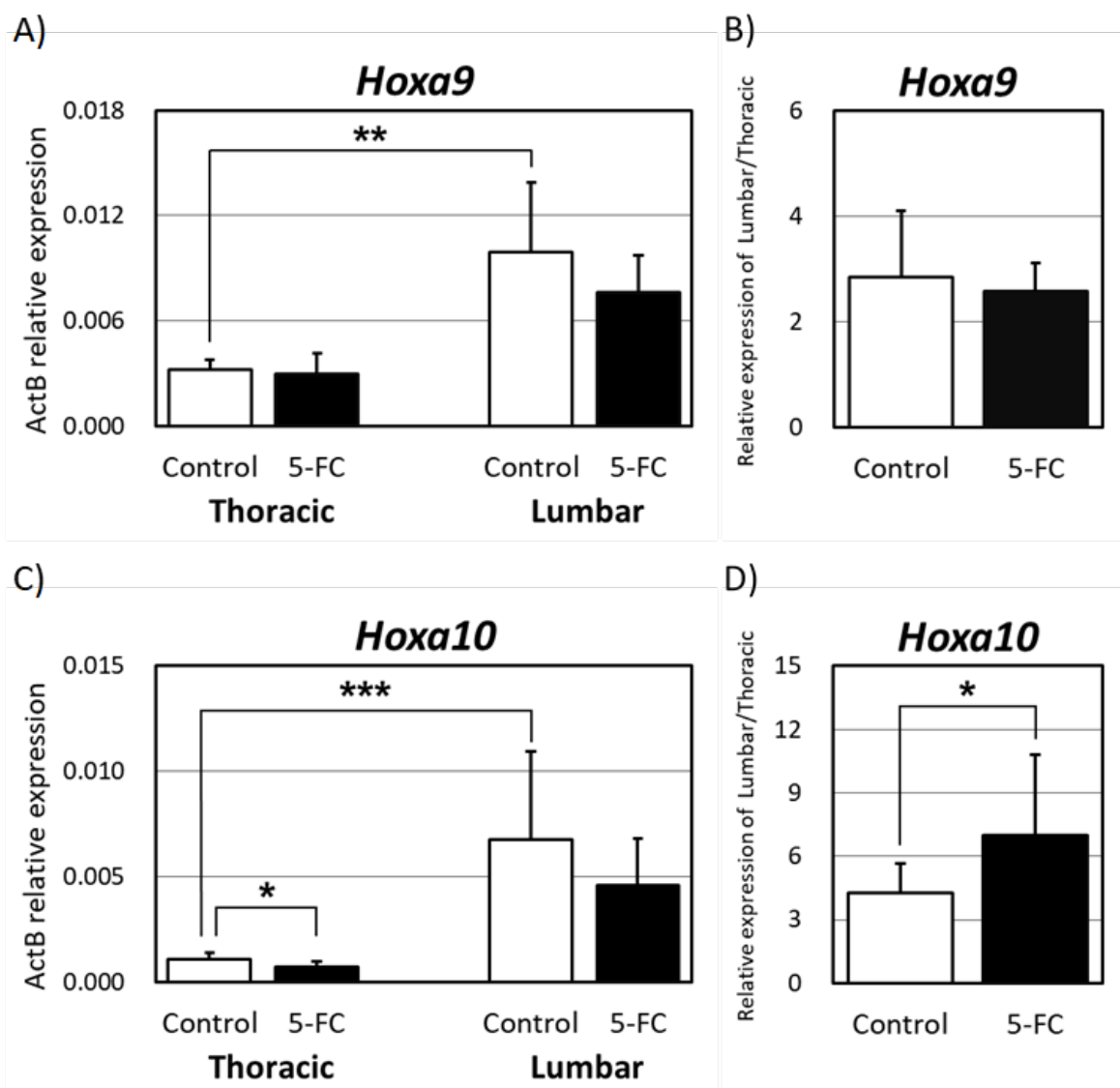


趾節骨・中足骨・足根骨
欠損/短小/癒合



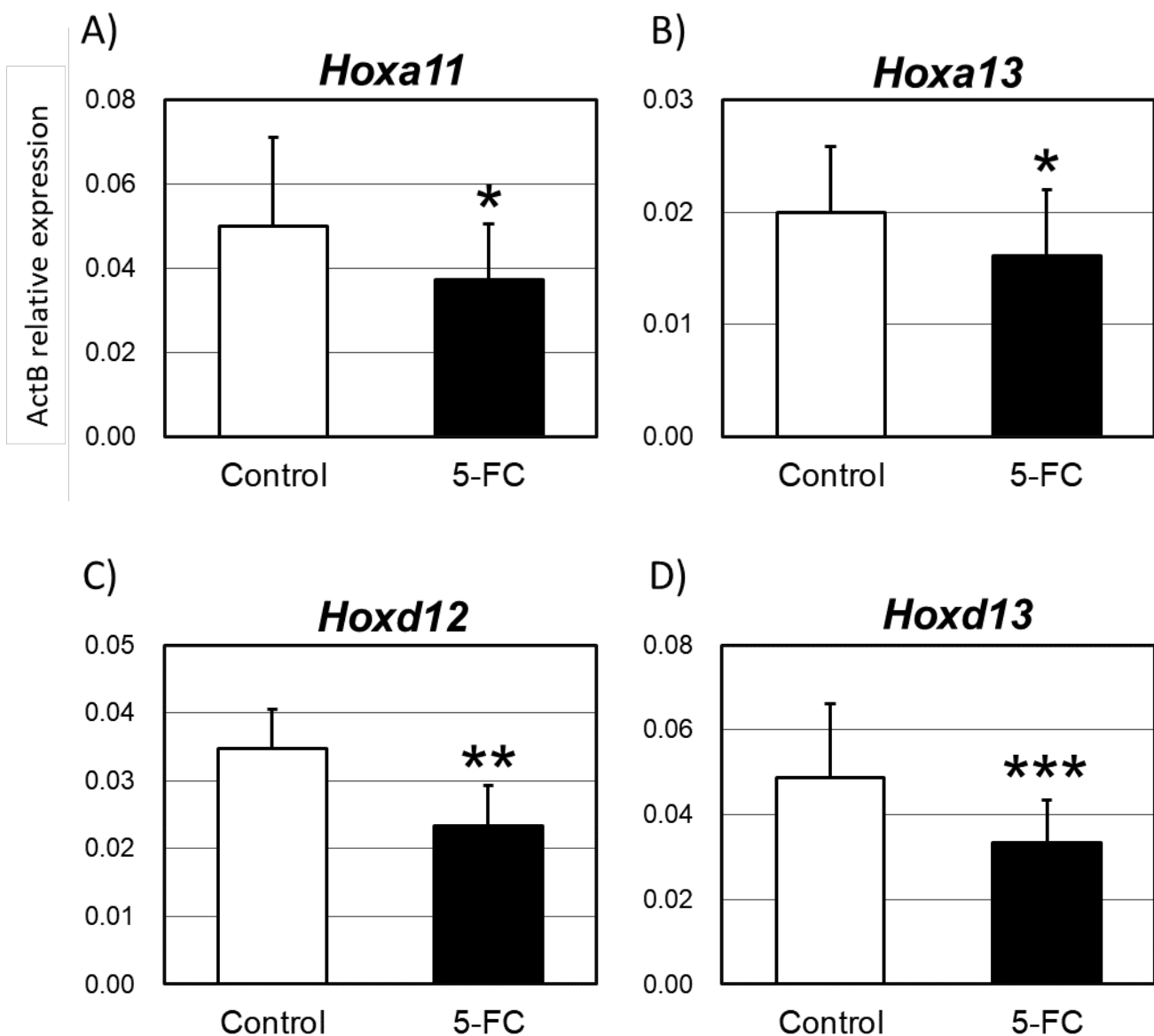
尾椎癒合、屈曲

図表7 妊娠13日5-FC実験にて胎児に観察された四指、尾の骨格異常



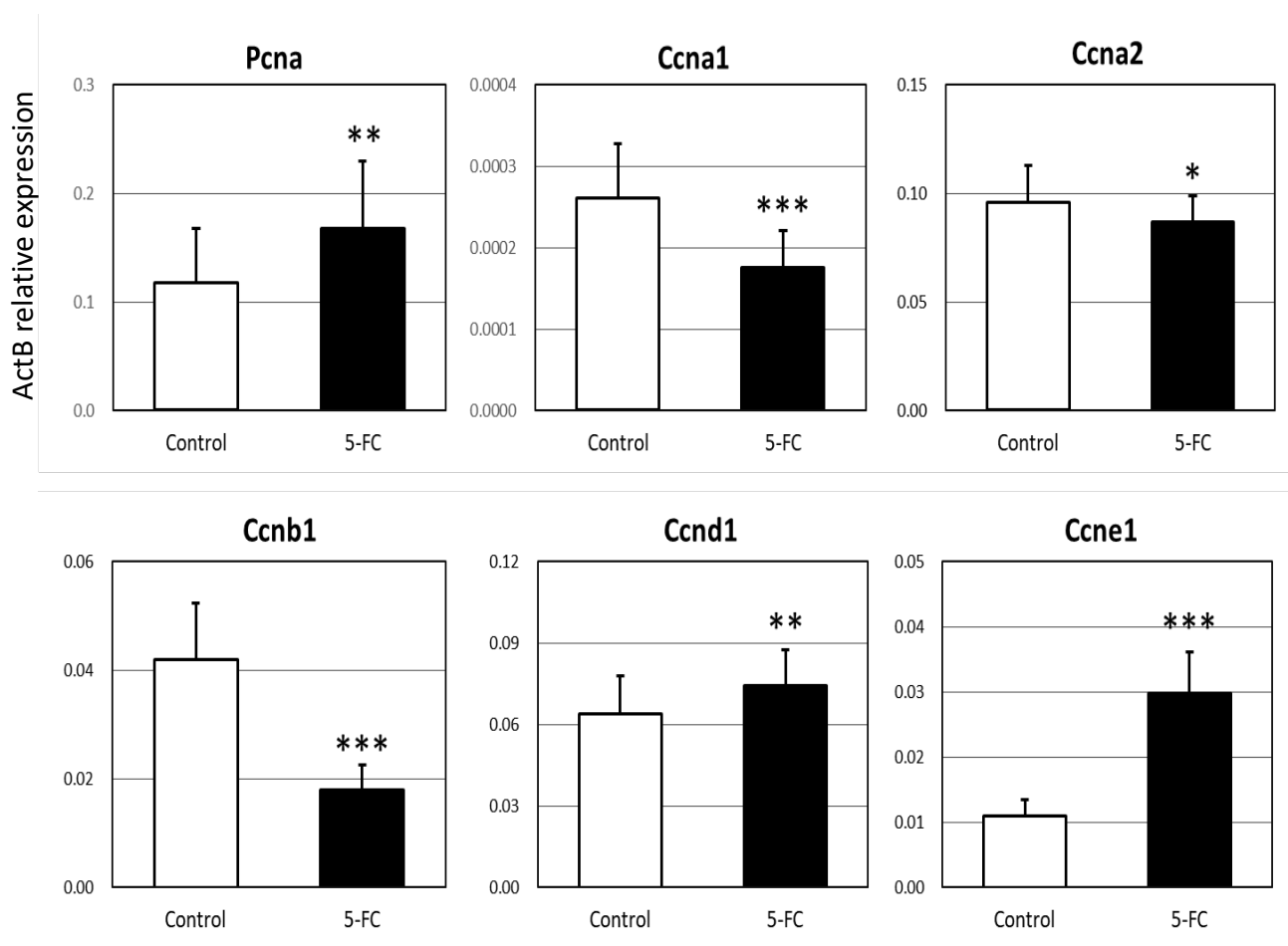
*, $P < 0.05$; **, $P < 0.01$; ***, $P < 0.001$

図表8 妊娠9日5-FC投与実験による胸椎・腰椎境界部*Hox*発現 (妊娠13.5日)



*, $P < 0.05$; **, $P < 0.01$; ***, $P < 0.001$

図表9 妊娠13日投与実験による肢芽部*Hox*発現（妊娠13.5日胎児）

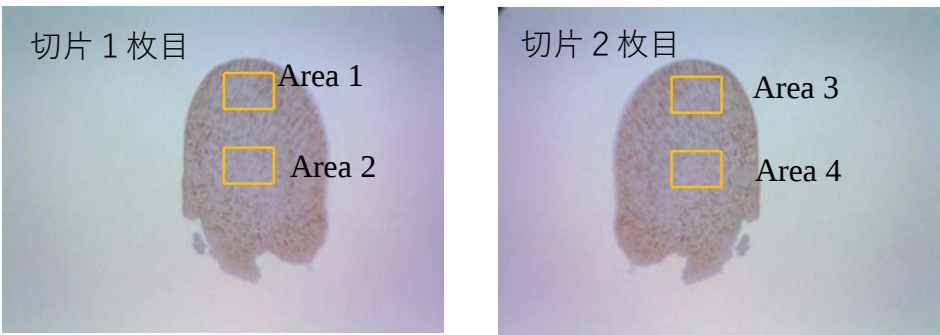


*, $P<0.05$; **, $P<0.01$; ***, $P<0.001$

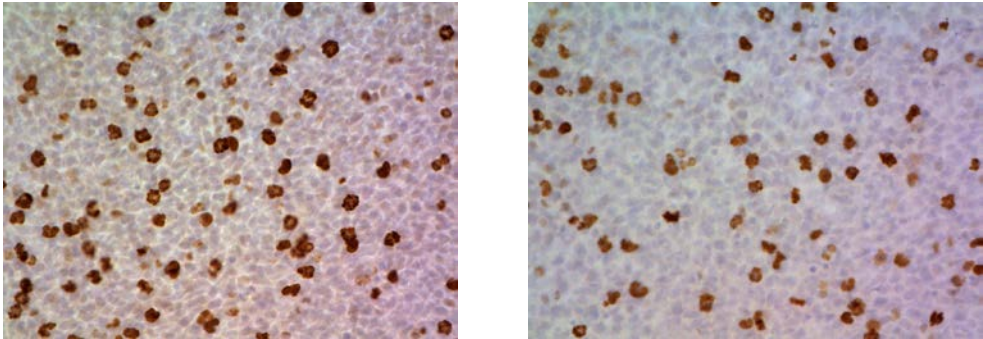
図表10 妊娠13日5-FC投与実験による細胞周期への影響
(妊娠13日胎児肢芽部)

A.画像解析方法

各胎児切片 2 枚につづ x40で撮影



B.リン酸化ヒストン3免疫染色組織像 (後肢)



対照群

5-FC群

C.リン酸化ヒストン3陽性細胞数

	胎児数 (母動物数)	陽性細胞数 (counts/mm ²)
対照群	14	891.71 ± 176.4
5-FC G13投与群	12	170.97 ± 43.5 **

** , P<0.01

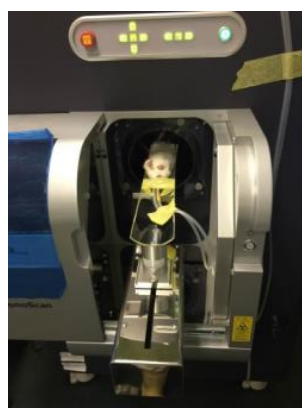
図表11 妊娠13日5-FC投与実験による細胞分裂への影響
(妊娠13.5日胎児四芽部)



三次元マイクロX線コンピュータ断層 (CT, computed tomography) 撮影装置
CosmoScan GXII (RIGAKU, Japan)



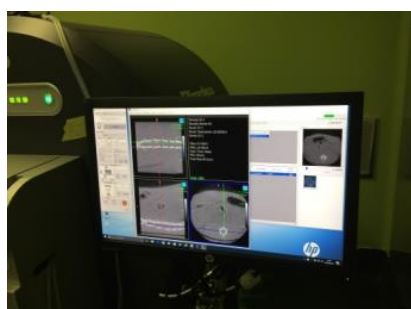
1. 麻酔



2. 動物セット



3. 撮影



4. 解析

図表12 本課題研究にて使用した動物用CT撮影装置

Group	Control	5-FC (35 mg/kg)	5-FC (75 mg/kg)
Gestation length ; days	22.0 ± 0.0	22.0 ± 0.0	22.0 ± 0.0
Number of implantations	13.8 ± 2.4	15.0 ± 2.4	14.6 ± 0.7
Day 0 of lactation			
Number of pups born	13.7 ± 2.4	13.6 ± 2.7	14.0 ± 1.4
Delivery index (pups)	99.1 ± 2.6	90.3 ± 8.1	95.6 ± 6.5
Number of live pups			
Males	7.8 ± 2.2	7.4 ± 1.9	7.6 ± 2.3
Females	5.9 ± 1.8	6.1 ± 2.2	6.0 ± 2.6
Total	13.7 ± 2.4	13.6 ± 2.7	13.6 ± 1.6
Sex ratio on day 0	56.7 ± 11.0	55.2 ± 10.8	56.5 ± 17.4
Birth index	99.1 ± 2.6	90.3 ± 8.1	93.0 ± 8.4
Live birth index	100.0 ± 0.0	100.0 ± 0.0	97.2 ± 3.8
Day 4 of lactation			
Number of live pups			
Males	7.8 ± 2.2	7.4 ± 1.9	7.6 ± 2.3
Females	5.9 ± 1.8	6.1 ± 2.2	5.8 ± 2.9
Total	13.7 ± 2.4	13.6 ± 2.7	13.4 ± 1.8
Sex ratio on day 4	56.7 ± 11.0	55.2 ± 10.8	58.1 ± 19.2
Viability index			
Males	100.0 ± 0.0	100.0 ± 0.0	100.0 ± 0.0
Females	100.0 ± 0.0	100.0 ± 0.0	92.7 ± 13.7
Total	100.0 ± 0.0	100.0 ± 0.0	98.0 ± 3.8

Not significantly different from the control group.

Delivery index (dams) = (number of pregnant females with live pups / number of pregnant females) × 100, %

Delivery index (pups) = (number of pups born / number of implantations) × 100, %

Birth index = (number of live pups on day 0 / number of implantations) × 100, %

Live birth index = (number of live pups on day 0 / number of pups born) × 100, %

Sex ratio = (number of male live pups / number of live pups) × 100, %

Viability index on day 4 of lactation = (number of live pups on day 4 / number of live pups on day 0) × 100, %

図表13 分娩状態および生存率（CT生後観察実験, 5-FC妊娠9日投与）

Group	Control	5FC (35 mg/kg)	5FC (75 mg/kg)
Number of dam	9	9	8
Postnatal day 0			
No. of offspring (male/female)	70 / 53	67 / 55	61 / 48
Body weight (g); Male	6.8 ± 0.3	6.7 ± 0.3	6.7 ± 0.4
Female	6.4 ± 0.3	6.4 ± 0.3	6.3 ± 0.5
Postnatal day 4			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	11.7 ± 1.1	11.2 ± 1.0	11.2 ± 1.1
Female	11.0 ± 1.2	10.7 ± 1.2	10.8 ± 1.0
Postnatal day 7			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	19.1 ± 1.5	18.3 ± 1.7	18.1 ± 1.9
Female	18.1 ± 1.4	17.6 ± 1.9	17.3 ± 1.7
Postnatal day 14			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	38.1 ± 1.8	37.7 ± 2.5	37.3 ± 3.5
Female	36.7 ± 1.5	36.4 ± 2.5	36.4 ± 2.7
Postnatal day 21			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	62.5 ± 3.7	61.8 ± 5.2	60.2 ± 3.3
Female	59.5 ± 2.9	59.0 ± 5.6	57.9 ± 4.4

Each value shows mean ± S.D.

Not significantly different from the control group.

図表14 哺育期間中出生児体重（CT生後観察実験, 5-FC妊娠9日投与）

Group	Control	5FC (35 mg/kg)	5FC (75 mg/kg)
Number of dam	9	9	8
4 Weeks (PD28)			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	107.8 ± 7.1	105.9 ± 9.4	106.3 ± 8.2
Female	97.1 ± 6.8	96.8 ± 9.1	96.5 ± 7.2
5 Weeks (PD35)			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	165.7 ± 11.7	164.3 ± 15.2	166.9 ± 11.8
Female	138.1 ± 10.8	139.0 ± 11.8	140.3 ± 11.0
6 Weeks (PD42)			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	230.0 ± 16.9	229.1 ± 20.3	234.2 ± 15.8
Female	174.0 ± 13.8	173.1 ± 13.6	176.5 ± 15.4
7 Weeks (PD49)			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	296.2 ± 23.0	293.8 ± 24.5	297.6 ± 20.7
Female	197.0 ± 16.2	197.8 ± 15.2	202.6 ± 17.2
8 Weeks (PD56)			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	351.0 ± 23.6	351.3 ± 26.6	360.4 ± 31.8
Female	216.9 ± 20.0	220.1 ± 17.0	227.0 ± 21.1
9 Weeks (PD60)			
No. of offspring (male/female)	36 / 36	36 / 36	34 / 30
Body weight (g); Male	380.3 ± 25.2	381.4 ± 27.6	385.4 ± 28.8
Female	227.4 ± 21.7	231.3 ± 17.7	238.3 ± 23.1

PD: Postnatal Day
Each value shows mean ± S.D.
Not significantly different from the control group.

図表15 離乳後出生児体重（CT生後観察実験, 5-FC妊娠9日投与）

A. 雄出生児

Compound			
Group	Control	5-FC (35 mg/kg)	5-FC (75 mg/kg)
Number of litters examined	9	9	8
Number of male offspring examined	36	36	34
Postnatal day of preputial separation	42.1 ± 1.3	42.3 ± 1.5	42.4 ± 1.3
Body weight (g)	229.1 ± 17.4	231.1 ± 14.9	238.0 ± 21.3

B. 雌出生児

Compound			
Group	Control	5-FC (35 mg/kg)	5-FC (75 mg/kg)
Number of litters examined	9	9	8
Number of female offspring examined	36	36	30
Postnatal day of vaginal opening	33.6 ± 2.3	33.2 ± 1.6	34.4 ± 1.8
Body weight (g)	130.1 ± 15.6	127.7 ± 13.4	135.7 ± 16.5

図表16 性成熟（CT生後観察実験, 5-FC妊娠9日投与）

Group	Control	5FC (35 mg/kg)	5FC (75 mg/kg)
Number of dam	9 / 3	7 / 6	4 / 7
Postnatal day 4			
No. of offspring (with TSR/without TSR)	31 / 5	20 / 12	10 / 24
Body weight (g); with TSR	11.6 ± 1.0	11.3 ± 1.2	11.1 ± 0.7
without TSR	11.5 ± 1.6	11.0 ± 0.8	11.3 ± 1.2
Postnatal day 7			
No. of offspring (with TSR/without TSR)	31 / 5	28 / 12	10 / 24
Body weight (g); with TSR	19.0 ± 1.5	18.5 ± 1.9	16.8 ± 1.8
without TSR	18.5 ± 2.6	18.1 ± 1.7	18.4 ± 1.9
Postnatal day 14			
No. of offspring (with TSR/without TSR)	31 / 5	28 / 12	10 / 24
Body weight (g); with TSR	38.1 ± 1.7	38.2 ± 2.6	35.6 ± 2.9
without TSR	34.7 ± 4.7	37.4 ± 2.7	37.6 ± 3.6
Postnatal day 21			
No. of offspring (with TSR/without TSR)	31 / 5	28 / 12	10 / 24
Body weight (g); with TSR	62.2 ± 3.6	63.3 ± 5.0	58.8 ± 6.8
without TSR	60.1 ± 8.3	61.8 ± 6.3	60.3 ± 3.1

TSR: Thoracolumbar supernumerary rib

Each value shows mean ± S.D.

Not significantly different from the control group.

図表17 雄出生児哺育期間中体重 (過剰肋骨の有無で集計)

Group	Control	5FC (35 mg/kg)	5FC (75 mg/kg)
Number of dam	9 / 3	8 / 6	5 / 6
Postnatal day 4			
No. of offspring (with TSR/without TSR)	32 / 4	21 / 15	11 / 19
Body weight (g); with TSR	11.0 ± 1.2	11.0 ± 1.1	11.0 ± 1.1
without TSR	11.4 ± 1.1	9.9 ± 1.4	10.9 ± 0.9
Postnatal day 7			
No. of offspring (with TSR/without TSR)	32 / 4	21 / 15	11 / 19
Body weight (g); with TSR	18.1 ± 1.4	18.1 ± 1.6	17.3 ± 1.9
without TSR	18.5 ± 1.5	16.4 ± 2.5	17.7 ± 1.6
Postnatal day 14			
No. of offspring (with TSR/without TSR)	32 / 4	21 / 15	11 / 19
Body weight (g); with TSR	36.9 ± 1.6	37.4 ± 1.8	36.6 ± 2.3
without TSR	36.2 ± 1.9	34.6 ± 3.1	36.8 ± 3.0
Postnatal day 21			
No. of offspring (with TSR/without TSR)	32 / 4	21 / 15	11 / 19
Body weight (g); with TSR	59.9 ± 3.2	60.5 ± 3.9	57.8 ± 3.4
without TSR	56.4 ± 2.0	56.8 ± 7.7	57.4 ± 4.8

TSR: Thoracolumbar supernumerary rib

Each value shows mean ± S.D.

Not significantly different from the control group.

図表18 雌出生児哺育期間中体重 (過剰肋骨の有無で集計)

Group	Control	5FC (35 mg/kg)	5FC (75 mg/kg)
Number of dam	9	9	8
4 Weeks (PD28)			
No. of offspring (Without TSR/ With TSR)	31 / 5	20 / 16	10 / 24
Body weight (g); Without TSR	107.1 ± 7.3	107.3 ± 9.2	107.3 ± 6.9
With TSR	112.2 ± 3.4	104.2 ± 9.7	105.9 ± 8.8
5 Weeks (PD35)			
No. of offspring (Without TSR/ With TSR)	31 / 5	20 / 16	10 / 24
Body weight (g); Without TSR	165.4 ± 12.4	166.1 ± 14.8	166.3 ± 12.6
With TSR	167.2 ± 7.2	161.9 ± 15.9	167.2 ± 11.7
6 Weeks (PD42)			
No. of offspring (Without TSR/ With TSR)	31 / 5	20 / 16	10 / 24
Body weight (g); Without TSR	229.2 ± 17.5	231.6 ± 19.4	232.1 ± 16.9
With TSR	235.5 ± 13.1	225.9 ± 21.7	235.1 ± 15.6
7 Weeks (PD49)			
No. of offspring (Without TSR/ With TSR)	31 / 5	20 / 16	10 / 24
Body weight (g); Without TSR	294.6 ± 23.7	295.7 ± 23.4	297.4 ± 24.3
With TSR	306.4 ± 15.4	291.4 ± 26.5	298.5 ± 19.6
8 Weeks (PD56)			
No. of offspring (Without TSR/ With TSR)	31 / 5	20 / 16	10 / 24
Body weight (g); Without TSR	348.7 ± 23.8	351.8 ± 25.8	367.7 ± 47.6
With TSR	365.6 ± 17.7	350.8 ± 28.5	357.3 ± 23.1
9 Weeks (PD60)			
No. of offspring (Without TSR/ With TSR)	31 / 5	20 / 16	10 / 24
Body weight (g); Without TSR	378.0 ± 25.4	382.4 ± 27.3	387.5 ± 37.1
With TSR	394.6 ± 20.1	380.1 ± 28.7	384.6 ± 25.4

PD: Postnatal Day

TSR: Thoracolumbar supernumerary rib

Each value shows mean ± S.D.

Not significantly different from the control group.

図表19 雄出生児離乳後体重 (過剰肋骨の有無で集計)

Group	Control	5FC (35 mg/kg)	5FC (75 mg/kg)
Number of dam	9	9	8
4 Weeks (PD28)			
No. of offspring (Without TSR/ With TSR)	32 / 4	21 / 15	11 / 19
Body weight (g); Without TSR	97.6 ± 6.5	99.0 ± 6.5	96.7 ± 6.2
With TSR	93.5 ± 9.5	93.7 ± 11.3	96.4 ± 7.8
5 Weeks (PD35)			
No. of offspring (Without TSR/ With TSR)	32 / 4	21 / 15	11 / 19
Body weight (g); Without TSR	138.8 ± 10.9	141.0 ± 9.9	141.0 ± 11.2
With TSR	132.6 ± 10.2	136.3 ± 13.9	139.8 ± 11.1
6 Weeks (PD42)			
No. of offspring (Without TSR/ With TSR)	32 / 4	21 / 15	11 / 19
Body weight (g); Without TSR	174.9 ± 14.0	173.9 ± 11.7	175.5 ± 17.5
With TSR	166.5 ± 10.1	172.0 ± 16.2	177.1 ± 14.5
7 Weeks (PD49)			
No. of offspring (Without TSR/ With TSR)	32 / 5	21 / 15	11 / 19
Body weight (g); Without TSR	198.1 ± 16.5	198.2 ± 12.5	202.0 ± 20.6
With TSR	188.0 ± 12.2	197.4 ± 18.8	202.9 ± 15.5
8 Weeks (PD56)			
No. of offspring (Without TSR/ With TSR)	32 / 4	21 / 15	11 / 19
Body weight (g); Without TSR	218.3 ± 20.4	217.9 ± 13.3	224.0 ± 25.3
With TSR	205.8 ± 12.6	223.1 ± 21.3	228.7 ± 18.8
9 Weeks (PD60)			
No. of offspring (Without TSR/ With TSR)	32 / 4	21 / 15	11 / 19
Body weight (g); Without TSR	228.9 ± 22.0	229.2 ± 13.7	238.6 ± 27.8
With TSR	215.4 ± 17.0	234.4 ± 22.3	238.2 ± 20.8

PD: Postnatal Day

TSR: Thoracolumbar supernumerary rib

Each value shows mean ± S.D.

Not significantly different from the control group.

図表20 雌出生児離乳後体重 (過剰肋骨の有無で集計)

A. 雄出生児

Males			
Groups		Untreated Control	CT scan
Number of males		6	9
RBC	10000/ μ L	723 $\pm$ 29	713 $\pm$ 15
Hemoglobin	g/dL	14.9 $\pm$ 0.4	14.6 $\pm$ 0.4
Hematocrit	%	42.9 $\pm$ 1.3	41.8 $\pm$ 1.1
MCV	fL	59.4 $\pm$ 1.9	58.6 $\pm$ 1.9
MCH	pg	20.6 $\pm$ 0.5	20.4 $\pm$ 0.4
MCHC	g/dL	34.7 $\pm$ 0.6	34.9 $\pm$ 0.8
Platelet	10000/ μ L	100.0 $\pm$ 9.8	98.4 $\pm$ 17.0
WBC	100/ μ L	98.9 $\pm$ 18.3	93.9 $\pm$ 7.6
Neutrophil	%	9.7 $\pm$ 1.9	12.6 $\pm$ 3.9
Eosinophil	%	0.8 $\pm$ 0.2	0.8 $\pm$ 0.6
Basophil	%	0.0 $\pm$ 0.1	0.1 $\pm$ 0.1
Monocyte	%	2.9 $\pm$ 0.8	2.8 $\pm$ 0.6
Lymphocyte	%	86.6 $\pm$ 2.3	83.7 $\pm$ 4.6
Reticulocyte	%	4.40 $\pm$ 0.70	4.70 $\pm$ 0.60

Each value shows mean $\pm$ S.D.

Not significantly different from the untreated control.

B. 雌出生児

Females			
Groups		Untreated Control	CT scan
Number of animals		7	9
RBC	10000/ μ L	704 $\pm$ 39	699 $\pm$ 30
Hemoglobin	g/dL	14.4 $\pm$ 0.6	14.2 $\pm$ 0.6
Hematocrit	%	40.9 $\pm$ 2.1	39.8 $\pm$ 1.7
MCV	fL	58.0 $\pm$ 1.9	56.9 $\pm$ 1.8
MCH	pg	20.4 $\pm$ 0.6	20.3 $\pm$ 0.5
MCHC	g/dL	35.2 $\pm$ 0.5	35.7 $\pm$ 0.6
Platelet	10000/ μ L	98.1 $\pm$ 9.6	98.6 $\pm$ 7.3
WBC	100/ μ L	61.3 $\pm$ 19.0	66.4 $\pm$ 11.0
Neutrophil	%	9.9 $\pm$ 3.7	10.6 $\pm$ 4.1
Eosinophil	%	1.4 $\pm$ 1.5	1.5 $\pm$ 0.9
Basophil	%	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
Monocyte	%	2.7 $\pm$ 0.6	2.5 $\pm$ 0.7
Lymphocyte	%	86.0 $\pm$ 3.9	85.4 $\pm$ 4.6
Reticulocyte	%	3.80 $\pm$ 0.60	3.40 $\pm$ 0.50

Each value shows mean $\pm$ S.D.

Not significantly different from the untreated control.

Group		Control	5FC-L	5FC-H
Number of dams		9	9	8
Number of offsprings		(18)	(18)	(16)
Body weight (g)		388.78 ± 17.00	408.76 ± 27.62 *	407.51 ± 24.84 *
Liver	(g)	16.7309 ± 1.3971	18.1245 ± 1.7757 *	18.3732 ± 1.3598 **
	(g/g)	4.3003 ± 0.2602	4.4423 ± 0.2110	4.5149 ± 0.3136
Kidneys	(g)	2.8823 ± 0.2381	3.0999 ± 0.2836 *	3.1867 ± 0.2395 **
	(g/g)	0.7421 ± 0.0639	0.7602 ± 0.0705	0.7829 ± 0.0511
Spleen	(g)	0.8620 ± 0.1586	0.8421 ± 0.1462	0.9228 ± 0.1415
	(g/g)	0.2220 ± 0.0422	0.2057 ± 0.0309	0.2266 ± 0.0324
Adrenal glands	(g)	0.0536 ± 0.0086	0.0597 ± 0.0090	0.0649 ± 0.0045 **
	(g/g)	0.0138 ± 0.0020	0.0146 ± 0.0020	0.0160 ± 0.0013 **
Thymus	(g)	0.5407 ± 0.0919	0.5354 ± 0.1147	0.5889 ± 0.1233
	(g/g)	0.1388 ± 0.0211	0.1308 ± 0.0252	0.1444 ± 0.0280
Testis	(g)	3.0482 ± 0.1620	3.2176 ± 0.2695	3.2088 ± 0.2443
	(g/g)	0.7852 ± 0.0491	0.7894 ± 0.0730	0.7897 ± 0.0715
Epididymis	(g)	0.7849 ± 0.0527	0.8131 ± 0.0471	0.7896 ± 0.0691
	(g/g)	0.2020 ± 0.0127	0.1994 ± 0.0117	0.1945 ± 0.0215

Each value shows mean ± S.D.
 Figures in parentheses indicate number of animals
 Significantly different from the control group (*: P<0.05, **: P<0.01).

図表22 器官重量（生後9週雄出生児）

Group		Control	5FC-L	5FC-H
Number of dums		9	9	8
Number of offsprings		(18)	(18)	(16)
Body weight (g)		234.62 ± 23.83	242.37 ± 19.53	241.14 ± 22.12
Liver	(g)	9.4561 ± 1.4878	9.8135 ± 1.2000	9.8917 ± 1.2980
	(g/g)	4.0125 ± 0.2796	4.0447 ± 0.3014	4.0901 ± 0.2197
Kidneys	(g)	1.9136 ± 0.2083	1.9781 ± 0.2099	1.9602 ± 0.1829
	(g/g)	0.8163 ± 0.0508	0.8179 ± 0.0803	0.8136 ± 0.0382
Spleen	(g)	0.5571 ± 0.0789	0.6006 ± 0.1143	0.6161 ± 0.1169
	(g/g)	0.2381 ± 0.0295	0.2484 ± 0.0459	0.2554 ± 0.0432
Adrenal glands	(g)	0.0695 ± 0.0106	0.0690 ± 0.0108	0.0740 ± 0.0086
	(g/g)	0.0297 ± 0.0041	0.0286 ± 0.0046	0.0307 ± 0.0028
Thymus	(g)	0.4402 ± 0.0818	0.4251 ± 0.0655	0.4795 ± 0.1093
	(g/g)	0.1873 ± 0.0286	0.1762 ± 0.0304	0.1993 ± 0.0445
Ovary	(g)	0.0914 ± 0.0198	0.0911 ± 0.0189	0.0957 ± 0.0116
	(g/g)	0.0392 ± 0.0088	0.0375 ± 0.0064	0.0401 ± 0.007
Uterus	(g)	0.4164 ± 0.1639	0.5400 ± 0.1679 *	0.3978 ± 0.0983
	(g/g)	0.1793 ± 0.0704	0.2231 ± 0.0682	0.1659 ± 0.0422

Each value shows mean ± S.D.
Figures in parentheses indicate number of animals
Significantly different from the control group (*: P<0.05).

図表23 器官重量（生後9週雌出生児）

1. 3D 画像



肋骨の形態観察

2. MIP 画像 (MIP, maximum intensity projection)

肋骨長の測定(ratio of 14th rib to 13th rib)

図表24 CT画像からの解析方法

1. 3D 画像



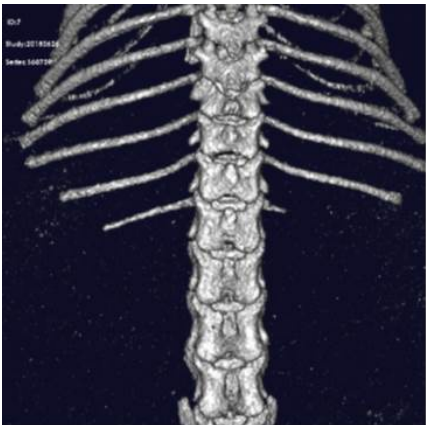
PND4



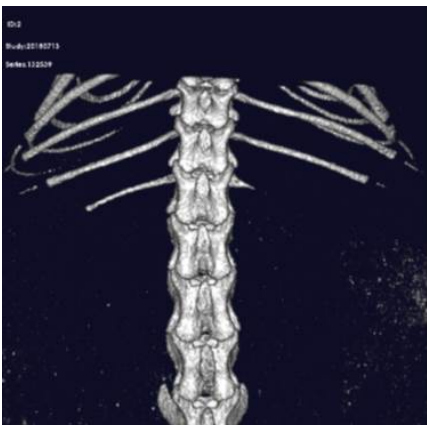
PND14



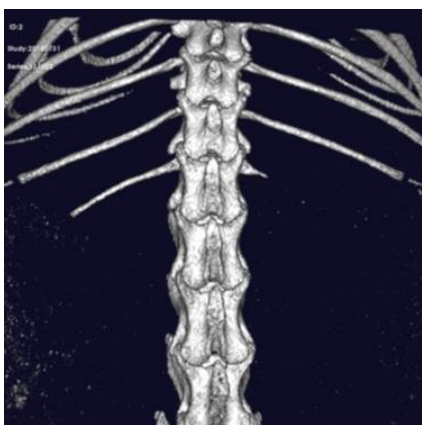
PND26



PND35 (pre-puberty)



PND43 (after-puberty)



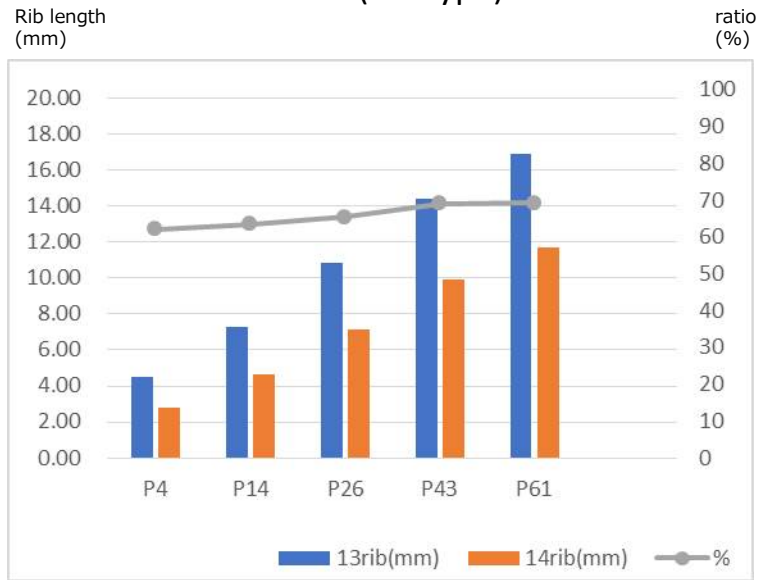
PND61

Animal no.5FC-H2, F7
Left side: full type
Right side: short type

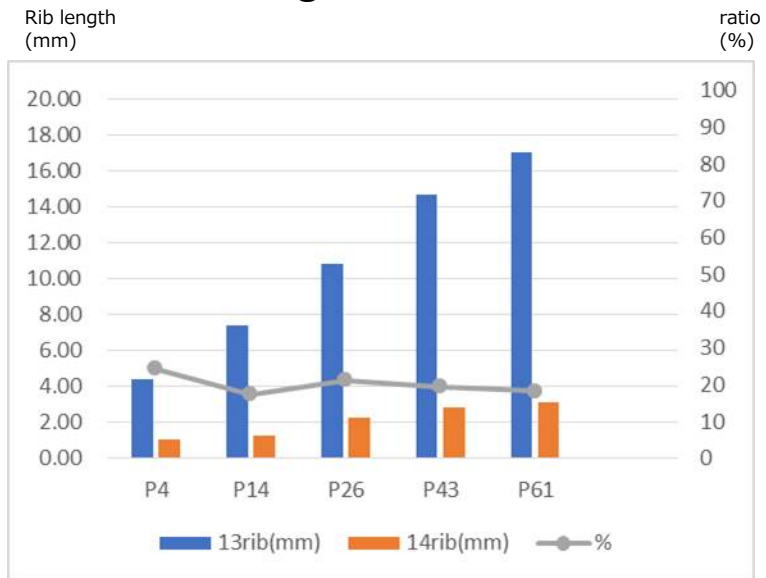
PND4 = 生後4日（分娩日 = 生後0日）

図表25 同一個体における過剰肋骨の推移（3D画像）

Left (full type)



Right (short type)



Animal no.5FC-H2, F7

Left side: full type

Right side: short type

図表26 同一個体における過剰肋骨の推移

(MIP画像からの解析：第13肋骨および第14肋骨長および第13肋骨に対する第14肋骨の割合)

Group	Control				5FC-L				5FC-H			
Number of dams	9				9				8			
No. of male offspring examined (pre- culling)	(70)				(62)				(61)			
Male offspring showing TSR (pre-culling)	8.5	±	20.1	(7)	30.6	±	32.0	(19)	61.0	±	33.0	*(24) *
P4 (pre-culling)												
Rudimentary	11.6	±	21.3	(9)	26.2	±	20.5	(18)	44.4	±	27.9	*(28) *
Short	0.0	±	0.0	(0)	4.2	±	9.6	(3)	10.2	±	13.0	(6)
Full	0.0	±	0.0	(0)	3.2	±	6.3	(2)	12.5	±	23.1	(7)
Offspring for CT examination (after culling)												
No. of male offspring examined	36				36				34			
Male offspring showing TSR	13.9	±	22.0	(5)	44.4	±	42.9	(16)	67.3	±	41.3	*(24)
P4												
Rudimentary	13.9	±	22.0	(5)	33.3	±	30.6	(12)	60.0	±	36.7	*(21) *
Short	0.0	±	0.0	(0)	5.6	±	11.0	(2)	12.5	±	26.7	(4)
Full	0.0	±	0.0	(0)	5.6	±	11.0	(2)	11.5	±	24.0	(5)
P14												
Rudimentary	13.9	±	22.0	(5)	33.3	±	30.6	(12)	60.0	±	36.7	*(21) *
Short	0.0	±	0.0	(0)	5.6	±	11.0	(2)	12.5	±	26.7	(4)
Full	0.0	±	0.0	(0)	5.6	±	11.0	(2)	11.5	±	24.0	(5)
P26												
Rudimentary	13.9	±	22.0	(5)	33.3	±	30.6	(12)	60.0	±	36.7	*(21) *
Short	0.0	±	0.0	(0)	5.6	±	11.0	(2)	12.5	±	26.7	(4)
Full	0.0	±	0.0	(0)	5.6	±	11.0	(2)	11.5	±	24.0	(5)
P35												
Rudimentary	13.9	±	22.0	(5)	33.3	±	30.6	(12)	60.0	±	36.7	*(21) *
Short	0.0	±	0.0	(0)	5.6	±	11.0	(2)	12.5	±	26.7	(4)
Full	0.0	±	0.0	(0)	5.6	±	11.0	(2)	11.5	±	24.0	(5)
P53												
Rudimentary	13.9	±	22.0	(5)	33.3	±	30.6	(12)	60.0	±	36.7	*(21) *
Short	0.0	±	0.0	(0)	5.6	±	11.0	(2)	12.5	±	26.7	(4)
Full	0.0	±	0.0	(0)	5.6	±	11.0	(2)	11.5	±	24.0	(5)
P60												
Rudimentary	13.9	±	22.0	(5)	33.3	±	30.6	(12)	60.0	±	36.7	*(21) *
Short	0.0	±	0.0	(0)	5.6	±	11.0	(2)	12.5	±	26.7	(4)
Full	0.0	±	0.0	(0)	5.6	±	11.0	(2)	11.5	±	24.0	(5)

Short, less than half the length of the 13th thoracic rib; Full, half or greater than half the length of the thoracic 13th rib.

Value, Mean ±SD (n)

*, significantly different from the control group at p<0.05

図表27 雄出生児の過剰肋骨発現頻度

Group	Control				5FC-L				5FC-H							
Number of dams	9				9				8							
No. of offspring examined	female offspring (pre-culling)				53				55				46			
Female offspring showing TSR (pre-culling)		7.4	±	16.9	(3)	33.0	±	34.4	(16)	63.5	±	36.9	*	(29)	*	
P4 (pre-culling)																
Rudimentary		7.4	±	16.9	(3)	27.9	±	18.6	(15) #	53.1	±	25.5	*	(27)	*	
Short		0.0	±	0.0	(0)	16.1	±	27.8	(6)	13.8	±	18.7		(4)		
Full		0.0	±	0.0	(0)	2.8	±	8.3	(1)	16.9	±	18.2		(5)		
Offspring for CT examination (after culling)																
No. of offspring examined	female offspring				36				36				30			
Female offspring showing TSR		8.3	±	17.7	(3)	33.3	±	37.5	(12)	65.2	±	42.2	*	(19)	*	
P4																
Rudimentary		8.3	±	17.7	(3)	25.0	±	25.0	(9)	48.5	±	36.4	*	(15)	*	
Short		0.0	±	0.0	(0)	16.7	±	28.0	(6)	16.7	±	19.4		(4)		
Full		0.0	±	0.0	(0)	2.8	±	8.3	(1)	16.7	±	19.4		(4)		
P14																
Rudimentary		8.3	±	17.7	(3)	25.0	±	25.0	(9)	48.5	±	36.4	*	(15)	*	
Short		0.0	±	0.0	(0)	16.7	±	28.0	(6)	16.7	±	19.4		(4)		
Full		0.0	±	0.0	(0)	2.8	±	8.3	(1)	16.7	±	19.4		(4)		
P26																
Rudimentary		8.3	±	17.7	(3)	25.0	±	25.0	(9)	48.5	±	36.4	*	(15)	*	
Short		0.0	±	0.0	(0)	16.7	±	28.0	(6)	16.7	±	19.4		(4)		
Full		0.0	±	0.0	(0)	2.8	±	8.3	(1)	16.7	±	19.4		(4)		
P43																
Rudimentary		8.3	±	17.7	(4)	25.0	±	25.0	(9)	48.5	±	36.4	*	(15)	*	
Short		0.0	±	0.0	(0)	16.7	±	28.0	(6)	16.7	±	19.4		(4)		
Full		0.0	±	0.0	(0)	2.8	±	8.3	(1)	16.7	±	19.4		(4)		
P61																
Rudimentary		8.3	±	17.7	(4)	25.0	±	25.0	(9)	48.5	±	36.4	*	(15)	*	
Short		0.0	±	0.0	(0)	16.7	±	28.0	(6)	16.7	±	19.4		(4)		
Full		0.0	±	0.0	(0)	2.8	±	8.3	(1)	16.7	±	19.4		(4)		

Short, less than half the length of the 13th thoracic rib; Full, half or greater than half the length of the thoracic 13th rib.

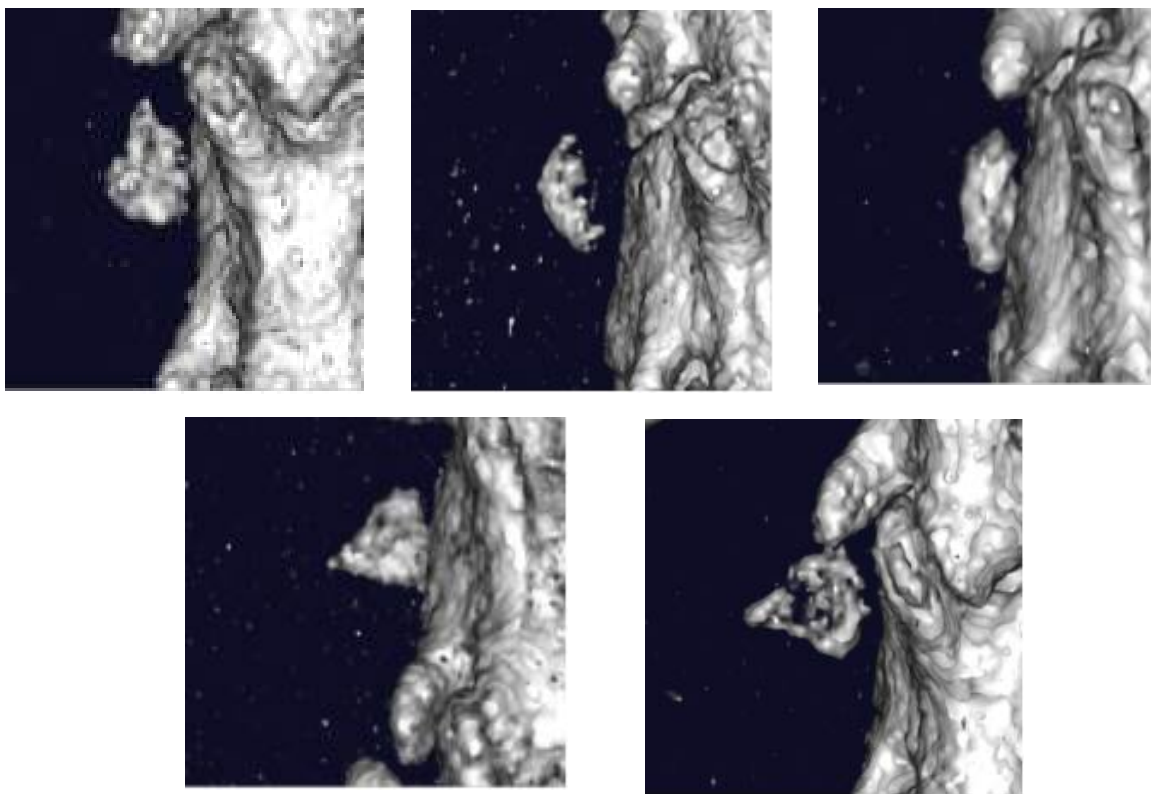
Value, Mean ± SD (n)

*, significantly different from the control group at p<0.05

#, significantly different from the 5FC-H group at p<0.05

図表28 雌出生児の過剰肋骨発現頻度

A. 多様な型を示す痕跡型



B. 椎骨との癒合率*

	雄		雌	
	%	癒合/痕跡型a (腹数)	%	癒合/痕跡型 (腹数)
対照群	37.5%	3/8 (4)	57.1%	4/7 (2)
5FC-L群	26.3%	5/19 (6)	23.5%	4/17 (6)
5FC-H群	21.7%	10/46 (8)	30.0%	6/20 (6)

*, 画像上、過剰肋骨と椎骨との境界が不明瞭なものも癒合と判断した。
a, 認められた痕跡型過剰肋骨のうち、椎骨と癒合していた割合を示した。

図表29 多様な痕跡型の過剰肋骨

第13肋骨長の左右差(雄)

[14rib所見がみられない個体の右側の13rib長] vs [14rib所見がみられない個体の左側の13rib長]

Group: Control, Male

Rib No.	13th rib (mm)					
Side	Right			Left		
Postnatal day						
P4	3.44	±	0.45	(33)	3.34	± 0.49 (33)
P14	6.35	±	0.63	(33)	6.18	± 0.56 (31)
P26	9.30	±	0.76	(33)	8.90	± 0.73 (28) *
P35	11.71	±	0.95	(33)	11.34	± 0.93 (28)
P53	15.61	±	1.19	(33)	15.16	± 1.17 (28)
P60	16.59	±	1.27	(33)	16.13	± 1.30 (28)

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the right side (*: P<0.05).

Group: 5FC-L, Male

Rib No.	13th rib (mm)					
Side	Right			Left		
Postnatal day						
P4	3.93	±	0.30	(25)	3.90	± 0.37 (24)
P14	6.63	±	0.51	(25)	6.66	± 0.54 (21)
P26	9.78	±	0.74	(25)	9.74	± 0.69 (21)
P35	12.07	±	0.88	(23)	11.99	± 0.82 (21)
P53	16.08	±	1.10	(21)	15.85	± 1.06 (21)
P60	17.08	±	1.19	(21)	16.88	± 1.15 (21)

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Not significantly different from the right side.

Group: 5FC-H, Male

Rib No.	13th rib (mm)					
Side	Right			Left		
Postnatal day						
P4	4.13	±	0.41	(14)	3.83	± 0.21 (10) *
P14	6.91	±	0.65	(12)	6.51	± 0.37 (10)
P26	10.19	±	0.71	(10)	9.56	± 0.33 (10) *
P35	12.47	±	0.99	(10)	12.04	± 0.62 (9)
P53	16.60	±	1.34	(9)	16.21	± 1.03 (8)
P60	17.64	±	1.43	(9)	17.17	± 1.00 (8)

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the right side group (*: P<0.05).

図表30 第13肋骨長左右差（雄出生児）

過剰肋骨の存在による第13肋骨長への影響(対照群)

[14rib所見がみられない個体の13rib長] vs [14rib所見 (a+b+c) がみられた個体の13rib長]

Group: Control, Male

Rib No.	13th rib (mm), Right side							N数 (a+b+c)	
Finding (14th rib)	-			a, b, c					
Postnatal day									
P4	3.44	±	0.45	(33)	3.92	±	0.52	(3)	3 = 3+0+0
P14	6.35	±	0.63	(33)	7.02	±	0.27	(3)	3 = 3+0+0
P26	9.30	±	0.76	(33)	10.15	±	0.62	(3)	3 = 3+0+0
P35	11.71	±	0.95	(33)	13.02	±	0.73	(3) *	3 = 3+0+0
P53	15.61	±	1.19	(33)	17.62	±	0.90	(3) **	3 = 3+0+0
P60	16.59	±	1.27	(33)	18.12	±	1.05	(3)	3 = 3+0+0

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the group without the 14th rib (*: P<0.05, **: P<0.01).

Group: Control, Male

Rib No.	13th rib (mm), Left side							N数 (a+b+c)	
Finding (14th rib)	-			a, b, c					
Postnatal day									
P4	3.34	±	0.49	(33)	3.82	±	0.14	(3)	3 = 3+0+0
P14	6.18	±	0.56	(31)	7.02	±	0.25	(5) **	5 = 5+0+0
P26	8.90	±	0.73	(28)	9.94	±	0.27	(8) **	8 = 8+0+0
P35	11.34	±	0.93	(28)	12.66	±	0.55	(8) **	8 = 8+0+0
P53	15.16	±	1.17	(28)	16.69	±	0.65	(8) **	8 = 8+0+0
P60	16.13	±	1.30	(28)	17.72	±	0.80	(8) **	8 = 8+0+0

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the group without the 14th rib (**: P<0.01).

Group: Control, Male

Rib No.	13th rib (mm), Both sides								
Finding (14th rib)	-			a, b, c					
Postnatal day								N数 (a+b+c)	
P4	3.39	±	0.47	(66)	3.87	±	0.34	(6) *	6 = 6+0+0
P14	6.27	±	0.60	(64)	7.02	±	0.24	(8) **	8 = 8+0+0
P26	9.12	±	0.77	(61)	10.00	±	0.37	(11) **	11 = 11+0+0
P35	11.54	±	0.95	(61)	12.76	±	0.59	(11) **	11 = 11+0+0
P53	15.40	±	1.19	(61)	16.94	±	0.81	(11) **	11 = 11+0+0
P60	16.38	±	1.29	(61)	17.83	±	0.84	(11) **	11 = 11+0+0

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the group without the 14th rib (*: P<0.05, **: P<0.01).

図表31 過剰肋骨存在下による第13肋骨長 (雄出生児、対照群)

過剰肋骨の存在による第13肋骨長への影響(5FC-L群)

[14rib所見がみられない個体の13rib長] vs [14rib所見 (a+b+c) がみられた個体の13rib長]

Group: 5FC-L, Male

Rib No.	13th rib (mm), Right side							N数 (a+b+c)	
Finding (14th rib)	-			a, b, c					
Postnatal day									
P4	3.93	±	0.30	(25)	4.35	±	0.30	(11) **	11 = 8+1+2
P14	6.63	±	0.51	(25)	7.38	±	0.46	(11) **	11 = 8+1+2
P26	9.78	±	0.74	(25)	10.94	±	0.50	(11) **	11 = 8+1+2
P35	12.07	±	0.88	(23)	13.44	±	0.79	(13) **	13 = 10+1+2
P53	16.08	±	1.10	(21)	17.51	±	1.13	(15) **	15 = 12+1+2
P60	17.08	±	1.19	(21)	18.53	±	1.15	(15) **	15 = 12+1+2

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the group without the 14th rib (**: P<0.01).

Group: 5FC-L, Male

Rib No.	13th rib (mm), Left side							N数 (a+b+c)	
Finding (14th rib)	-			a, b, c					
Postnatal day									
P4	3.90	±	0.37	(24)	4.36	±	0.29	(12) **	12 = 8+2+2
P14	6.66	±	0.54	(21)	7.22	±	0.60	(15) **	15 = 11+2+2
P26	9.74	±	0.69	(21)	10.48	±	0.67	(15) **	15 = 11+2+2
P35	11.99	±	0.82	(21)	13.06	±	0.82	(15) **	15 = 11+2+2
P53	15.85	±	1.06	(21)	17.38	±	1.08	(15) **	15 = 11+2+2
P60	16.88	±	1.15	(21)	18.48	±	1.09	(15) **	15 = 11+2+2

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the group without the 14th rib (**: P<0.01).

Group: 5FC-L, Male

Rib No.	13th rib (mm), Both sides							N数 (a+b+c)	
Finding (14th rib)	-			a, b, c					
Postnatal day									
P4	3.91	±	0.33	(49)	4.35	±	0.29	(23) **	23 = 16+3+4
P14	6.65	±	0.52	(46)	7.29	±	0.54	(26) **	26 = 19+3+4
P26	9.76	±	0.71	(46)	10.68	±	0.64	(26) **	26 = 19+3+4
P35	12.03	±	0.84	(44)	13.24	±	0.81	(28) **	28 = 21+3+4
P53	15.96	±	1.07	(42)	17.44	±	1.09	(30) **	30 = 23+3+4
P60	16.98	±	1.16	(42)	18.51	±	1.10	(30) **	30 = 23+3+4

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the group without the 14th rib (**: P<0.01).

図表32 過剰肋骨存在下の第13肋骨長（雄出生児、5FC-L群）

過剰肋骨の存在による第13肋骨長への影響(5FC-H群)

[14rib所見がみられない個体の13rib長] vs [14rib所見 (a+b+c) がみられた個体の13rib長]

Group: 5FC-H, Male

Rib No.	13th rib (mm), Right side							N数 (a+b+c)	
Finding (14th rib)	-			a, b, c					
Postnatal day									
P4	4.13	±	0.41	(14)	4.58	±	0.40	(20) **	20 = 14+3+3
P14	6.91	±	0.65	(12)	7.69	±	0.66	(22) **	22 = 16+3+3
P26	10.19	±	0.71	(10)	11.17	±	0.81	(24) **	24 = 18+3+3
P35	12.47	±	0.99	(10)	13.97	±	0.82	(24) **	24 = 18+3+3
P53	16.60	±	1.34	(9)	18.27	±	1.21	(25) **	25 = 19+3+3
P60	17.64	±	1.43	(9)	19.44	±	1.22	(25) **	25 = 19+3+3

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the group without the 14th rib (**: P<0.01).

Group: 5FC-H, Male

Rib No.	13th rib (mm), Left side							N数 (a+b+c)
Finding (14th rib)	-			a, b, c				
Postnatal day								
P4	3.83	± 0.21	(10)	4.55	± 0.36	(24)	**	24 = 15+5+4
P14	6.51	± 0.37	(10)	7.62	± 0.53	(24)	**	24 = 15+5+4
P26	9.56	± 0.33	(10)	11.06	± 0.66	(24)	**	24 = 15+5+4
P35	12.04	± 0.62	(9)	13.65	± 0.89	(25)	**	25 = 16+5+4
P53	16.21	± 1.03	(8)	18.06	± 1.22	(26)	**	26 = 17+5+4
P60	17.17	± 1.00	(8)	19.21	± 1.29	(26)	**	26 = 17+5+4

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the group without the 14th rib (**: P<0.01).

Group: 5FC-H, Male

Rib No.	13th rib (mm), Both sides							N数 (a+b+c)	
Finding (14th rib)	-			a, b, c					
Postnatal day									
P4	4.01	±	0.37	(24)	4.57	±	0.37	(44) **	44 = 29+8+7
P14	6.73	±	0.57	(22)	7.65	±	0.59	(46) **	46 = 31+8+7
P26	9.88	±	0.63	(20)	11.11	±	0.74	(48) **	48 = 33+8+7
P35	12.26	±	0.84	(19)	13.80	±	0.87	(49) **	49 = 34+8+7
P53	16.42	±	1.18	(17)	18.17	±	1.21	(51) **	51 = 36+8+7
P60	17.42	±	1.23	(17)	19.32	±	1.25	(51) **	51 = 36+8+7

Each value shows mean (mm) ± S.D.

Figures in parentheses indicate number of ribs.

Significantly different from the group without the 14th rib (**: P<0.01).

図表33 過剰肋骨存在下の第13肋骨長（雄出生児、5FC-H群）

痕跡型(Type a)過剰肋骨を有する雄出生児の第13肋骨長
 [14rib所見(a)がみられたControl群の13rib長] vs [同条件5FC-L群の13rib長]、[同条件5FC-H群の13rib長]

Finding of the 14th rib: "a", Male							
Rib No.	13th rib (mm), Right side						
Group	Control		5FC-L		5FC-H		
Postnatal day							
P4	3.92	± 0.52 (3)	4.30	± 0.34 (8)	4.50	± 0.39 (14)	
P14	7.02	± 0.27 (3)	7.37	± 0.53 (8)	7.59	± 0.68 (16)	
P26	10.15	± 0.62 (3)	10.97	± 0.49 (8)	11.22	± 0.92 (18)	
P35	13.02	± 0.73 (3)	13.39	± 0.84 (10)	13.96	± 0.91 (18)	
P53	17.62	± 0.90 (3)	17.40	± 1.20 (12)	18.26	± 1.36 (19)	
P60	18.12	± 1.05 (3)	18.46	± 1.27 (12)	19.49	± 1.39 (19)	

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Not significantly different from the controls.

Finding of the 14th rib: "a", Male							
Rib No.	13th rib (mm), Left side						
Group	Control		5FC-L		5FC-H		
Postnatal day							
P4	3.82	± 0.14 (3)	4.33	± 0.29 (8)	4.53	± 0.38 (15) **	
P14	7.02	± 0.25 (5)	7.09	± 0.60 (11)	7.59	± 0.63 (15)	
P26	9.94	± 0.27 (8)	10.38	± 0.72 (11)	11.11	± 0.84 (15) **	
P35	12.66	± 0.55 (8)	12.92	± 0.88 (11)	13.62	± 1.11 (16) *	
P53	16.69	± 0.65 (8)	17.20	± 1.19 (11)	17.93	± 1.48 (17)	
P60	17.72	± 0.80 (8)	18.23	± 1.15 (11)	19.02	± 1.55 (17)	

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the control group (*: P<0.05, **: P<0.01).

Finding of the 14th rib: "a", Male							
Rib No.	13th rib (mm), Both sides						
Group	Control		5FC-L		5FC-H		
Postnatal day							
P4	3.87	± 0.34 (6)	4.31	± 0.31 (16) *	4.51	± 0.38 (29) **	
P14	7.02	± 0.24 (8)	7.21	± 0.58 (19)	7.59	± 0.65 (31) *	
P26	10.00	± 0.37 (11)	10.63	± 0.68 (19) *	11.17	± 0.87 (33) **	
P35	12.76	± 0.59 (11)	13.14	± 0.87 (21)	13.80	± 1.01 (34) **	
P53	16.94	± 0.81 (11)	17.31	± 1.17 (23)	18.10	± 1.41 (36) *	
P60	17.83	± 0.84 (11)	18.35	± 1.19 (23)	19.27	± 1.46 (36) **	

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the control group (*: P<0.05, **: P<0.01).

図表34 痕跡型過剰肋骨(Type a)存在下の第13肋骨長（雄出生児）

痕跡型(Type a)過剰肋骨の長さ(第14肋骨)
[14rib所見(a)がみられたControl群の14rib長] vs [同条件5FC-L群の14rib長]、[同条件5FC-H群の14rib長]

Finding of the 14th rib: "a", Male

Rib No.	14th rib (mm), Right side											
Group	Control				5FC-L		5FC-H					
Postnatal day												
P4	0.39	±	0.00	(2)	0.36	±	0.15	(8)	0.33	±	0.14	(14)
P14	0.52	±	0.13	(3)	0.54	±	0.15	(8)	0.55	±	0.18	(16)
P26	1.24	±	0.33	(3)	1.09	±	0.33	(8)	0.98	±	0.26	(16)
P35	1.69	±	0.31	(3)	1.19	±	0.58	(10)	1.47	±	0.26	(16)
P53	2.50	±	0.66	(2)	1.72	±	0.68	(12)	1.87	±	0.76	(16)
P60	3.37			(1)	1.98	±	0.73	(11)	1.98	±	0.81	(13)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between three groups.

Finding of the 14th rib: "a", Male

Rib No.	14th rib (mm), Left side							
Group	Control				5FC-L		5FC-H	
Postnatal day								
P4	0.23		(1)	0.47	± 0.10	(8)	0.48	± 0.14 (14)
P14	0.44	± 0.17	(4)	0.58	± 0.18	(11)	0.67	± 0.17 (15)
P26	0.71	± 0.42	(7)	0.98	± 0.20	(11)	0.95	± 0.26 (15)
P35	1.11	± 0.43	(7)	1.37	± 0.33	(11)	1.42	± 0.35 (16)
P53	1.68	± 0.60	(7)	2.12	± 0.47	(11)	2.19	± 0.67 (15)
P60	1.96	± 0.63	(6)	2.45	± 0.38	(10)	2.18	± 0.67 (15)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between three groups.

Finding of the 14th rib: "a", Male

Rib No.	14th rib (mm), Both sides											
Group	Control				5FC-L		5FC-H					
Postnatal day												
P4	0.34	±	0.09	(3)	0.42	±	0.14	(16)	0.40	±	0.16	(28)
P14	0.47	±	0.14	(7)	0.56	±	0.17	(19)	0.61	±	0.18	(31)
P26	0.87	±	0.46	(10)	1.03	±	0.26	(19)	0.96	±	0.26	(31)
P35	1.29	±	0.47	(10)	1.28	±	0.46	(21)	1.44	±	0.31	(32)
P53	1.86	±	0.68	(9)	1.91	±	0.61	(23)	2.02	±	0.72	(31)
P60	2.16	±	0.78	(7)	2.21	±	0.63	(21)	2.09	±	0.73	(28)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between three groups.

図表35 痕跡型過剰肋骨(Type a)長の推移 (雄出生児)

第13肋骨に対する過剰肋骨の比率(痕跡型)
Male、群間差(a)比率:[14rib所見(a)がみられたControl群の比率(14rib/13rib)] vs [同条件5FC-L群の比率(14rib/13rib)],
[同条件5FC-H群の比率(14rib/13rib)]

Finding of the 14th rib: "a", Male							
Rib No.	Rate (14th rib/13th rib, %), Right side						
Group	Control			5FC-L		5FC-H	
Postnatal day							
P4	9.36	± 0.76	(2)	8.29	± 2.92	(8)	7.20 ± 2.72 (14)
P14	7.34	± 1.71	(3)	7.30	± 2.09	(8)	7.23 ± 2.12 (16)
P26	12.30	± 3.49	(3)	9.99	± 3.01	(8)	8.68 ± 2.24 (16)
P35	12.94	± 1.89	(3)	8.83	± 4.27	(10)	10.52 ± 1.85 (16)
P53	14.10	± 2.76	(2)	9.82	± 3.82	(12)	10.05 ± 4.09 (16)
P60	17.53		(1)	10.67	± 4.05	(11)	9.92 ± 3.77 (13)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between three groups.

Finding of the 14th rib: "a", Male							
Rib No.	Rate (14th rib/13th rib, %), Left side						
Group	Control		5FC-L		5FC-H		
Postnatal day							
P4	6.22	(1)	10.82	± 2.25 (8)	10.65	± 3.24 (14)	
P14	6.20	± 2.14 (4)	8.16	± 2.14 (11)	8.83	± 2.24 (15)	
P26	7.01	± 4.15 (7)	9.42	± 1.42 (11)	8.60	± 2.44 (15)	
P35	8.69	± 2.96 (7)	10.53	± 2.25 (11)	10.43	± 2.68 (16)	
P53	9.96	± 3.19 (7)	12.29	± 2.41 (11)	12.02	± 3.78 (15)	
P60	10.91	± 3.22 (6)	13.40	± 1.82 (10)	11.27	± 3.40 (15)	

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between three groups.

Finding of the 14th rib: "a", Male							
Rib No.	Rate (14th rib/13th rib, %), Both sides						
Group	Control			5FC-L		5FC-H	
Postnatal day							
P4	8.31	± 1.89	(3)	9.56	± 2.84	(16)	8.93 ± 3.42 (28)
P14	6.69	± 1.90	(7)	7.80	± 2.11	(19)	8.01 ± 2.29 (31)
P26	8.60	± 4.55	(10)	9.66	± 2.17	(19)	8.64 ± 2.30 (31)
P35	9.96	± 3.30	(10)	9.72	± 3.39	(21)	10.47 ± 2.27 (32)
P53	10.88	± 3.45	(9)	11.00	± 3.40	(23)	11.01 ± 4.00 (31)
P60	11.85	± 3.86	(7)	11.97	± 3.41	(21)	10.65 ± 3.57 (28)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between three groups.

図表36 第13肋骨長に対する痕跡型過剰肋骨(Type a)長の割合
(雄出生児)

短小型(Type b)過剰肋骨を有する雄出生児の第13肋骨長
[14rib所見(b)がみられたControl群の13rib長] vs [同条件5FC-L群の13rib長]、[同条件5FC-H群の13rib長]

Finding of the 14th rib: "b", Male

Rib No.	13th rib (mm), Right side					
Group	Control	5FC-L			5FC-H	
Postnatal day						
P4	(0)	4.48	(1)		4.65 ± 0.47	(3)
P14	(0)	7.34	(1)		7.78 ± 0.75	(3)
P26	(0)	10.47	(1)		10.80 ± 0.44	(3)
P35	(0)	13.16	(1)		13.68 ± 0.61	(3)
P53	(0)	17.87	(1)		17.92 ± 0.50	(3)
P60	(0)	18.67	(1)		19.14 ± 0.51	(3)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Male

Rib No.	13th rib (mm), Left side					
Group	Control	5FC-L			5FC-H	
Postnatal day						
P4	(0)	4.41 ± 0.03	(2)		4.69 ± 0.37	(5)
P14	(0)	7.35 ± 0.08	(2)		7.60 ± 0.31	(5)
P26	(0)	10.60 ± 0.19	(2)		10.97 ± 0.18	(5)
P35	(0)	13.42 ± 0.41	(2)		13.77 ± 0.23	(5)
P53	(0)	17.73 ± 0.18	(2)		18.44 ± 0.43	(5)
P60	(0)	19.04 ± 0.35	(2)		19.67 ± 0.49	(5)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Male

Rib No.	13th rib (mm), Both sides					
Group	Control	5FC-L			5FC-H	
Postnatal day						
P4	(0)	4.43 ± 0.05	(3)		4.67 ± 0.38	(8)
P14	(0)	7.34 ± 0.06	(3)		7.67 ± 0.47	(8)
P26	(0)	10.55 ± 0.15	(3)		10.91 ± 0.29	(8)
P35	(0)	13.33 ± 0.33	(3)		13.73 ± 0.37	(8)
P53	(0)	17.78 ± 0.15	(3)		18.25 ± 0.50	(8)
P60	(0)	18.91 ± 0.32	(3)		19.47 ± 0.54	(8)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between the 5FC-L and 5FC-H groups.

図表37 短小型過剰肋骨(Type b)を有する第13肋骨長（雄出生児）

短小型(Type b)過剰肋骨長(雄出生児)
Male、群間差(b)14rib:[14rib所見(b)がみられた5FC-L群の14rib長] vs [同条件5FC-H群の14rib長]

Finding of the 14th rib: "b", Male						
Rib No.	14th rib (mm), Right side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	1.00	(1)	1.38 ± 0.56	(3)	
P14	(0)	1.27	(1)	1.82 ± 0.71	(3)	
P26	(0)	2.09	(1)	2.63 ± 1.23	(3)	
P35	(0)	2.49	(1)	3.35 ± 1.75	(3)	
P53	(0)	3.28	(1)	4.52 ± 2.37	(3)	
P60	(0)	3.46	(1)	4.66 ± 2.24	(3)	

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Male						
Rib No.	14th rib (mm), Left side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	0.72 ± 0.16	(2)	0.83 ± 0.18	(5)	
P14	(0)	0.99 ± 0.41	(2)	1.30 ± 0.36	(5)	
P26	(0)	2.07 ± 0.02	(2)	1.75 ± 0.55	(5)	
P35	(0)	2.44 ± 0.54	(2)	2.20 ± 0.80	(5)	
P53	(0)	3.41 ± 0.06	(2)	2.96 ± 0.86	(5)	
P60	(0)	3.61 ± 0.34	(2)	3.05 ± 1.01	(5)	

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Male						
Rib No.	14th rib (mm), Both sides					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	0.81 ± 0.20	(3)	1.04 ± 0.43	(8)	
P14	(0)	1.08 ± 0.33	(3)	1.50 ± 0.54	(8)	
P26	(0)	2.07 ± 0.02	(3)	2.08 ± 0.90	(8)	
P35	(0)	2.45 ± 0.39	(3)	2.63 ± 1.26	(8)	
P53	(0)	3.37 ± 0.09	(3)	3.55 ± 1.64	(8)	
P60	(0)	3.56 ± 0.26	(3)	3.66 ± 1.65	(8)	

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between the 5FC-L and 5FC-H groups.

図表38 短小型過剰肋骨(Type b)長 (雄出生児)

第13肋骨に対する過剰肋骨の比率(短小型)
Male、群間差(b)比率:[14rib所見(b)がみられた5FC-L群の比率(14rib/13rib)] vs [同条件5FC-H群の比率(14rib/13rib)]

Finding of the 14th rib: "b", Male

Rib No.	Rate (14th rib/13th rib, %), Right side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	22.32	(1)	30.63 ± 14.17	(3)	
P14	(0)	17.30	(1)	24.03 ± 10.81	(3)	
P26	(0)	19.96	(1)	24.67 ± 12.04	(3)	
P35	(0)	18.92	(1)	24.87 ± 13.57	(3)	
P53	(0)	18.35	(1)	25.45 ± 13.69	(3)	
P60	(0)	18.53	(1)	24.55 ± 12.16	(3)	

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Male

Rib No.	Rate (14th rib/13th rib, %), Left side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	16.32 ± 3.42	(2)	17.64 ± 2.75	(5)	
P14	(0)	13.45 ± 5.44	(2)	17.13 ± 4.60	(5)	
P26	(0)	19.49 ± 0.16	(2)	15.87 ± 4.69	(5)	
P35	(0)	18.09 ± 3.51	(2)	16.00 ± 5.68	(5)	
P53	(0)	19.24 ± 0.12	(2)	16.00 ± 4.22	(5)	
P60	(0)	18.96 ± 1.44	(2)	15.47 ± 4.78	(5)	

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Male

Rib No.	Rate (14th rib/13th rib, %), Both sides					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	18.32 ± 4.23	(3)	22.51 ± 10.34	(8)	
P14	(0)	14.73 ± 4.45	(3)	19.72 ± 7.63	(8)	
P26	(0)	19.65 ± 0.29	(3)	19.17 ± 8.65	(8)	
P35	(0)	18.37 ± 2.53	(3)	19.33 ± 9.60	(8)	
P53	(0)	18.94 ± 0.52	(3)	19.54 ± 9.36	(8)	
P60	(0)	18.81 ± 1.04	(3)	18.87 ± 8.80	(8)	

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between the 5FC-L and 5FC-H groups.

図表39 第13肋骨長に対する短小型過剰肋骨(Type b)長の割合
(雄出生児)

完全型(Type c)過剰肋骨を有する第13肋骨長(雄出生児)
Male、群間差(c)13rib:[14rib所見(c)がみられた5FC-L群の13rib長] vs [同条件5FC-H群の13rib長]

Finding of the 14th rib: "c", Male

Rib No.	13th rib (mm), Right side					
Group	Control	5FC-L			5FC-H	
Postnatal day						
P4	(0)	4.48	±	0.14	(2)	4.89 ± 0.36 (3)
P14	(0)	7.42	±	0.30	(2)	8.13 ± 0.28 (3)
P26	(0)	11.08	±	0.75	(2)	11.22 ± 0.16 (3)
P35	(0)	13.84	±	0.83	(2)	14.30 ± 0.19 (3)
P53	(0)	18.00	±	1.12	(2)	18.73 ± 0.42 (3)
P60	(0)	18.90	±	0.60	(2)	19.46 ± 0.32 (3)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Male

Rib No.	13th rib (mm), Left side					
Group	Control	5FC-L			5FC-H	
Postnatal day						
P4	(0)	4.45	±	0.53	(2)	4.48 ± 0.27 (4)
P14	(0)	7.83	±	0.69	(2)	7.75 ± 0.32 (4)
P26	(0)	10.94	±	0.76	(2)	10.98 ± 0.17 (4)
P35	(0)	13.51	±	0.71	(2)	13.61 ± 0.32 (4)
P53	(0)	17.99	±	0.87	(2)	18.17 ± 0.15 (4)
P60	(0)	19.33	±	0.65	(2)	19.42 ± 0.29 (4)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Male

Rib No.	13th rib (mm), Both sides					
Group	Control	5FC-L			5FC-H	
Postnatal day						
P4	(0)	4.46	±	0.32	(4)	4.66 ± 0.36 (7)
P14	(0)	7.62	±	0.49	(4)	7.91 ± 0.34 (7)
P26	(0)	11.01	±	0.62	(4)	11.08 ± 0.20 (7)
P35	(0)	13.67	±	0.66	(4)	13.90 ± 0.45 (7)
P53	(0)	17.99	±	0.82	(4)	18.41 ± 0.40 (7)
P60	(0)	19.11	±	0.57	(4)	19.44 ± 0.28 (7)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between the 5FC-L and 5FC-H groups.

図表40 完全型過剰肋骨(Type c)を有する第13肋骨長(雄出生児)

完全型(Type c)過剰肋骨長 (雄出生児)
Male、群間差(c)14rib:[14rib所見(c)がみられた5FC-L群の14rib長] vs [同条件5FC-H群の14rib長]

Finding of the 14th rib: "c", Male						
Rib No.	14th rib (mm), Right side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	2.36	± 0.47	(2)	2.83	± 0.64 (3)
P14	(0)	4.20	± 0.79	(2)	4.86	± 0.55 (3)
P26	(0)	6.16	± 1.14	(2)	6.95	± 0.92 (3)
P35	(0)	8.10	± 1.25	(2)	9.08	± 1.17 (3)
P53	(0)	10.62	± 1.99	(2)	12.19	± 1.03 (3)
P60	(0)	10.92	± 2.28	(2)	13.01	± 1.33 (3)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Male						
Rib No.	14th rib (mm), Left side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	2.63	± 0.32	(2)	2.57	± 0.47 (4)
P14	(0)	4.37	± 0.69	(2)	4.52	± 0.98 (4)
P26	(0)	6.57	± 0.48	(2)	6.55	± 1.24 (4)
P35	(0)	8.27	± 0.54	(2)	8.52	± 1.38 (4)
P53	(0)	10.91	± 0.71	(2)	11.33	± 1.80 (4)
P60	(0)	11.56	± 0.95	(2)	11.96	± 2.03 (4)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Male						
Rib No.	14th rib (mm), Both sides					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	2.49	± 0.36	(4)	2.68	± 0.52 (7)
P14	(0)	4.29	± 0.62	(4)	4.66	± 0.78 (7)
P26	(0)	6.36	± 0.75	(4)	6.72	± 1.05 (7)
P35	(0)	8.18	± 0.79	(4)	8.76	± 1.22 (7)
P53	(0)	10.76	± 1.23	(4)	11.70	± 1.48 (7)
P60	(0)	11.24	± 1.48	(4)	12.41	± 1.72 (7)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between the 5FC-L and 5FC-H groups.

図表41 完全型過剰肋骨(Type c)長 (雄出生児)

第13肋骨に対する過剰肋骨の比率(完全型)
Male、群間差(c)比率:[14rib所見(c)がみられた5FC-L群の比率(14rib/13rib)] vs [同条件5FC-H群の比率(14rib/13rib)]

Finding of the 14th rib: "c", Male

Rib No.	Rate (14th rib/13th rib, %), Right side					
Group	Control	5FC-L			5FC-H	
Postnatal day						
P4	(0)	52.87	± 12.09	(2)	57.49	± 8.74 (3)
P14	(0)	56.91	± 13.01	(2)	59.86	± 7.57 (3)
P26	(0)	56.03	± 14.06	(2)	61.86	± 7.38 (3)
P35	(0)	58.89	± 12.57	(2)	63.42	± 7.44 (3)
P53	(0)	59.43	± 14.72	(2)	65.05	± 4.08 (3)
P60	(0)	57.99	± 13.93	(2)	66.80	± 5.73 (3)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Male

Rib No.	Rate (14th rib/13th rib, %), Left side					
Group	Control	5FC-L			5FC-H	
Postnatal day						
P4	(0)	59.91	± 14.30	(2)	57.00	± 7.24 (4)
P14	(0)	56.45	± 13.80	(2)	57.97	± 10.75 (4)
P26	(0)	60.38	± 8.57	(2)	59.56	± 10.68 (4)
P35	(0)	61.40	± 7.28	(2)	62.48	± 8.97 (4)
P53	(0)	60.83	± 6.87	(2)	62.40	± 10.36 (4)
P60	(0)	59.92	± 6.92	(2)	61.72	± 11.25 (4)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Male

Rib No.	Rate (14th rib/13th rib, %), Both sides						
Group	Control		5FC-L			5FC-H	
Postnatal day							
P4	(0)	56.39	±	11.55	(4)	57.21	± 7.19 (7)
P14	(0)	56.68	±	10.95	(4)	58.78	± 8.83 (7)
P26	(0)	58.20	±	9.84	(4)	60.55	± 8.76 (7)
P35	(0)	60.14	±	8.51	(4)	62.88	± 7.67 (7)
P53	(0)	60.13	±	9.42	(4)	63.53	± 7.83 (7)
P60	(0)	58.96	±	9.05	(4)	63.89	± 9.03 (7)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different between the 5FC-L and 5FC-H groups.

図表42 第13肋骨長に対する完全型過剰肋骨(Type c)長の割合（雄出生児）

第13肋骨長の左右差（雌）
 [14rib所見がみられない個体の右側の13rib長] vs [14rib所見がみられない個体の左側の13rib長]

Group: Control, Female						
Rib No.	13th rib (mm)					
Side	Right			Left		
Postnatal day						
P4	3.15	± 0.51	(32)	3.25	± 0.46	(34)
P14	6.04	± 0.74	(32)	6.02	± 0.62	(33)
P26	8.76	± 1.02	(31)	8.76	± 0.88	(32)
P43	12.51	± 1.30	(31)	12.52	± 1.20	(31)
P61	14.52	± 1.53	(31)	14.59	± 1.36	(31)

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Not significantly different from the right side.

Group: 5FC-L, Female						
Rib No.	13th rib (mm)					
Side	Right			Left		
Postnatal day						
P4	4.02	± 0.51	(28)	3.90	± 0.43	(25)
P14	6.78	± 0.76	(27)	6.64	± 0.74	(25)
P26	9.96	± 1.01	(26)	9.64	± 0.92	(24)
P43	13.62	± 1.27	(25)	13.28	± 1.15	(23)
P61	15.79	± 1.55	(25)	15.38	± 1.29	(23)

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Not significantly different from the right side.

Group: 5FC-H, Female						
Rib No.	13th rib (mm)					
Side	Right			Left		
Postnatal day						
P4	4.10	± 0.53	(15)	3.96	± 0.41	(11)
P14	6.91	± 0.70	(14)	6.65	± 0.61	(10)
P26	10.18	± 0.84	(14)	9.94	± 0.73	(10)
P43	13.95	± 1.17	(14)	13.50	± 1.24	(9)
P61	16.27	± 1.56	(14)	15.83	± 1.36	(9)

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Not significantly different from the right side.

図表43 第13肋骨長の左右差（雌出生児、対照群）

過剰肋骨の存在による第13肋骨長への影響(対照群)
 [14rib所見がみられない個体の13rib長] vs [14rib所見 (a+b+c) がみられた個体の13rib長]

Group: Control, Female									
Rib No.	13th rib (mm), Right side								
Finding (14th rib)	-				a, b, c				
Postnatal day									N数 (a+b+c)
P4	3.15	±	0.51	(32)	3.49	±	0.30	(3)	3 = 3+0+0
P14	6.04	±	0.74	(32)	6.75	±	0.20	(3)	3 = 3+0+0
P26	8.76	±	1.02	(31)	9.92	±	0.30	(4) **	4 = 4+0+0
P43	12.51	±	1.30	(31)	13.84	±	0.56	(4)	4 = 4+0+0
P61	14.52	±	1.53	(31)	16.20	±	0.81	(4) *	4 = 4+0+0

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the group without the 14th rib (*: P<0.05, **: P<0.01).

Group: Control, Female								
Rib No.	13th rib (mm), Left side							
Finding (14th rib)	-			a, b, c				
Postnatal day								N数 (a+b+c)
P4	3.25	±	0.46	(34)	3.96		(1) NA	1 = 1+0+0
P14	6.02	±	0.62	(33)	6.72	±	0.37 (2) NA	2 = 2+0+0
P26	8.76	±	0.88	(32)	9.47	±	0.56 (3)	3 = 3+0+0
P43	12.52	±	1.20	(31)	13.44	±	0.34 (4) **	4 = 4+0+0
P61	14.59	±	1.36	(31)	15.70	±	0.47 (4)	4 = 4+0+0

Each value shows mean (mm) ± S.D. NA: Not analyzed.
 Figures in parentheses indicate number of ribs.
 Significantly different from the group without the 14th rib (**: P<0.01).

Group: Control, Female									
Rib No.	13th rib (mm), Both sides								
Finding (14th rib)	-				a, b, c				
Postnatal day									N数 (a+b+c)
P4	3.20	±	0.48	(66)	3.61	±	0.34	(4)	4 = 4+0+0
P14	6.03	±	0.67	(65)	6.74	±	0.23	(5) **	5 = 5+0+0
P26	8.76	±	0.94	(63)	9.73	±	0.46	(7) **	7 = 7+0+0
P43	12.51	±	1.24	(62)	13.64	±	0.48	(8) **	8 = 8+0+0
P61	14.56	±	1.44	(62)	15.95	±	0.67	(8) **	8 = 8+0+0

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the group without the 14th rib (**: P<0.01).

図表44 過剰肋骨存在下の第13肋骨長（雌出生児、対照群）

過剰肋骨の存在による第13肋骨長への影響(5FC-L群)
 [14rib所見がみられない個体の13rib長] vs [14rib所見 (a+b+c) がみられた個体の13rib長]

Group: 5FC-L, Female									
Rib No.	13th rib (mm), Right side								
Finding (14th rib)	-			a, b, c					
Postnatal day								N数 (a+b+c)	
P4	4.02	±	0.51	(28)	4.29	±	0.39	(8)	8 = 7+1+0
P14	6.78	±	0.76	(27)	6.95	±	0.71	(9)	9 = 8+1+0
P26	9.96	±	1.01	(26)	10.50	±	0.78	(10)	10 = 9+1+0
P43	13.62	±	1.27	(25)	14.72	±	0.85	(11) *	11 = 10+1+0
P61	15.79	±	1.55	(25)	17.23	±	1.13	(11) **	11 = 10+1+0

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the group without the 14th rib (*: P<0.05, **: P<0.01).

Group: 5FC-L, Female								
Rib No.	13th rib (mm), Left side							
Finding (14th rib)	-				a, b, c			
Postnatal day	N数 (a+b+c)							
P4	3.90	±	0.43	(25)	4.42	±	0.41	(11) ** 11 = 7+3+1
P14	6.64	±	0.74	(25)	7.20	±	0.58	(11) * 11 = 7+3+1
P26	9.64	±	0.92	(24)	10.60	±	0.61	(12) ** 12 = 8+3+1
P43	13.28	±	1.15	(23)	14.84	±	0.74	(13) ** 13 = 9+3+1
P61	15.38	±	1.29	(23)	17.44	±	0.99	(13) ** 13 = 9+3+1

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the group without the 14th rib (*: P<0.05, **: P<0.01).

Group: 5FC-L, Female								
Rib No.	13th rib (mm), Both sides							
Finding (14th rib)	-				a, b, c			
Postnatal day	N数 (a+b+c)							
P4	3.96	±	0.47	(53)	4.36	±	0.40	(19) ** 19 = 14+4+1
P14	6.72	±	0.75	(52)	7.09	±	0.63	(20) * 20 = 15+4+1
P26	9.81	±	0.97	(50)	10.55	±	0.68	(22) ** 22 = 17+4+1
P43	13.46	±	1.22	(48)	14.79	±	0.78	(24) ** 24 = 19+4+1
P61	15.60	±	1.43	(48)	17.35	±	1.04	(24) ** 24 = 19+4+1

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the group without the 14th rib (*: P<0.05, **: P<0.01).

図表45 過剰肋骨存在下の第13肋骨長（雌出生児、5FC-L群）

過剰肋骨の存在による第13肋骨長への影響 (5FC-H群)
 [14rib所見がみられない個体の13rib長] vs [14rib所見 (a+b+c) がみられた個体の13rib長]

Group: 5FC-H, Female							
Rib No.	13th rib (mm), Right side						
Finding (14th rib)	-			a, b, c			
Postnatal day							N数 (a+b+c)
P4	4.10	±	0.53 (15)	4.52	±	0.27 (15) *	15 = 11+2+2
P14	6.91	±	0.70 (14)	7.54	±	0.40 (16) **	16 = 12+2+2
P26	10.18	±	0.84 (14)	11.04	±	0.56 (16) **	16 = 12+2+2
P43	13.95	±	1.17 (14)	15.09	±	0.65 (16) **	16 = 12+2+2
P61	16.27	±	1.56 (14)	17.80	±	0.85 (16) **	16 = 12+2+2

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the group without the 14th rib (*: P<0.05, **: P<0.01).

Group: 5FC-H, Female							
Rib No.	13th rib (mm), Left side						
Finding (14th rib)	-			a, b, c			
Postnatal day							N数 (a+b+c)
P4	3.96	±	0.41 (11)	4.53	±	0.22 (19) **	19 = 15+2+2
P14	6.65	±	0.61 (10)	7.41	±	0.36 (20) **	20 = 16+2+2
P26	9.94	±	0.73 (10)	10.98	±	0.45 (20) **	20 = 16+2+2
P43	13.50	±	1.24 (9)	14.90	±	0.58 (21) **	21 = 17+2+2
P61	15.83	±	1.36 (9)	17.52	±	0.84 (21) **	21 = 17+2+2

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the group without the 14th rib (**: P<0.01).

Group: 5FC-H, Female							
Rib No.	13th rib (mm), Both sides						
Finding (14th rib)	-			a, b, c			
Postnatal day							N数 (a+b+c)
P4	4.04	±	0.48 (26)	4.53	±	0.24 (34) **	34 = 26+4+4
P14	6.80	±	0.67 (24)	7.47	±	0.38 (36) **	36 = 28+4+4
P26	10.08	±	0.79 (24)	11.01	±	0.49 (36) **	36 = 28+4+4
P43	13.78	±	1.19 (23)	14.98	±	0.61 (37) **	37 = 29+4+4
P61	16.10	±	1.47 (23)	17.64	±	0.84 (37) **	37 = 29+4+4

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Significantly different from the group without the 14th rib (**: P<0.01).

図表46 過剰肋骨存在下の第13肋骨長推移（雌出生児、5FC-H群）

痕跡型(Type a)過剰肋骨を有する児の第13肋骨長
[14rib所見(a)がみられたControl群の13rib長] vs [同条件5FC-L群の13rib長]、[同条件5FC-H群の13rib長]

Finding of the 14th rib: "a", Female							
Rib No.	13th rib (mm), Right side						
Group	Control			5FC-L		5FC-H	
Postnatal day							
P4	3.49	± 0.30	(3)	4.25	± 0.41	(7) *	4.51 ± 0.28 (11) **
P14	6.75	± 0.20	(3)	6.86	± 0.69	(8)	7.54 ± 0.46 (12)
P26	9.92	± 0.30	(4)	10.45	± 0.81	(9)	11.10 ± 0.57 (12) *
P43	13.84	± 0.56	(4)	14.72	± 0.90	(10)	15.15 ± 0.72 (12) *
P61	16.20	± 0.81	(4)	17.23	± 1.19	(10)	17.91 ± 0.93 (12) *

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Significantly different from the control group (*: P<0.05, **: P<0.01).

Finding of the 14th rib: "a", Female							
Rib No.	13th rib (mm), Left side						
Group	Control		5FC-L		5FC-H		
Postnatal day							
P4	3.96	(1)	4.17	± 0.19	(7)	4.51	± 0.23 (15)
P14	6.72	± 0.37 (2)	6.87	± 0.40	(7)	7.37	± 0.38 (16)
P26	9.47	± 0.56 (3)	10.28	± 0.38	(8)	11.01	± 0.46 (16) **
P43	13.44	± 0.34 (4)	14.56	± 0.67	(9) *	14.89	± 0.58 (17) *
P61	15.70	± 0.47 (4)	17.04	± 0.88	(9)	17.47	± 0.86 (17) *

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Significantly different from the control group (*: P<0.05, **: P<0.01).

Finding of the 14th rib: "a", Female							
Rib No.	13th rib (mm), Both sides						
Group	Control		5FC-L		5FC-H		
Postnatal day							
P4	3.61	± 0.34 (4)	4.21	± 0.31 (14) *	4.51	± 0.25 (26) **	
P14	6.74	± 0.23 (5)	6.86	± 0.55 (15)	7.44	± 0.41 (28) *	
P26	9.73	± 0.46 (7)	10.37	± 0.63 (17) *	11.05	± 0.50 (28) **	
P43	13.64	± 0.48 (8)	14.65	± 0.78 (19) *	15.00	± 0.64 (29) **	
P61	15.95	± 0.67 (8)	17.14	± 1.03 (19) *	17.65	± 0.90 (29) **	

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Significantly different from the control group (*: P<0.05, **: P<0.01).

図表47 痕跡型過剰肋骨存在下の第13肋骨長（雌出生児）

痕跡型(Type a)過剰肋骨の長さ(第14肋骨)
[14rib所見(a)がみられたControl群の14rib長] vs [同条件5FC-L群の14rib長]、[同条件5FC-H群の14rib長]

Finding of the 14th rib: "a", Female								
Rib No.	14th rib (mm), Right side							
Group	Control			5FC-L			5FC-H	
Postnatal day								
P4	0.29	± 0.09	(3)	0.41	± 0.12	(7)	0.45	± 0.13 (11)
P14	0.40	± 0.09	(3)	0.66	± 0.24	(8)	0.57	± 0.13 (12)
P26	0.45	± 0.36	(4)	1.07	± 0.18	(9) *	0.91	± 0.24 (12) **
P43	1.43	± 0.36	(4)	1.44	± 0.46	(10)	1.52	± 0.31 (12)
P61	2.06		(1)	1.73	± 0.36	(7)	1.77	± 0.34 (10)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Significantly different from the control group (*: P<0.05, **: P<0.01).

Finding of the 14th rib: "a", Female								
Rib No.	14th rib (mm), Left side							
Group	Control			5FC-L			5FC-H	
Postnatal day								
P4	0.23		(1)	0.43	± 0.18	(7)	0.43	± 0.17 (14)
P14	0.38	± 0.28	(2)	0.56	± 0.21	(7)	0.65	± 0.21 (15)
P26	0.62	± 0.32	(2)	0.84	± 0.25	(8)	0.91	± 0.26 (14)
P43	0.72	± 0.30	(4)	1.32	± 0.54	(9)	1.45	± 0.48 (17) *
P61	1.24	± 0.34	(3)	1.71	± 0.72	(6)	1.80	± 0.46 (15)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Significantly different from the control group (*: P<0.05) .

Finding of the 14th rib: "a", Female												
Rib No.	14th rib (mm), Both sides											
Group	Control			5FC-L			5FC-H					
Postnatal day												
P4	0.28	±	0.08	(4)	0.42	±	0.14	(14)	0.44	±	0.15	(25)
P14	0.39	±	0.15	(5)	0.61	±	0.23	(15)	0.61	±	0.18	(27)
P26	0.51	±	0.32	(6)	0.96	±	0.24	(17) *	0.91	±	0.25	(26) **
P43	1.07	±	0.49	(8)	1.38	±	0.49	(19)	1.48	±	0.41	(29)
P61	1.45	±	0.49	(4)	1.72	±	0.53	(13)	1.79	±	0.41	(25)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Significantly different from the control group (*: P<0.05, **: P<0.01).

図表48 痕跡型過剰肋骨(Type a)長（雌出生児）

第13肋骨に対する過剰肋骨の比率(痕跡型)
Female、群間差(a)比率:[14rib所見(a)がみられたControl群の比率(14rib/13rib)] vs [同条件5FC-L群の比率(14rib/13rib)]、
[同条件5FC-H群の比率(14rib/13rib)]

Finding of the 14th rib: "a", Female

Rib No.	Rate (14th rib/13th rib, %), Right side											
Group	Control				5FC-L				5FC-H			
Postnatal day												
P4	8.32	±	1.65	(3)	9.77	±	2.78	(7)	9.94	±	2.91	(11)
P14	5.92	±	1.29	(3)	9.53	±	3.40	(8)	7.59	±	1.83	(12)
P26	4.62	±	3.71	(4)	10.21	±	1.52	(9) **	8.23	±	2.14	(12) *
P43	10.37	±	2.75	(4)	9.82	±	3.26	(10)	9.99	±	2.00	(12)
P61	12.17			(1)	9.79	±	2.32	(7)	9.95	±	2.05	(10)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Significantly different from the control group (*: P<0.05, **: P<0.01).

Finding of the 14th rib: "a", Female

Rib No.	Rate (14th rib/13th rib, %), Left side						
Group	Control		5FC-L		5FC-H		
Postnatal day							
P4	5.81	(1)	10.32	± 4.56	(7)	9.56	± 3.76 (14)
P14	5.70	± 4.41 (2)	8.13	± 3.06	(7)	8.79	± 3.01 (15)
P26	6.32	± 3.39 (2)	8.18	± 2.30	(8)	8.20	± 2.35 (14)
P43	5.33	± 2.13 (4)	9.05	± 3.65	(9)	9.72	± 3.11 (17)
P61	7.84	± 1.98 (3)	9.84	± 4.14	(6)	10.15	± 2.50 (15)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Not significantly different from the control group.

Finding of the 14th rib: "a", Female

Rib No.	Rate (14th rib/13th rib, %), Both sides											
Group	Control				5FC-L				5FC-H			
Postnatal day												
P4	7.69	±	1.84	(4)	10.04	±	3.64	(14)	9.73	±	3.35	(25)
P14	5.83	±	2.39	(5)	8.88	±	3.21	(15)	8.25	±	2.58	(27)
P26	5.19	±	3.37	(6)	9.25	±	2.14	(17) **	8.21	±	2.21	(26) *
P43	7.85	±	3.52	(8)	9.46	±	3.37	(19)	9.83	±	2.67	(29)
P61	8.92	±	2.70	(4)	9.81	±	3.13	(13)	10.07	±	2.29	(25)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Significantly different from the control group (*: P<0.05, **: P<0.01).

図表49 第13肋骨長に対する痕跡型過剰肋骨(Type a)長の割合（雌出生児）

短小型(Type b)過剰肋骨を有する雌出生児の第13肋骨長
 [14rib所見(b)がみられたControl群の13rib長] vs [同条件5FC-L群の13rib長]、[同条件5FC-H群の13rib長]

Finding of the 14th rib: "b", Female						
Rib No.	13th rib (mm), Right side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	4.55	(1)	4.58 ± 0.16	(2)	
P14	(0)	7.73	(1)	7.62 ± 0.23	(2)	
P26	(0)	10.94	(1)	11.09 ± 0.37	(2)	
P43	(0)	14.75	(1)	15.05 ± 0.45	(2)	
P61	(0)	17.32	(1)	17.47 ± 0.60	(2)	

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Female						
Rib No.	13th rib (mm), Left side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	4.93 ± 0.34	(3)	4.63 ± 0.26	(2)	
P14	(0)	7.85 ± 0.26	(3)	7.63 ± 0.23	(2)	
P26	(0)	11.36 ± 0.50	(3)	10.59 ± 0.40	(2)	
P43	(0)	15.64 ± 0.45	(3)	14.73 ± 0.22	(2)	
P61	(0)	18.53 ± 0.41	(3)	17.56 ± 0.24	(2)	

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Female						
Rib No.	13th rib (mm), Both sides					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	4.84 ± 0.33	(4)	4.60 ± 0.18	(4)	
P14	(0)	7.82 ± 0.22	(4)	7.63 ± 0.18	(4)	
P26	(0)	11.25 ± 0.46	(4)	10.84 ± 0.43	(4)	
P43	(0)	15.42 ± 0.58	(4)	14.89 ± 0.35	(4)	
P61	(0)	18.23 ± 0.69	(4)	17.51 ± 0.38	(4)	

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Not significantly different between the 5FC-L and 5FC-H groups.

図表50 短小型過剰肋骨(Type b)を有する第13肋骨長（雌出生児）

短小型(Type b)過剰肋骨長(雌出生児)
 Female、群間差(b)14rib:[14rib所見(b)がみられた5FC-L群の14rib長] vs [同条件5FC-H群の14rib長]

Finding of the 14th rib: "b", Female						
Rib No.	14th rib (mm), Right side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	0.64	(1)	1.05 ± 0.06	(2)	
P14	(0)	0.94	(1)	1.72 ± 0.59	(2)	
P26	(0)	1.29	(1)	2.54 ± 0.32	(2)	
P43	(0)	1.97	(1)	3.66 ± 1.08	(2)	
P61	(0)	2.52	(1)	3.77 ± 0.90	(2)	

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Female						
Rib No.	14th rib (mm), Left side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	0.96 ± 0.16	(3)	0.89 ± 0.33	(2)	
P14	(0)	1.60 ± 0.68	(3)	1.39 ± 0.33	(2)	
P26	(0)	2.29 ± 0.90	(3)	1.94 ± 0.70	(2)	
P43	(0)	2.96 ± 1.03	(3)	2.75 ± 1.00	(2)	
P61	(0)	3.49 ± 1.20	(3)	3.18 ± 1.12	(2)	

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Female						
Rib No.	14th rib (mm), Both sides					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	0.88 ± 0.21	(4)	0.97 ± 0.21	(4)	
P14	(0)	1.44 ± 0.64	(4)	1.55 ± 0.44	(4)	
P26	(0)	2.04 ± 0.89	(4)	2.24 ± 0.56	(4)	
P43	(0)	2.72 ± 0.98	(4)	3.20 ± 1.00	(4)	
P61	(0)	3.25 ± 1.10	(4)	3.47 ± 0.90	(4)	

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Not significantly different between the 5FC-L and 5FC-H groups.

図表51 短小型過剰肋骨(Type b)長（雌出生児）

Finding of the 14th rib: "b", Female

Rib No.	Rate (14th rib/13th rib, %), Right side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	14.07	(1)	22.99 ± 2.05	(2)	
P14	(0)	12.16	(1)	22.47 ± 7.13	(2)	
P26	(0)	11.79	(1)	22.83 ± 2.11	(2)	
P43	(0)	13.36	(1)	24.19 ± 6.46	(2)	
P61	(0)	14.55	(1)	21.48 ± 4.40	(2)	

Each value shows mean (%) ± S.D.

Figures in parentheses indicate number of ribs.

Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Female

Rib No.	Rate (14th rib/13th rib, %), Left side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	19.52 ± 2.78	(3)	19.07 ± 5.95	(2)	
P14	(0)	20.26 ± 7.91	(3)	18.10 ± 3.83	(2)	
P26	(0)	19.95 ± 6.92	(3)	18.17 ± 5.93	(2)	
P43	(0)	18.86 ± 6.11	(3)	18.60 ± 6.50	(2)	
P61	(0)	18.83 ± 6.41	(3)	18.13 ± 6.65	(2)	

Each value shows mean (%) ± S.D.

Figures in parentheses indicate number of ribs.

Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "b", Female

Rib No.	Rate (14th rib/13th rib, %), Both sides					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	18.16 ± 3.55	(4)	21.03 ± 4.28	(4)	
P14	(0)	18.24 ± 7.63	(4)	20.28 ± 5.31	(4)	
P26	(0)	17.91 ± 6.97	(4)	20.50 ± 4.52	(4)	
P43	(0)	17.49 ± 5.69	(4)	21.39 ± 6.20	(4)	
P61	(0)	17.76 ± 5.65	(4)	19.80 ± 5.00	(4)	

Each value shows mean (%) ± S.D.

Figures in parentheses indicate number of ribs.

Not significantly different between the 5FC-L and 5FC-H groups.

図表52 第13肋骨長に対する短小型過剰肋骨(Type b)長の割合
(雌出生児)

完全型(Type c)過剰肋骨を有する第13肋骨長(雌出生児)
 Female、群間差(c)13rib:[14rib所見(c)がみられた5FC-L群の13rib長] vs [同条件5FC-H群の13rib長]

Finding of the 14th rib: "c", Female					
Rib No.	13th rib (mm), Right side				
Group	Control	5FC-L		5FC-H	
Postnatal day					
P4	(0)	(0)		4.57 ± 0.37	(2)
P14	(0)	(0)		7.49 ± 0.08	(2)
P26	(0)	(0)		10.61 ± 0.71	(2)
P43	(0)	(0)		14.78 ± 0.37	(2)
P61	(0)	(0)		17.48 ± 0.54	(2)

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Female					
Rib No.	13th rib (mm), Left side				
Group	Control	5FC-L		5FC-H	
Postnatal day					
P4	(0)	4.58	(1)	4.61 ± 0.18	(2)
P14	(0)	7.62	(1)	7.54 ± 0.37	(2)
P26	(0)	10.85	(1)	11.14 ± 0.39	(2)
P43	(0)	14.97	(1)	15.17 ± 1.09	(2)
P61	(0)	17.81	(1)	17.87 ± 1.39	(2)

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Female					
Rib No.	13th rib (mm), Both sides				
Group	Control	5FC-L		5FC-H	
Postnatal day					
P4	(0)	4.58	(1)	4.59 ± 0.24	(4)
P14	(0)	7.62	(1)	7.51 ± 0.22	(4)
P26	(0)	10.85	(1)	10.87 ± 0.56	(4)
P43	(0)	14.97	(1)	14.97 ± 0.70	(4)
P61	(0)	17.81	(1)	17.68 ± 0.89	(4)

Each value shows mean (mm) ± S.D.
 Figures in parentheses indicate number of ribs.
 Statistical analysis was not examined because of a few sample numbers.

図表53 完全型過剰肋骨(Type c)を有する第13肋骨長（雌出生児）

完全型(Type c)過剰肋骨長(雌出生児)
Female、群間差(c)14rib:[14rib所見(c)がみられた5FC-L群の14rib長] vs [同条件5FC-H群の14rib長]

Finding of the 14th rib: "c", Female

Rib No.	14th rib (mm), Right side				
Group	Control		5FC-L		5FC-H
Postnatal day					
P4	(0)	(0)	2.04	± 0.67	(2)
P14	(0)	(0)	3.30	± 0.84	(2)
P26	(0)	(0)	4.78	± 1.75	(2)
P43	(0)	(0)	6.75	± 1.96	(2)
P61	(0)	(0)	7.67	± 2.32	(2)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Female

Rib No.	14th rib (mm), Left side					
Group	Control		5FC-L		5FC-H	
Postnatal day						
P4	(0)	2.54	(1)	2.16	± 0.88	(2)
P14	(0)	4.28	(1)	3.73	± 1.27	(2)
P26	(0)	6.29	(1)	5.47	± 2.32	(2)
P43	(0)	8.65	(1)	7.85	± 2.97	(2)
P61	(0)	10.30	(1)	8.95	± 3.90	(2)

Each value shows mean (mm) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Female

Rib No.	14th rib (mm), Both sides					
Group	Control		5FC-L		5FC-H	
Postnatal day						
P4	(0)	2.54	(1)	2.10	± 0.64	(4)
P14	(0)	4.28	(1)	3.51	± 0.91	(4)
P26	(0)	6.29	(1)	5.13	± 1.73	(4)
P43	(0)	8.65	(1)	7.30	± 2.15	(4)
P61	(0)	10.30	(1)	8.31	± 2.72	(4)

Each value shows mean (mm) ± S.D. NA: Not analyzed.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

図表54 完全型過剰肋骨(Type c)長（雌出生児）

第13肋骨に対する過剰肋骨の比率(完全型)
Female、群間差(c)比率:[14rib所見(c)がみられた5FC-L群の比率(14rib/13rib)] vs [同条件5FC-H群の比率(14rib/13rib)]

Finding of the 14th rib: "c", Female						
Rib No.	Rate (14th rib/13th rib, %), Right side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	(0)	44.13	± 11.09	(2)	
P14	(0)	(0)	44.09	± 11.70	(2)	
P26	(0)	(0)	44.62	± 13.53	(2)	
P43	(0)	(0)	45.50	± 12.11	(2)	
P61	(0)	(0)	43.70	± 11.93	(2)	

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Female						
Rib No.	Rate (14th rib/13th rib, %), Left side					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	55.46	(1)	47.27	± 20.90	(2)
P14	(0)	56.17	(1)	49.87	± 19.22	(2)
P26	(0)	57.97	(1)	49.52	± 22.56	(2)
P43	(0)	57.78	(1)	52.59	± 23.36	(2)
P61	(0)	57.83	(1)	51.06	± 25.76	(2)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

Finding of the 14th rib: "c", Female						
Rib No.	Rate (14th rib/13th rib, %), Both sides					
Group	Control	5FC-L		5FC-H		
Postnatal day						
P4	(0)	55.46	(1)	45.70	± 13.78	(4)
P14	(0)	56.17	(1)	46.98	± 13.41	(4)
P26	(0)	57.97	(1)	47.07	± 15.45	(4)
P43	(0)	57.78	(1)	49.04	± 15.73	(4)
P61	(0)	57.83	(1)	47.38	± 16.93	(4)

Each value shows mean (%) ± S.D.
Figures in parentheses indicate number of ribs.
Statistical analysis was not examined because of a few sample numbers.

図表55 第13肋骨長に対する完全型過剰肋骨(Type c)長の割合（雌出生児）

Group	Control	5FC-a
Number of dams	9	10
Number of corpora lutea		
Total	127	152
Mean $\pm$ S.D. per dam	14.1 $\pm$ 1.8	15.2 $\pm$ 1.5
Number of implantation sites		
Total	123	151
Mean $\pm$ S.D. per dam	13.7 $\pm$ 1.9	15.1 $\pm$ 1.4
Implantation rate ^{a)}		
Mean % $\pm$ S.D. per dam	96.7 $\pm$ 3.9	99.4 $\pm$ 1.9
Post-implantation loss		
Total	12	7
Mean $\pm$ S.D. per dam	1.3 $\pm$ 2.6	0.7 $\pm$ 0.7
Implantation scars	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
Placental remnant	1.3 $\pm$ 2.6	0.7 $\pm$ 0.7
Dead fetuses	0.0 $\pm$ 0.0	0.0 $\pm$ 0.0
Post-implantation loss rate ^{b)}		
Mean % $\pm$ S.D. per dam	9.4 $\pm$ 17.5	4.8 $\pm$ 4.8
Number of live fetuses		
Total	111	144
Mean $\pm$ S.D. per dam	12.3 $\pm$ 2.9	14.4 $\pm$ 1.8
Sex ratio ^{c)} (Mean $\pm$ S.D. per dam)	0.45 $\pm$ 0.17	0.53 $\pm$ 0.14
Mean fetal body weight (g)		
Male (Mean $\pm$ S.D. per dam)	3.90 $\pm$ 0.18	3.79 $\pm$ 0.34
Female (Mean $\pm$ S.D. per dam)	3.70 $\pm$ 0.24	3.59 $\pm$ 0.31
Mean placental weight (g)		
Male (Mean $\pm$ S.D. per dam)	0.489 $\pm$ 0.060	0.476 $\pm$ 0.055
Female (Mean $\pm$ S.D. per dam)	0.480 $\pm$ 0.077	0.449 $\pm$ 0.051
Number of fetuses with external abnormalities	2	1
Mean % $\pm$ S.D. per dam ^{d)}	1.8 $\pm$ 3.5	0.7 $\pm$ 2.2
Eye bulge, Small	1	0
Mean % $\pm$ S.D. per dam ^{d)}	1.0 $\pm$ 3.0	0.0 $\pm$ 0.0
Tail, Thread-like/ Kinked	1	1
Mean % $\pm$ S.D. per dam ^{d)}	0.7 $\pm$ 2.2	0.7 $\pm$ 2.2

Not significantly from the control.

a): (Number of implantation sites/number of corpora lutea) $\times$ 100.

b): (Number of post-implantation losses/number of implantation sites) $\times$ 100.

c): Number of males/(number of males + number of females).

d): (Number of fetuses with external abnormalities/number of live fetuses) $\times$ 100.

図表56 ラット妊娠9日投与実験の帝王切開所見
(使用動物：Cri:CS(SD)ラット、妊娠20日)

Group	Control	5FC-a	
Number of dams	9	10	
Number of fetuses examined	111	144	
Number of fetuses with abnormalities	27 ^{a)}	99	**
(including thoracolumbar supernumerary rib)	24.7 ± 22.3 ^{b)}	68.7 ± 21.8	**
Thoracolumbar supernumerary rib	11	67	* (p=0.012)
	11.3 ± 23.6	46.5 ± 37.7	*
Types of TSR ^{c)}			
Rudimentary	6	31	
	6.6 ± 12.3	21.0 ± 18.0	
Short	4	36	
	3.8 ± 9.1	25.0 ± 21.1	
Full	2	26	
	2.0 ± 6.1	18.8 ± 25.3	
Exoccipital bone and atlas, Fused	0	8	
	0.0 ± 0.0	6.5 ± 16.0	
Atlas, Small	1	3	
	1.0 ± 3.0	2.2 ± 3.6	
Atlas, Absent	0	4	
	0.0 ± 0.0	2.7 ± 6.2	
Cervical arch, Fused	0	16	*
	0.0 ± 0.0	12.0 ± 20.7	*
Cervical arch, Cartilaginous fusion	0	6	
	0.0 ± 0.0	4.8 ± 13.1	
Rib, Short	1	0	
	0.7 ± 2.2	0.0 ± 0.0	
Rib, Fused	0	1	
	0.0 ± 0.0	0.7 ± 2.2	
Costal cartilage, Fused	0	2	
	0.0 ± 0.0	1.3 ± 2.8	
Costal cartilage, Not fused to sternum	4	4	
	3.2 ± 5.2	2.8 ± 6.5	
Costal cartilage, Interrupt	9	38	
	8.8 ± 13.0	26.0 ± 18.5	
Thoracic arch, Small	0	1	
	0.0 ± 0.0	0.7 ± 2.2	
Lumber vertebrae, Supernumerary	0	12	* (p=0.0019)
	0.0 ± 0.0	9.0 ± 19.0	*
Sacral arch, Lumbarization	0	3	
	0.0 ± 0.0	2.2 ± 3.6	
Sacral arch, Not fused	2	9	↑ (p=0.058)
	2.5 ± 7.4	6.7 ± 7.2	
Sacral arch and centrum, Absent (reduced number)	8	11	
	6.2 ± 14.4	7.4 ± 15.1	
Sacral and Caudal vertebrae, Absent	1	0	
	0.7 ± 2.2	0.0 ± 0.0	
Number of presacral vertebrae			
	26.0 ± 0.0	26.1 ± 0.2	

a), No. of fetuses; b), Mean (%) ±S.D.

c), rudimentary; vestigial TSR, short; less than half the length of the 13th thoracic rib, rib full; half or greater than half the length of the 13th thoracic

*, P<0.05, **, P<0.01, Significantly different from the control group.

図表57 ラット妊娠9日5-FC投与実験の胎児骨格観察
(使用動物：CrI:CS(SD)ラット)

5-FC (75 mg/kg) 群

R: 痕跡 (軟X線では観察できず)

L: 痕跡 (軟X線では観察できず)



5-FC (75 mg/kg) 群

R: 痕跡 (軟X線では観察できず)

L: 短小



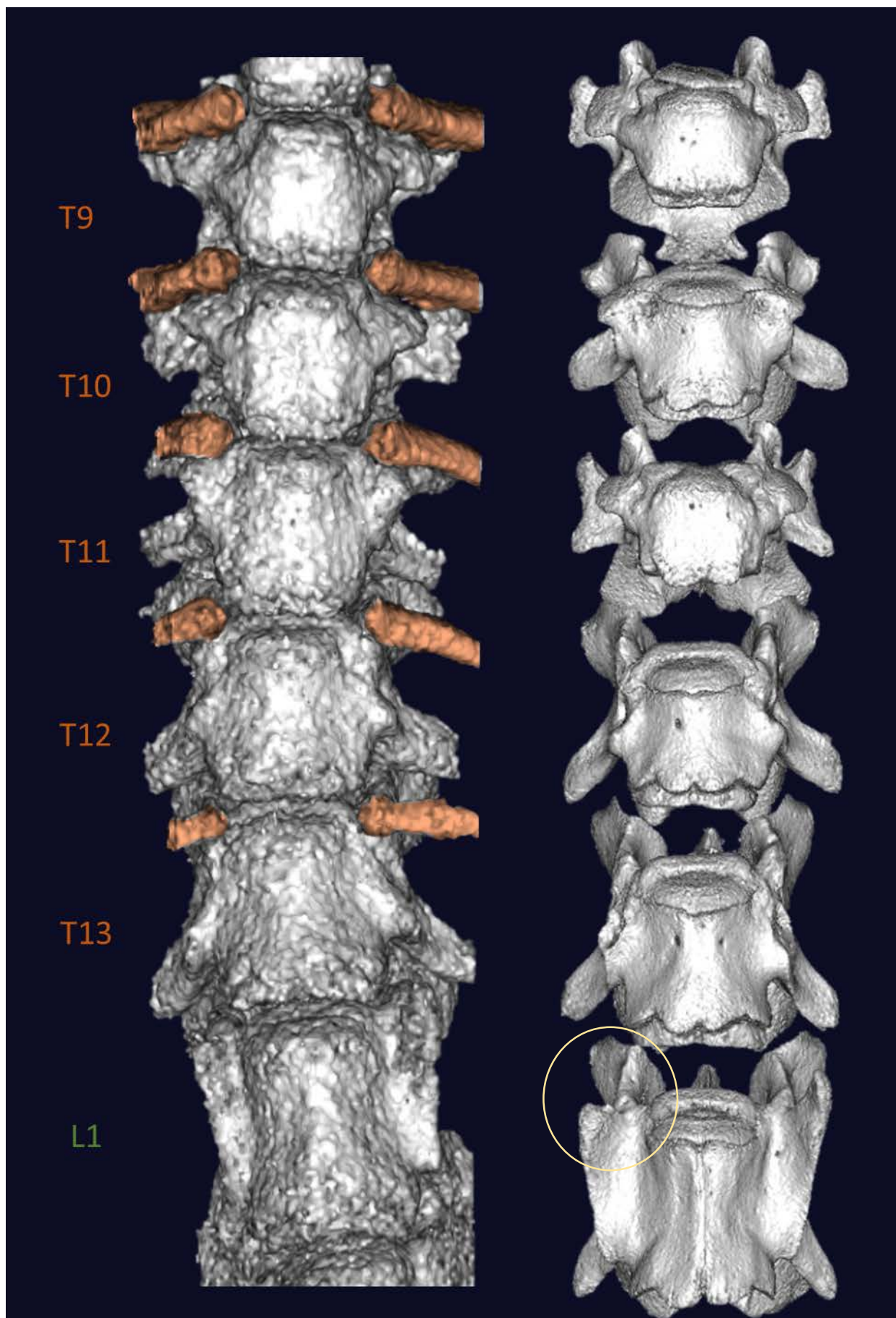
5-FC (75 mg/kg) 群

R: 短小 (軟X線では観察できず)

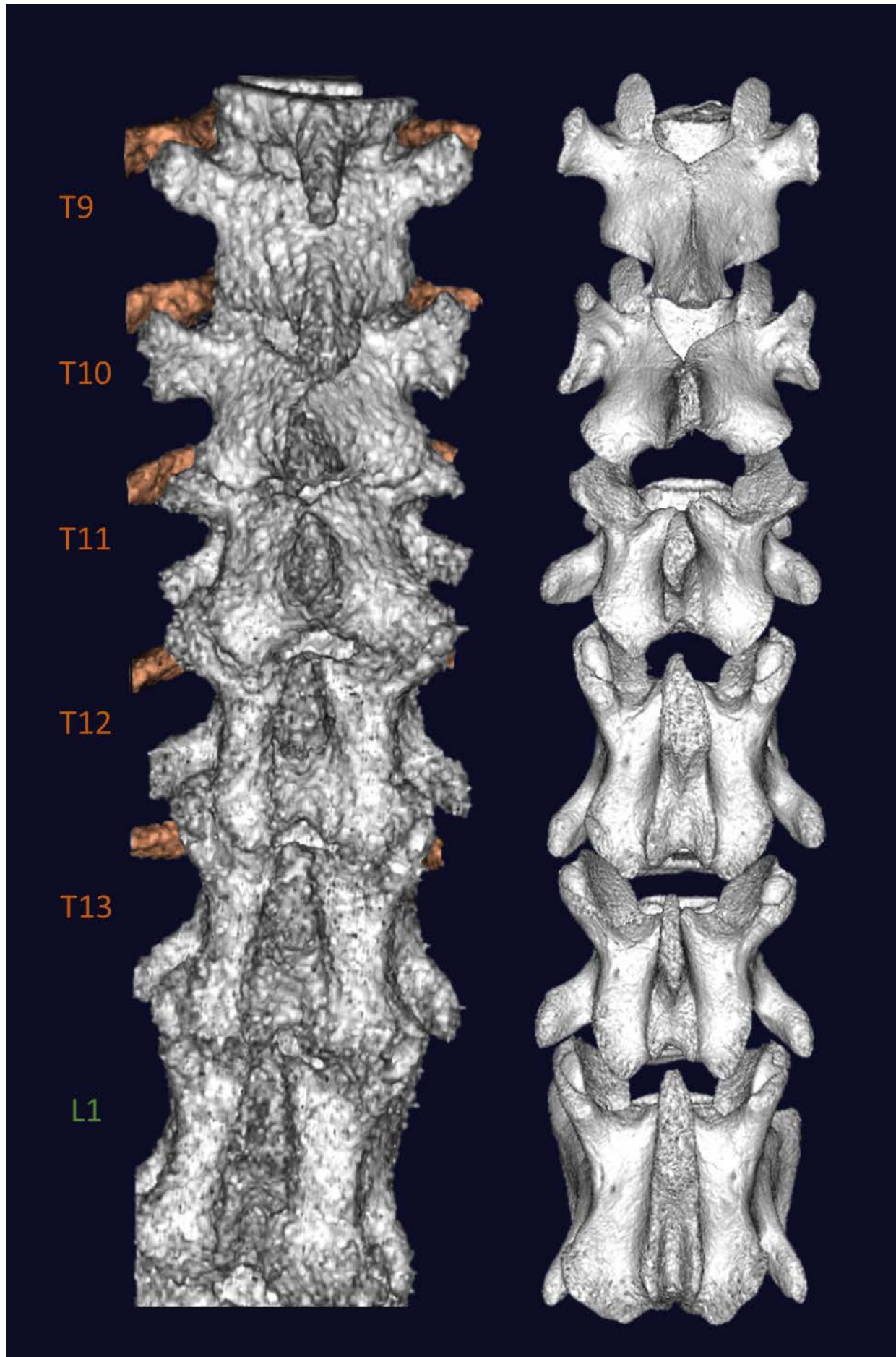
L: 完全



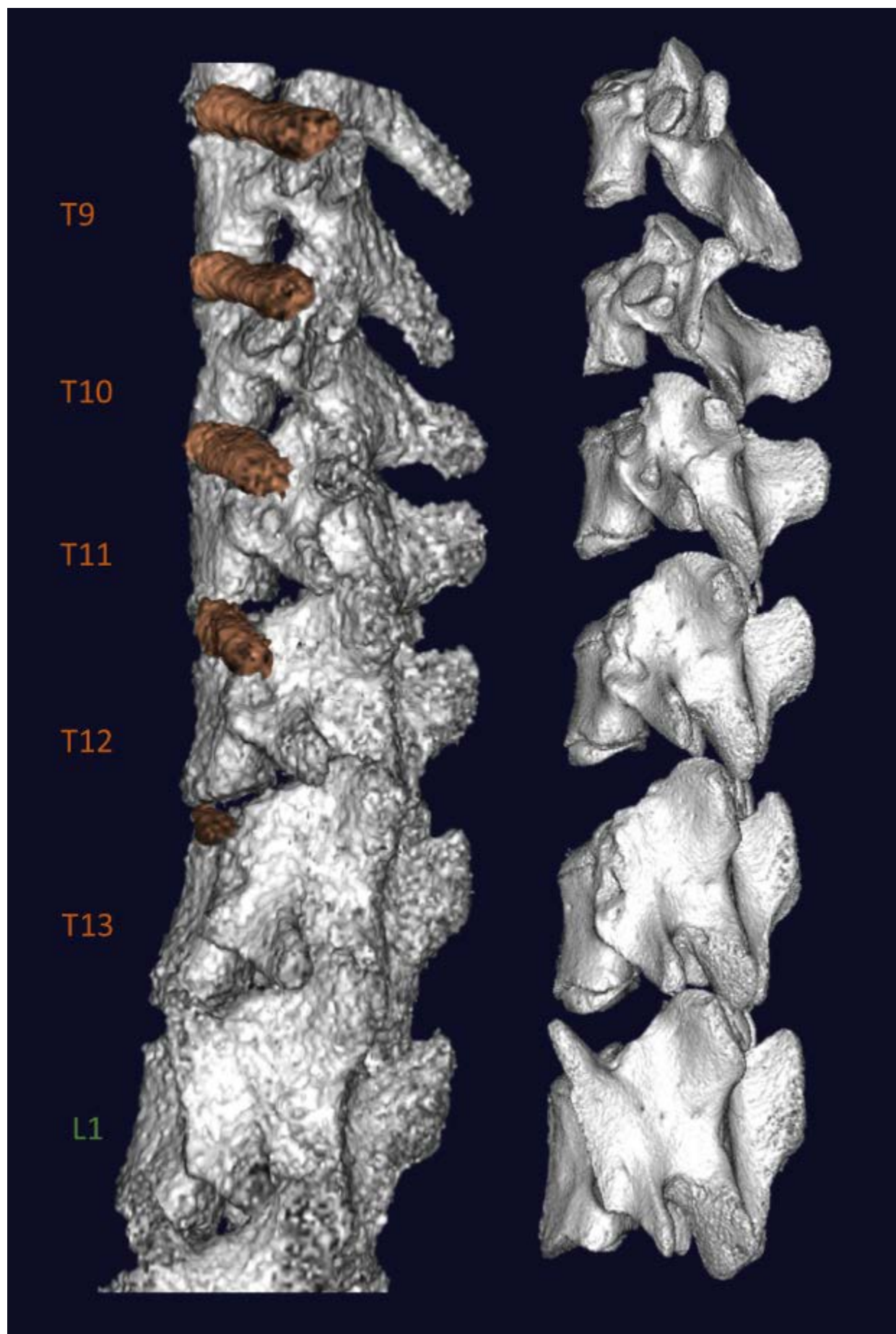
図表58 骨格染色標本 (左) と軟X線写真 (右) の比較



図表59 ラット成獣の椎骨（CT撮影画像 腹側面）
 （左：生体撮影、右：解剖後、椎骨周囲の軟組織を除去し、骨のみ撮影）
 左右で横突起腹結節の大きさが異なる。（無処置照群）



図表60 ラット成獣の椎骨（CT撮影画像 背側面）
（左：生体撮影、右：解剖後、椎骨周囲の軟組織を除去し、骨のみ撮影）



図表61 ラット成獣の椎骨（CT撮影画像 側面）
（左：生体撮影、右：解剖後、椎骨周囲の軟組織を除去し、骨のみ撮影）