

## B6-ob

**Strain Name:** B6/JGpt-*Lep<sup>em1Cd25</sup>*/Gpt

**Strain Number:** T001461

**Strain Type:** Knock out

**Background:** C57BL/6JGpt

### Description

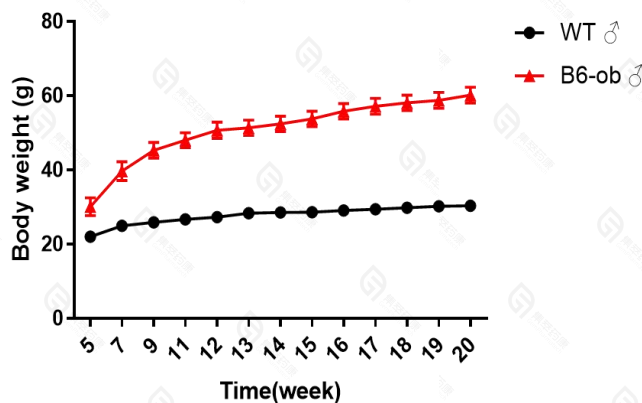
Leptin is a protein hormone secreted by adipose tissue and encoded by the *Lep* gene (also known as the *ob* gene), a homozygous mutation in which causes increased number and size of adipocytes, overeating, transient mild glucose elevation, poor glucose tolerance, and elevated plasma insulin in mice. Homozygous mice can simultaneously have hypometabolism, hypothermia, and fertility, slow wound healing, and increased secretion of pituitary and adrenal hormones.

Gempharmatech uses gene editing technology and blastocyst injection technology to obtain a mouse model of *Lep* gene frameshift mutation. Homozygous mice begin to develop an obese phenotype at about 4 weeks, up to three times the body weight of wild-type mice, and can be used for obesity research.

### Application

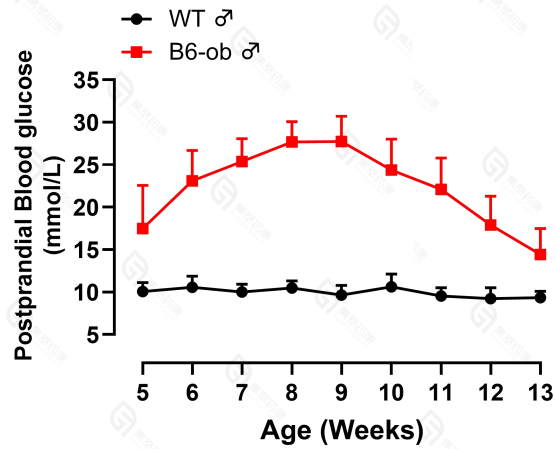
1. Screen the treatment drugs of obesity;
2. Study of Leptin signal pathway;
3. Reproductive physiology research and obesity research.

### Data support



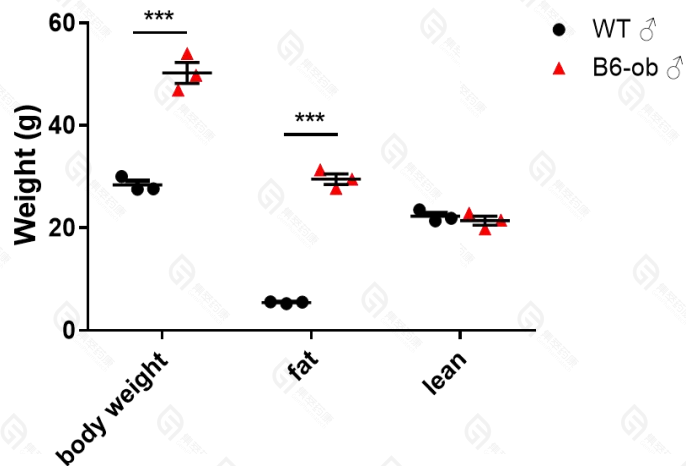
**Fig1. Growth curve of B6-ob mice**

B6-ob mice gain weight rapidly after 4 weeks of age.(Data were presented as Mean±SEM, n=6~8.)



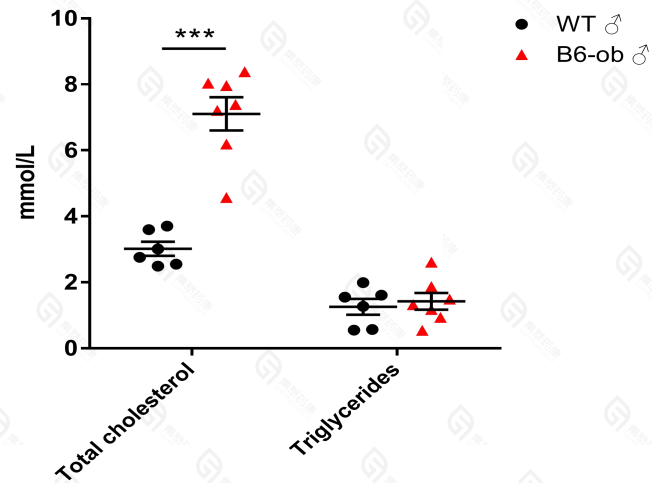
**Fig2. Transient Hyperglycemia of B6-ob mice**

The blood glucose level of B6-ob mice increased during 5~9 weeks of age and decreased after 9 weeks of age. (Data were presented as Mean±SD, n=15.)



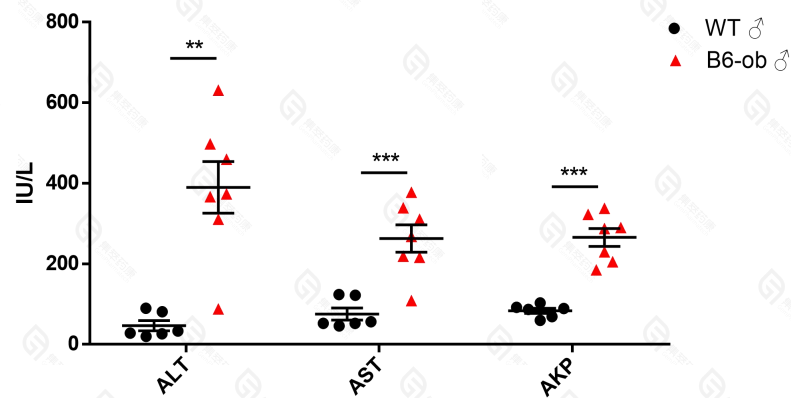
**Fig 3. Body composition of B6-ob mice**

Body weight and fat mass were significantly increased in 14-week-old B6-ob mice. (Data were presented as Mean±SEM, n=3. \*\*\*, p<0.001 by unpaired two-tailed t test.)



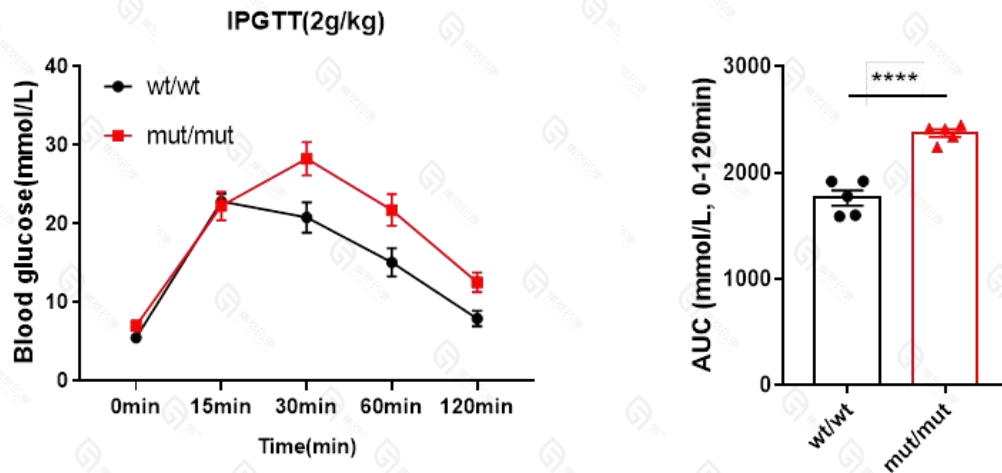
**Fig 4. Blood lipids of B6-ob mice**

The blood lipid level of 20-week-old B6-ob mice was significantly increased. (Data were presented as Mean±SEM, n=6~7. \*\*\*, p<0.001 by unpaired two-tailed t test.)



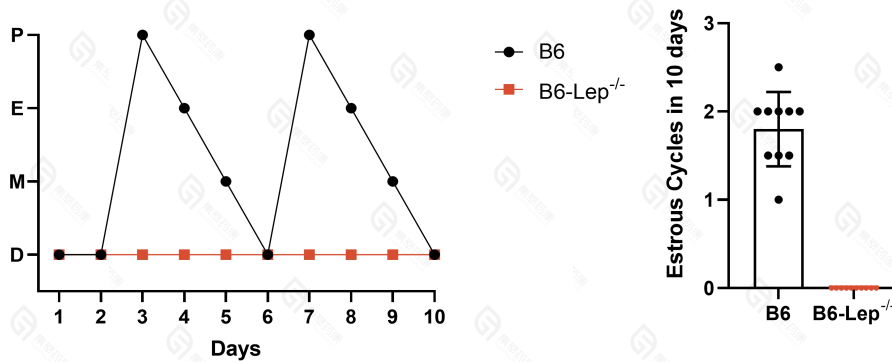
**Fig 5. Liver function parameters of B6-ob mice**

The liver function of 20-week-old B6-ob mice was severely damaged, evidenced by the increase of plasma ALT, AST and AKP. (Data were presented as Mean±SEM, n=6~7. \*\*\*, p<0.001 by unpaired two-tailed t test.)



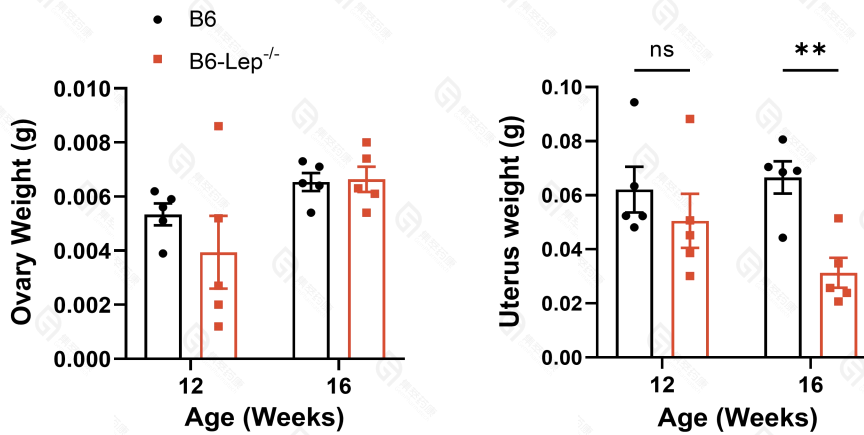
**Fig 6. IPGTT of B6-ob mice**

6-week-old B6-ob homozygous mice developed mild glucose intolerance by IPGTT test. (Data were presented as Mean±SEM, n=5~8. \*\*\*\*, p<0.0001 by unpaired two-tailed t test.)



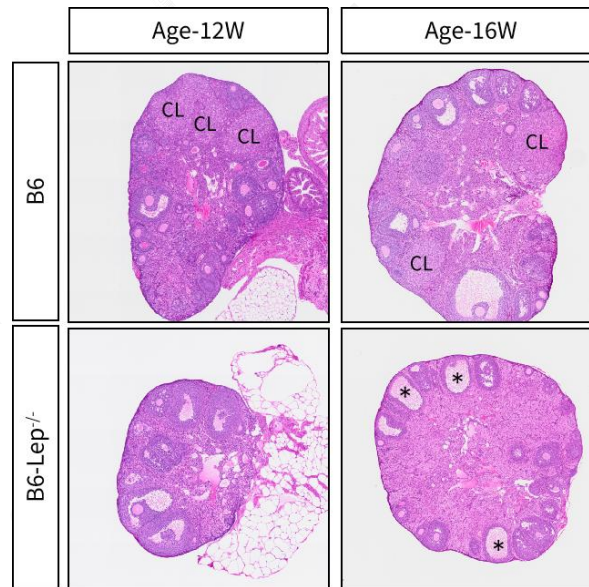
**Fig 7. Estrous cycle in female B6J and B6-ob mice**

The estrous cycle was disappeared in adult (8 Weeks of age) female B6-ob mice. Data were presented as Mean±SEM, n=10.



**Fig 8. The weight of ovary and uterus in female B6J and B6-ob mice.**

There is no significant difference of ovary weight between female B6J and B6-ob. The weight of uterus decreased in female B6-ob at 16 weeks of age when compared with female B6J mice. (Data were presented as Mean±SEM, n=5. \*\*, p<0.01 by unpaired two-tailed t test.)



**Fig 9. The histopathological analysis of ovary**

The corpus luteum (CL) disappeared in the ovary of female B6-ob mice and cystic follicle (\*) appeared in the ovary of female B6-ob mice at 16 weeks of age.

## Biochemical Indicators

### 1. Complete Blood Count

Parameter	Units	Males			Females		
<b>Hematology</b>							
Age	weeks	20 (mut/mut)	20 (wt/wt)	20 (mut/wt)	20 (mut/mut)	20 (wt/wt)	20 (mut/wt)
wbc	K/uL	5.19 ±2.60	5.48 ±2.40	5.00 ±2.09	4.60 ±2.39	4.70 ±1.97	4.81 ±1.63
rbc	M/uL	10.05 ±0.70	9.64 ±0.73	9.92 ±0.69	9.55 ±0.67	9.68 ±0.81	9.67 ±0.63
hb	g/L	154.12 ±7.38	141.90 ±12.04	147.40 ±6.74	147.65 ±8.80	142.30 ±10.33	148.33 ±9.46
hct	%	51.26 ±3.24	45.70 ±3.17	48.29 ±2.91	49.02 ±3.83	46.52 ±3.77	48.64 ±2.58
mcv	fL	51.10 ±2.79	47.43 ±1.18	48.79 ±2.38	51.33 ±1.56	48.04 ±0.87	50.33 ±0.95
mch	Pg	15.38 ±0.82	14.71 ±0.45	14.90 ±0.61	15.53 ±1.27	14.70 ±0.30	15.33 ±0.35

mchc	g/L	301.12 ±12.20	310.20 ±9.19	305.50 ±8.63	302.65 ±25.05	306.20 ±4.80	304.89 ±9.05
rdw	%	19.35 ±2.28	18.33 ±0.97	18.96 ±0.73	18.12 ±0.52	18.39 ±0.46	18.70 ±0.74
plt	K/uL	959.35 ±170.79	1014.90 ±285.91	995.40 ±141.63	965.30 ±159.39	966.50 ±201.89	960.56 ±92.76
mpv	fL	5.17 ±0.29	4.84 ±0.63	5.01 ±0.33	4.83 ±0.41	4.95 ±0.46	5.18 ±0.36
ne#	K/uL	1.53 ±0.92	0.63 ±0.25	0.92 ±0.70	1.40 ±0.67	0.55 ±0.25	1.16 ±0.64
ne%	%	27.92 ±6.89	12.34 ±6.23	17.86 ±7.78	31.06 ±6.13	11.52 ±2.75	23.82 ±7.84
ly#	K/uL	3.47 ±1.65	4.60 ±2.12	3.90 ±1.61	3.08 ±1.69	3.92 ±1.65	3.48 ±1.26
ly%	%	68.49 ±7.05	83.19 ±6.38	78.25 ±6.89	66.45 ±6.05	83.44 ±3.45	72.02 ±7.29
eo#	K/uL	0.05 ±0.16	0.01 ±0.01	0.01 ±0.01	0.01 ±0.02	0.03 ±0.05	0.01 ±0.01
eo%	%	0.66 ±1.76	0.19 ±0.29	0.16 ±0.30	0.13 ±0.15	0.61 ±1.03	0.17 ±0.28
mo#	K/uL	0.14 ±0.15	0.25 ±0.16	0.17 ±0.08	0.10 ±0.08	0.20 ±0.11	0.16 ±0.08
mo%	%	2.70 ±2.17	4.26 ±1.31	3.71 ±1.50	2.33 ±0.85	4.13 ±0.74	3.93 ±3.04

## 2. Blood chemistry

Parameter	Units	Males			Females		
<b>Biochemistry</b>							
Age	weeks	20 (mut/mut)	20 (wt/wt)	20 (mut/wt)	20 (mut/mut)	20 (wt/wt)	20 (mut/wt)
ALT	IU/L	467.59 ±238.87	28.20 ±5.20	35.70 ±17.53	407.75 ±161.67	39.60 ±7.93	25.22 ±4.32
AST	IU/L	409.65 ±82.29	57.00 ±13.48	64.50 ±12.97	267.90 ±86.88	93.80 ±16.10	76.78 ±27.26
TP	g/L	65.75 ±2.50	55.05 ±3.36	56.76 ±3.30	63.12 ±3.07	56.93 ±4.85	54.10 ±3.21
ALB	g/L	41.72 ±1.49	36.94 ±2.29	37.95 ±2.03	41.65 ±1.75	38.47 ±3.22	37.27 ±2.35

AKP	IU/L	338.82 ±36.81	77.60 ±7.29	85.60 ±8.63	234.45 ±44.97	142.20 ±39.21	126.89 ±39.15
TBIL	umol/ L	1.22 ±0.16	1.24 ±0.28	1.09 ±0.42	0.90 ±0.22	0.83 ±0.27	1.53 ±0.55
BUN	mmol/ L	11.83 ±1.62	12.11 ±1.69	14.95 ±2.47	10.69 ±1.64	10.88 ±2.17	9.26 ±1.98
CREA	umol/ L	15.15 ±1.66	16.48 ±2.63	18.17 ±2.73	13.80 ±1.25	15.67 ±1.85	14.27 ±2.36
CHOI	mmol/ L	7.86 ±0.66	2.79 ±0.42	2.91 ±0.26	5.84 ±0.93	2.19 ±1.95	2.16 ±0.61
TG	mmol/ L	0.48 ±0.14	0.27 ±0.13	0.20 ±0.19	0.18 ±0.06	0.17 ±0.10	0.15 ±0.04
HDL-C	mmol/ L	3.98 ±0.19	1.87 ±0.33	1.98 ±0.20	3.30 ±0.38	1.34 ±1.16	1.32 ±0.56
LDL-C	mmol/ L	2.04 ±0.30	0.31 ±0.05	0.32 ±0.07	1.56 ±0.40	0.45 ±0.48	0.35 ±0.07
Ca	mmol/ L	2.66 ±0.07	2.41 ±0.10	2.47 ±0.07	2.62 ±0.07	2.47 ±0.10	2.39 ±0.12
P	mmol/ L	3.22 ±0.47	2.61 ±0.54	3.25 ±0.56	3.19 ±0.50	4.34 ±0.74	3.22 ±0.77
Fe	umol/ L	29.64 ±2.52	19.10 ±1.38	18.89 ±2.54	27.07 ±3.65	20.92 ±2.36	20.76 ±3.01
GLU	mmol/ L	9.56 ±2.51	9.45 ±1.98	7.24 ±1.21	10.33 ±3.34	6.94 ±2.16	8.39 ±1.64