

1 Supplementary tables

2 Table s1

3 Sequences of primers used in quantitative real-time reverse transcription polymerase

4 chain reaction

Genes	Forward primer (5'-3')	Reverse primer (5'-3')
β -actin	GGCTGTATTCCCCTCCATCG	CCAGTTGGTAACAATGCCATGT
IRS1	GAGTTGAGTTGGGCAGAATAGG	CCTATCTGCATGGTCATGTAGT
PI3K	AAACAAAGCGGAGAACCTATTG	TAATGACGCAATGCTTGACTTC
AKT	TGCACAAACGAGGGGAATATAT	CGTTCCTTG TAGCCAATAAAGG
GLUT4	TATTCAACCAGCATCTTCGAGT	GTCCAGCTCGTTCTACTAAGAG

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19 Table s2

20 Content of commercial oat β -glucan and soluble oat β -glucan ($\bar{x} \pm SD$)

Samples	Content (%)
Commercial oat β -glucan	69.63 ± 0.31
Soluble oat β -glucan	75.87 ± 0.17

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39 Table s3

40 Criterion of NAFLD activity score

Item	Definition	Score
Steatosis Grade	Low- to medium-power evaluation of parenchymal involvement by steatosis	
	<5%	0
	5%-33%	1
	>33%-66%	2
	>66%	3
Lobular inflammation	Overall assessment of all inflammatory foci	
	No foci	0
	<2	1
	2-4	2
	>4	3
Hepatocyte ballooning	None	0
	Few balloon cells	1
	Many cells/prominent ballooning	2

42 The raw data for all figures are as follows.

43 Figure 1

44 The effect of OBG on HepG2 cell viability.

OBG concentration (mg/mL)	Control	0.625	1.25	2.5	5	10
HepG2 cell viability (%)	100	105.36 ± 2.91	104.88 ± 10.79	93.27 ± 5.00	93.52 ± 6.09	89.70 ± 4.51

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46 The effect of LA on HepG2 cell viability.

LA concentration (mg/mL)	Control	0.625	1.25	2.5	5	10
HepG2 cell viability (%)	100	101.02 ± 2.81	98.24 ± 7.01	96.54 ± 5.99	92.11 ± 4.83	71.41 ± 8.68

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48 The effect of DEX on HepG2 cell viability.

DEX concentration (µM)	Control	0.25	0.5	1	2	4	8
HepG2 cell viability (%)	100	90.68 ± 4.64	89.20 ± 7.80	86.84 ± 9.23	92.04 ± 8.95	79.24 ± 5.39	19.24 ± 4.61

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57 Figure 2

58 The effect of different DEX concentrations and induction time on difference value of
59 glucose consumption.

DEX concentration (μM)	Difference value of glucose consumption (mM)		
	12 h	24 h	48 h
0.25	0.29 ± 0.06	0.52 ± 0.09	1.20 ± 0.42
0.50	0.36 ± 0.04	0.56 ± 0.09	1.32 ± 0.12
1	0.47 ± 0.06	0.97 ± 0.07	1.31 ± 0.04
2	1.12 ± 0.03	1.22 ± 0.15	1.64 ± 0.08
4	1.29 ± 0.12	1.48 ± 0.28	2.01 ± 0.36

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73 Figure 3

74 The effect of OBG, LA, and different compositions on glucose consumption in insulin
75 resistance HepG2 cell model.

Groups	Glucose content (mM)
CN	18.09 ± 0.20
OBG	14.36 ± 0.14
LA	14.72 ± 0.13
1:1	12.99 ± 0.45
1:2	14.82 ± 0.04
1:4	14.82 ± 0.63
1:6	14.59 ± 1.08
1:8	14.79 ± 0.64
1:10	14.24 ± 0.51
2:1	14.11 ± 0.32
4:1	13.59 ± 0.16
6:1	14.04 ± 0.19
8:1	14.57 ± 0.24
10:1	15.31 ± 1.09

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84 Figure 4

85 The effect of OBG:LA = 1:1 on body weight in db/db mice.

Weeks	Groups					
	CN	NEG	MET	1:1	OBG	LA
0	20.35 ± 0.61	37.17 ± 0.85	38.72 ± 0.96	35.76 ± 1.02	35.43 ± 0.30	35.57 ± 2.01
1	22.21 ± 0.19	42.85 ± 1.05	43.16 ± 0.80	42.47 ± 2.00	41.54 ± 0.62	42.23 ± 1.82
2	23.21 ± 0.88	45.91 ± 0.65	44.45 ± 1.41	44.58 ± 2.39	43.22 ± 1.30	43.65 ± 2.11
3	24.61 ± 1.29	45.22 ± 0.74	42.72 ± 1.88	42.13 ± 0.87	40.93 ± 2.74	42.33 ± 1.00
4	25.38 ± 0.96	48.25 ± 1.86	42.73 ± 1.55	43.14 ± 0.61	42.03 ± 4.12	43.14 ± 0.82
5	25.05 ± 0.74	52.04 ± 2.46	44.93 ± 2.07	46.04 ± 1.42	44.62 ± 5.23	44.71 ± 1.58
6	24.96 ± 0.96	53.09 ± 3.14	45.49 ± 1.28	46.70 ± 1.07	45.86 ± 4.60	45.49 ± 2.33
7	25.07 ± 0.71	53.80 ± 3.72	45.10 ± 1.19	46.03 ± 2.96	45.87 ± 4.80	45.59 ± 2.53
8	25.83 ± 1.21	56.08 ± 3.36	45.36 ± 1.08	46.30 ± 3.15	46.99 ± 4.65	46.48 ± 2.84
9	25.89 ± 1.35	57.81 ± 4.34	44.10 ± 0.89	46.56 ± 3.36	47.70 ± 4.73	47.86 ± 2.41
10	25.57 ± 0.69	57.50 ± 4.04	44.10 ± 0.86	46.72 ± 3.14	48.00 ± 4.65	48.26 ± 2.66

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87 The effect of OBG:LA = 1:1 on Lee's index in db/db mice.

Groups	CN	NEG	MET	1:1	OBG	LA
Lee's index (cm/g ³)	81.87 ± 3.74	170.95 ± 15.49	152.84 ± 6.24	153.32 ± 4.09	159.91 ± 14.05	155.49 ± 5.96

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89 The effect of OBG:LA = 1:1 on liver index in db/db mice.

Groups	CN	NEG	MET	1:1	OBG	LA
liver index (mg/g)	37.03 ± 0.73	50.23 ± 1.16	46.03 ± 2.08	46.19 ± 1.81	48.84 ± 0.97	49.15 ± 0.35

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92 Figure 5

93 The effect of OBG:LA = 1:1 on fasting blood glucose (FBG) in db/db mice.

Groups	CN	NEG	MET	1:1	OBG	LA
FBG (mmol/L)	4.46 ± 0.36	33.73 ± 2.46	27.85 ± 2.31	27.14 ± 2.15	28.91 ± 1.24	27.80 ± 1.45

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95 The effect of OBG:LA = 1:1 on glyated serum proteins (GSP) in db/db mice.

Groups	CN	NEG	MET	1:1	OBG	LA
GSP (mmol/L)	1.75 ± 0.16	3.46 ± 0.80	2.41 ± 0.22	2.49 ± 0.11	2.60 ± 0.25	2.95 ± 0.30

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97 The effect of OBG:LA = 1:1 on fasting blood insulin (FINS) in db/db mice.

Groups	CN	NEG	MET	1:1	OBG	LA
FINS (mIU/L)	8.72 ± 0.65	17.60 ± 1.04	13.90 ± 0.28	11.79 ± 0.93	12.71 ± 1.21	14.52 ± 1.34

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99 The effect of OBG:LA = 1:1 on HOMA-IR index in db/db mice.

Groups	CN	NEG	MET	1:1	OBG	LA
HOMA-IR	1.74 ± 0.26	26.33 ± 1.60	17.21 ± 1.57	14.23 ± 1.67	16.36 ± 2.09	17.88 ± 0.71

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103 The effect of OBG:LA = 1:1 on glucose tolerance in db/db mice fasted for 12 h

104 determined by the OGTT.

Time (min)	Groups					
	CN	NEG	MET	1:1	OBG	LA
0	4.95 ±	29.58 ±	18.84 ±	21.36 ±	23.26 ±	24.74 ±
	0.76	2.61	1.19	0.77	3.03	1.34
30	18.60 ±	32.33 ±	33.05 ±	33.30 ±	33.15 ±	31.93 ±
	3.69	1.47	0.50	1.21	0.30	2.75
60	10.18 ±	31.60 ±	28.90 ±	29.95 ±	31.10 ±	30.35 ±
	2.10	1.43	2.86	1.87	1.15	2.93
90	7.83 ±	30.15 ±	25.43 ±	24.85 ±	27.88 ±	27.35 ±
	2.17	1.87	3.22	1.88	1.63	1.58
120	5.65 ±	29.18 ±	20.13 ±	23.20 ±	22.25 ±	25.58 ±
	0.06	2.37	0.87	1.87	5.81	2.45

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106 AUC for the OGTT test.

Groups	CN	NEG	MET	1:1	OBG	LA
Glucose AUC	1259.63 ±	3710.66 ±	3178.28 ±	3363.11 ±	3410.44 ±	3461.89 ±
	112.61	213.01	111.87	109.36	180.07	279.65

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116 Figure 6

117 NAFLD activity score of liver tissue.

Item	Groups					
	CN	NEG	MET	1:1	OBG	LA
Steatosis Grade	0	2.17 ± 0.75	1.00 ± 0.41	1.17 ± 0.63	1.50 ± 0.54	1.83 ± 0.75
Lobular inflammation	0	1.53 ± 0.75	0.83 ± 0.52	1.00 ± 0.63	1.07 ± 0.75	1.23 ± 0.75
Hepatocyte ballooning	0	1.47 ± 0.52	1.00 ± 0.63	0.83 ± 0.52	1.13 ± 0.75	1.20 ± 0.55

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133 Figure 7

134 Effect of OBG:LA = 1:1 on the expression of genes in the liver of db/db mice.

Genes	Groups					
	CN	NEG	MET	1:1	OBG	LA
IRS1	1.03 ±	0.35 ±	0.75 ±	0.59 ±	0.40 ±	0.51 ±
	0.13	0.06	0.07	0.10	0.07	0.06
PI3K	1.01 ±	0.15 ±	0.95 ±	0.62 ±	0.52 ±	0.68 ±
	0.10	0.05	0.09	0.05	0.05	0.09
AKT	1.03 ±	0.16 ±	0.97 ±	0.93 ±	0.43 ±	0.57 ±
	0.07	0.04	0.06	0.08	0.05	0.16
GLUT4	1.03 ±	0.37 ±	0.99 ±	0.62 ±	0.84 ±	0.36 ±
	0.05	0.06	0.15	0.13	0.11	0.05

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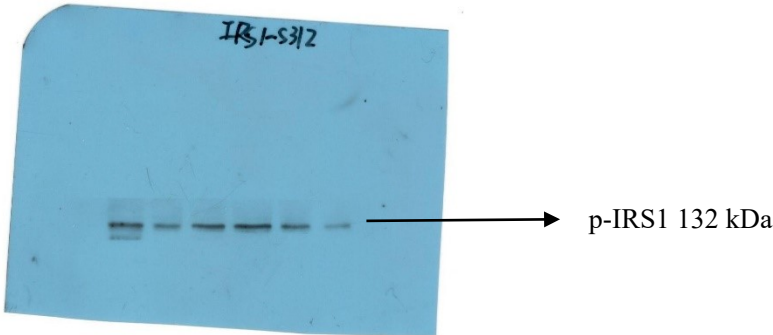
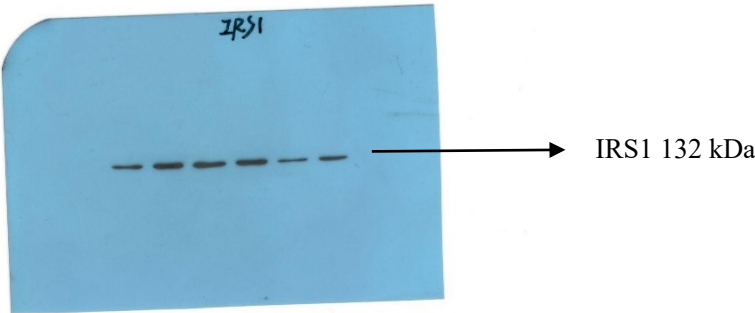
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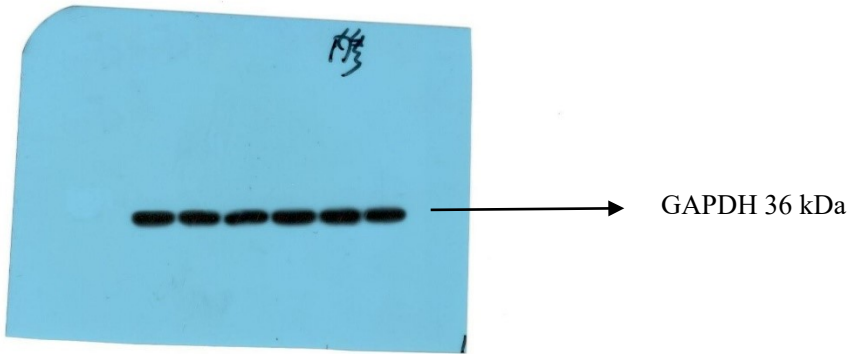
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147 Figure 8

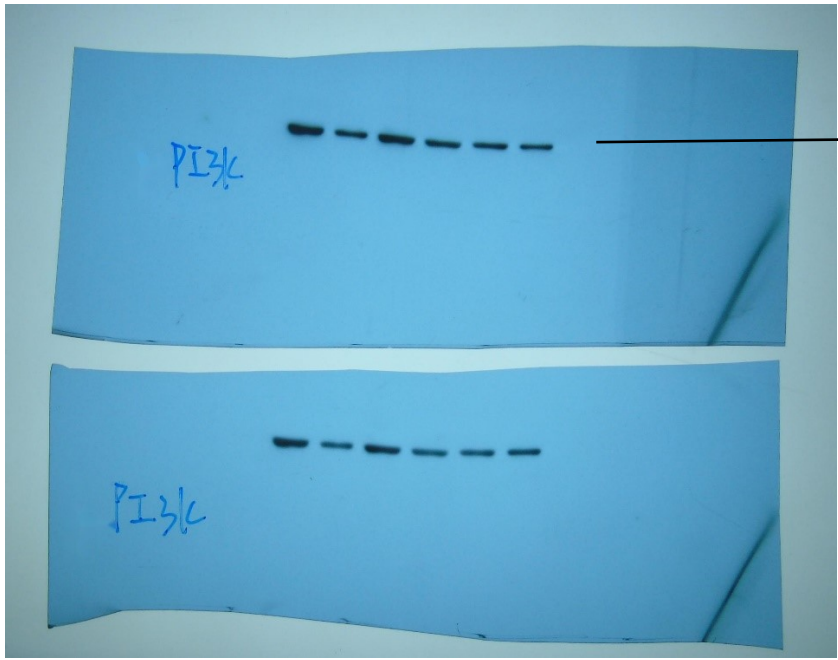


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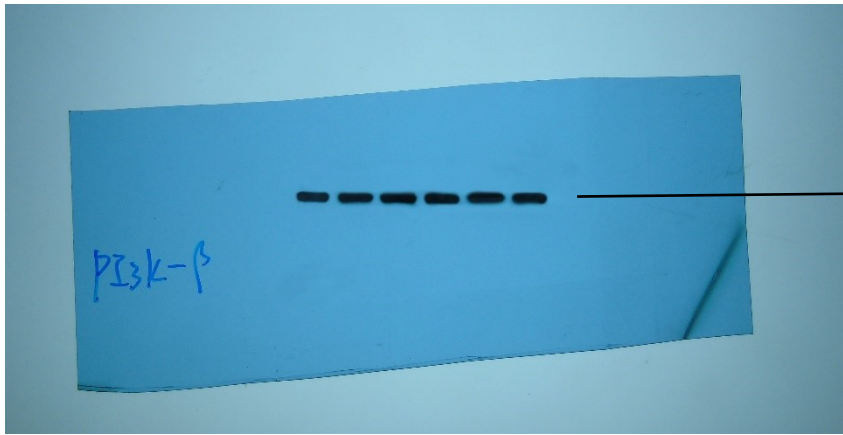
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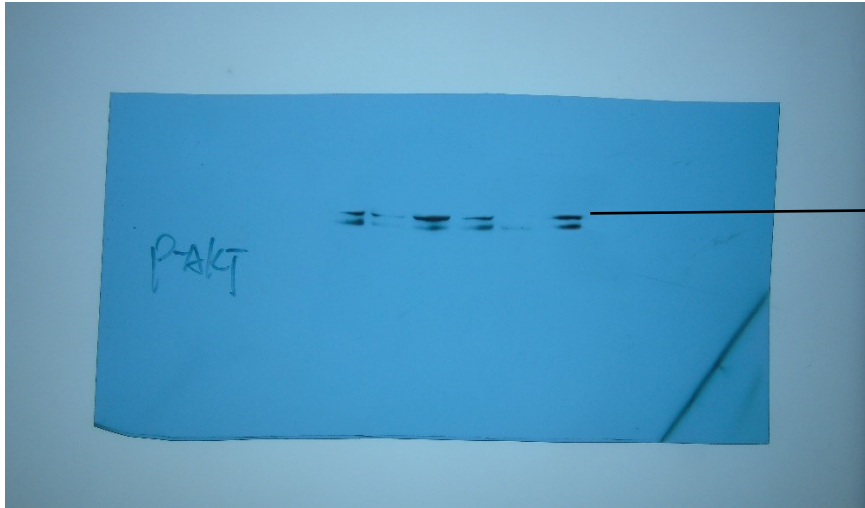
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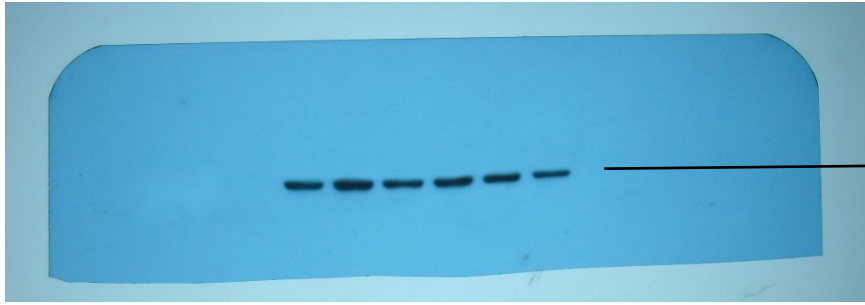
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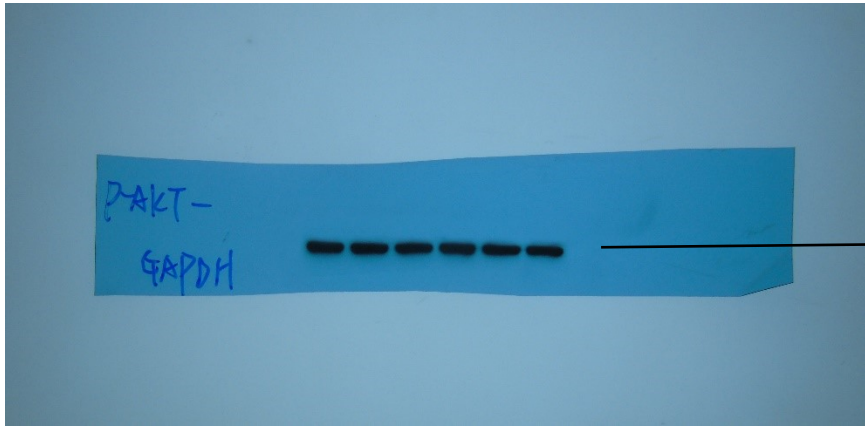
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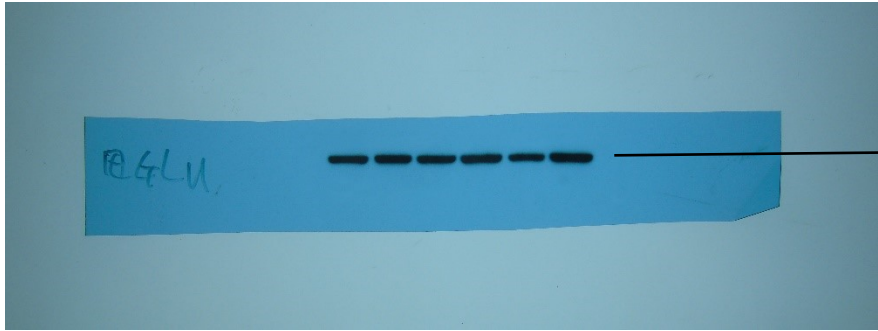
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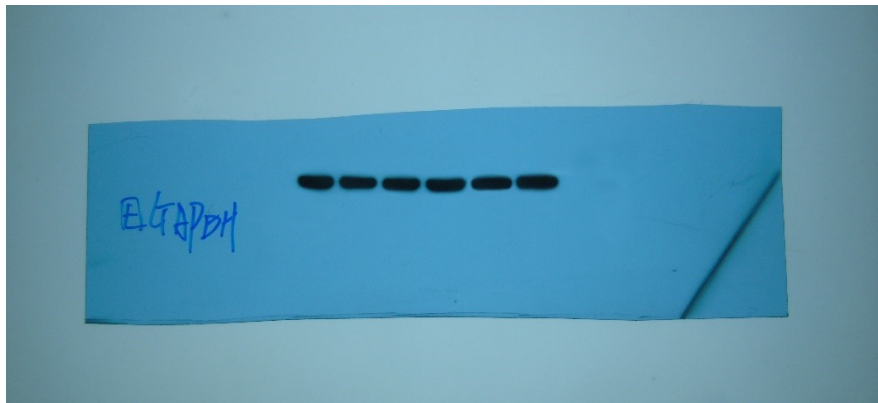
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