

Table S1. Oligonucleotide sequences for transfection

Gene	Primer sequence (5'-3')
scRNA (control RNA)	UCACAACCUCCUAGAAAGAGUAGA
miR-183-5p	UAUGGCACUGGUAGAAUUCACU
antimiR-183	AGUGAAUUCUACCAGUGGATG

**Table S2. Primer lists and conditions for *q*RT-PCR, RT-PCR, and cloning**

(A) Human primer lists for *q*RT-PCR and RT-PCR

Gene	Primer sequence (5′-3′)		Product size	Annealing Temperature	Concentration		Cycle
					cDNA	Primer	
miR-183-5p	F.P	TATGGCACTGGTAGAATTCACT	90	55	2 ng/μl	0.5 μM	40
miRNA universal Primer	R.P	miScript universal primer (Qiagen)					
IRS1	F.P	GTTTCCAGAAGCAGCCAGAG	474	60			
	R.P	ACTCTCTCCACCCAACGTGA					
U6	F.P	CTCGCTTCGGCAGCACA	94	58			
	R.P	AACGCTTCACGAATTTGCGT					
β-Actin	F.P	TCACCCACACTGTGCCCATCTACGA	348	58			
	R.P	GGATGCCACAGGATTCCATACCCA					

(B) Primer lists for wild-type and mutant 3'UTR cloning

Gene	Primer sequence (5′-3′)		Product size	Annealing Temperature	Concentration		Cycle
					cDNA	Primer	
<i>wt</i> -IRS1	F.P	TTGGATGTGGGATGGAGGTA	275	58	2 ng/μl	0.5 μM	35
	R.P	AACATGGCCTATTGTCTTAC					
<i>mut</i> -IRS1	F.P	GAATCATAGTCGGATAGATGG	146				
	R.P	AACATGGCCTATTGTCTTAC					
	F.P	TTGGATGTGGGATGGAGGTA	150				
	R.P	CCATCTATCCGACTATGATTC					

**Table S3. Antibodies list**

Antibody	Type	Targeted species	Manufacturer	Cat. No.	Dilution ratio*
IRS-1	Polyclonal	Rabbit	Millipore, Burlington, MA, USA	#06-248	1:5,000
Phospho IRS-1(Tyr612)	Polyclonal	Rabbit	Invitrogen, Thermofisher Scientific, Waltham, MA, USA	Sc250575	1:2,000
INSR	Monoclonal	Mouse	Cell Signaling Technology, Danvers, MA, USA	#3020	1:3,000
Phospho INSR (Tyr1150/1151)	Monoclonal	Rabbit	Cell Signaling Technology, Danvers, MA, USA	#3024	1:3,000
Akt2	Polyclonal	Rabbit	Cell Signaling Technology, Danvers, MA, USA	#9272	1:10,000
Phospho Akt2 (Ser474)	Polyclonal	Rabbit	Cell Signaling Technology, Danvers, MA, USA	#8599	1:10,000
GSK3 $\beta$	Monoclonal	Rabbit	Cell Signaling Technology, Danvers, MA, USA	#9315	1:10,000
Phospho GSK3 $\beta$ (Ser21/9)	Polyclonal	Rabbit	Cell Signaling Technology, Danvers, MA, USA	#9331	1:10,000
$\beta$ -actin	Monoclonal	Rabbit	Sigma-Aldrich Chemical, St. Louis, Missouri, USA	A2066	1:10,000
Antibodies HRP-linked anti-rabbit IgG			Cell Signaling Technology, Danvers, MA, USA	#7074	1:10,000
Goat anti-mouse(H+L)			Invitrogen, Thermofisher Scientific, Waltham, MA, USA	#32430	1:2,000

\*All blots were visualized using a Femto reagent (Thermofisher Scientific).

**Table S4. Diet compositions**

(A) Normal fat diet (NFD; Purina Laboratory Rodent Diet 38057)

Calories (%)		Fat component of total fat (gram%)		
		Saturated fatty acid	Unsaturated Fatty acids	Unidentified fat
Fat	12.41	Arachidonic Acid (4.42)	Omega-3 fatty acid (24.55)	Unidentified (44.23)
Carbohydrate	63.07		Linoleic acid (24.15)	
Protein	24.52		Linolenic acid (2.65)	
Total	100	4.42 of total fat	51.35 of total fat	44.23 of total fat

(B) High-fat diet (HFD; D12492)

Calories (%)		Fat component of total fat (gram%)	
		Saturated fatty acid	Unsaturated Fatty acids
Fat	60	Palmitic acid (19.64) Stearic acid (10.59) Myristoleic acid (1.10)	Oleic acid (33.68) Linoleic acid (28.37)
Carbohydrate	20	Lau acid (0.8) Margaric acid (0.35) Arachidic acid (0.16)	Linolenic acid (2.04) Arachidonic acid (1.78) Palmitoleic acid (1.33)
Protein	20	Pentadecanoic acid (0.08) Capric acid (0.04)	Docosapentaenoic acid (0.78)
Total	100	32 of total fat	68 of total fat