SUPPLEMENTAL MATERIAL

Table S1. Baseline metabolic parameters of the two experimental groups of rats.

| Metabolic parameters	Baseline (0 week)	
	ND (n=10)	HFD (n=10)
Body mass (g)	250.34±10.26	254.70±9.13
FBG (mmol/L)	4.66±0.26	5.01±0.23
FINS (ng/mL)	0.48±0.09	0.53±0.06
HOMA-IR	2.63±0.26	2.33±0.63
TC (mmol/L)	1.83±0.18	2.03±0.41
TG (mmol/L)	0.93±0.25	1.02±0.11
HDL-C (mmol/L)	1.45±0.17	1.63±0.22
LDL-C (mmol/L)	0.72±0.12	0.83±0.18

There was no difference in baseline data between the two groups (t-test for all; data presented as mean±SD). FBG, fasting blood glucose; FINS, fasting insulin; HOMA-IR, homeostasis model assessment of insulin resistance; TC, total cholesterol; TG, triglyceride; HDL-C, high-density lipoprotein; LDL-C, low-density lipoprotein.

Table S2. Metabolic parameters of two experimental groups after diet treatment for 20 weeks.

Metabolic parameters	20 weeks	
	Control (n=8)	Obese (n=7)
Food intake (g/week)	71.09±17.09	68.57±17.67
Body mass (g)	501.33±65.26*	641.38±132.58*
SBP (mm/Hg)	99.00±10.64	109.70±33.78
DBP (mm/Hg)	66.83±15.36	65.00±11.27
FBG (mmol/L)	4.39±0.52	7.45±0.81*
FINS (ng/mL)	0.49±0.04	1.33±0.15*
HOMA-IR	2.89±1.21	8.02±1.36**
TC (mmol/L)	1.79±0.32	2.91±0.43**
TG (mmol/L)	0.96±0.06	2.03±0.58*
HDL-C (mmol/L)	1.56±0.13	1.02±0.09*
LDL-C (mmol/L)	0.68±0.15	1.47±0.21**

After 20-week of high fat diet feeding, HFD rats were obese, hyperglycemic, hyperlipidemic, and insulin resistant (* = $p < 0.05$ vs. Control group, **= $p < 0.01$ vs. Control group; t-test for all; data presented as mean±SD). FBG, fasting blood glucose; FINS, fasting insulin; HOMA-IR, homeostasis model assessment of insulin resistance; TC, total cholesterol; TG, triglyceride; HDL-C, high-density lipoprotein; LDL-C, low-density lipoprotein.

Figure. S1 Western blot analysis of leptin expression of PAT from control and obese rats. (*$p<0.001$ vs. con-PAT; t-test, n=3/group).**
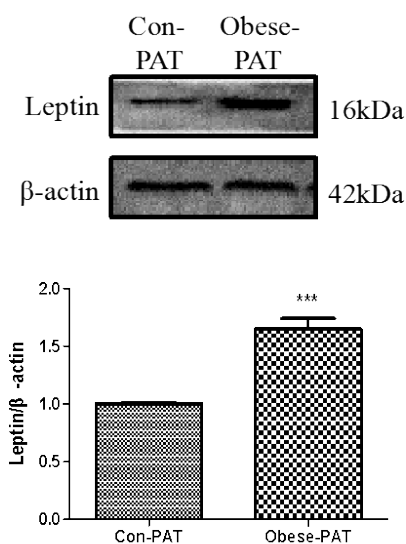
Figure S2. Long-term leptin administration induces H9c2 cell apoptosis. H9c2 cells were incubated by different concentrations of leptin at various time periods. Cell viability was measured by methyl thiazolyl tetrazolium (MTT) method. a-k Effects of time and concentration gradient of leptin on H9c2 cell proliferation. l-m Western blot analysis of caspase 3 protein expression after 24 or 48h of leptin intervention. (*p<0.05 vs. 0ng/ml; **p<0.01 vs. 0ng/ml; ***p<0.001 vs. 0ng/ml; &p<0.001 vs. 24h (0ng/ml); #p<0.05 vs. 48h (0ng/ml); 1-way ANOVA with Bonferroni correction for A-K, two-way ANOVA analysis of variance for M; data presented as mean±SEM). For A-K, n=6/group; for M, n=3/group.