B6-ob

Strain Name: B6/JGpt-*Lep*^{em1Cd25}/Gpt
Strain Number: T001461
Strain Type: Cas9-KO
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

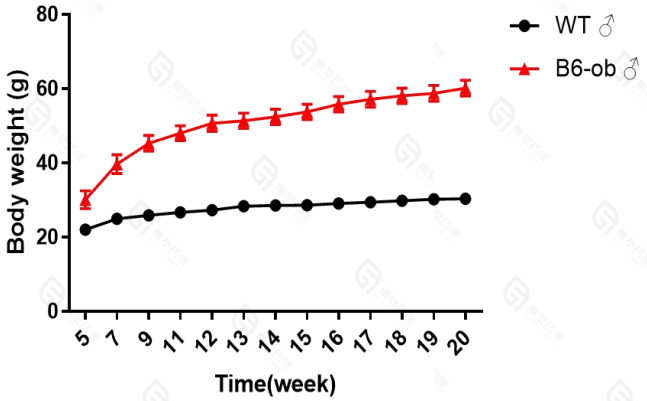

Fig1. Detection of body weight level in B6-ob mice

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

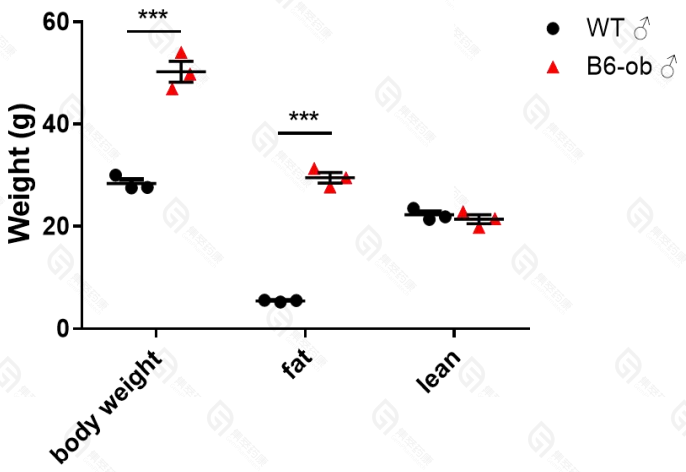

Fig 2. Detection of body weight and fat weight in B6-ob mice

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.)

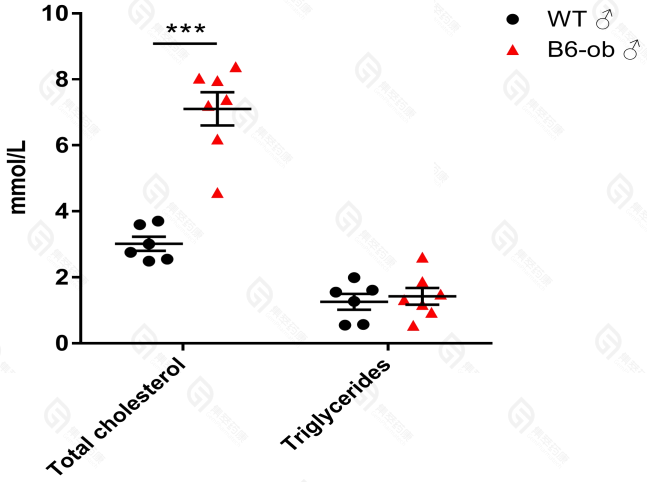

Fig 3. Detection of blood lipids in B6-ob mice

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.)

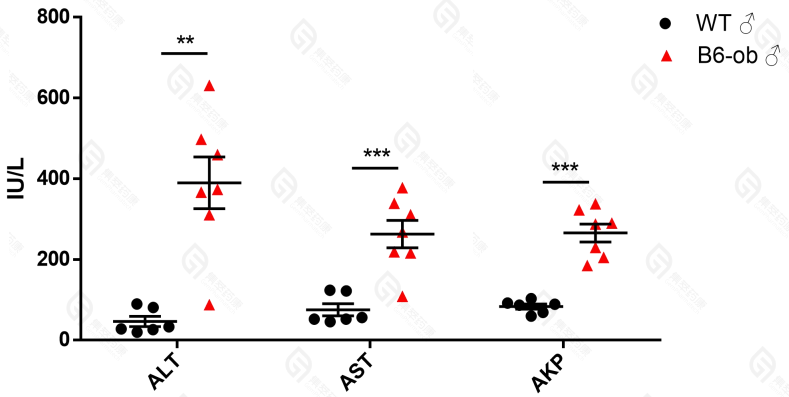

Fig 4. Detection of liver function indexes in B6-ob mice

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

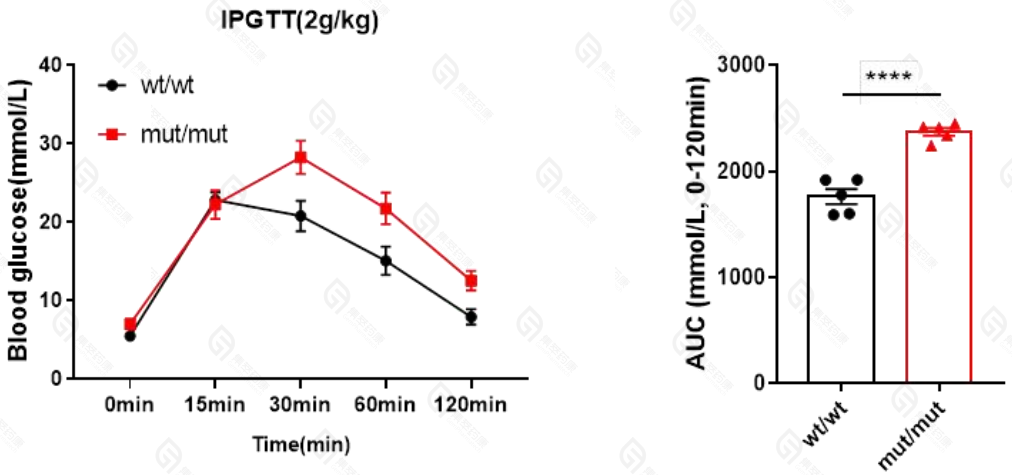

Fig 5. B6-ob mice IPGTT test

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.)

Biochemical Indicators

1. blood routine

Parameter	Units	Males			Females		
Hematology							
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

Biochemistry

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
CHOl	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