

Table S1 Amino acid composition

AA _s (%)	MPC	WPC
Phe	4.70	3.50
Tyr	4.05	2.55
Ala	3.11	4.59
Met	2.63	2.10
Cys	0.21	0.95
Pro	10.68	5.59
Gly	1.76	1.98
Glu	21.61	18.73
Arg	3.56	2.68
Lys	7.24	8.93
Leu	8.79	10.00
Ser	4.22	3.79
Thr	3.71	5.89
Asp	8.35	13.08
Val	5.99	5.80
Ile	5.21	6.58
His	2.63	1.99
Trp	1.52	1.27

MPC, milk protein concentrate; WPC, whey protein concentrate; % represents the amino acid composition ratio of the two proteins. Phe, phenylalanine; Tyr, tyrosine; Ala, alanine; Met, Methionine; Cys, cysteine; Pro, proline; Gly, glycine; Glu, glutamic acid; Arg, arginine; Lys, lysine; Leu, leucine; Ser, serine; Thr, threonine; Asp, aspartic acid; Val, valine; Ile, isoleucine; His, histidine; Trp, tryptophan.

Table S2 Nutrient composition of rat diets

	MPC				WPC			
	L-14	L-40	H-14	H-40	L-14	L-40	H-14	H-40
	%	%	%	%	%	%	%	%
g/Kg Diet								
Protein	140	400	160	460	140	400	160	460
Sucrose	103.3	66.72	264.83	180.35	103.3	66.72	264.83	180.35
Corn starch	637	414.08	336.06	120.35	637	414.08	336.06	120.35
Soybean oil	40	40	40	40	40	40	40	40
Lard oil	0	0	120	120	0	0	120	120
Minerals	27.32	27.32	27.32	27.32	27.32	27.32	27.32	27.32
Vitamins	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Cellulose	50	50	50	50	50	50	50	50
Choline	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Total	1000.2	1000.7	1000.8	1000.6	1000.2	1000.7	1000.8	1000.6
Percentage of energy								
Total protein(%)	14.43	41.20	14.27	41.04	14.43	41.20	14.27	41.04
Total carbohydrate(%)	76.30	49.53	53.61	26.83	76.30	49.53	53.61	26.83
Total fat(%)	9.28	9.28	32.12	32.12	9.28	9.28	32.12	32.12
Total energy(Kcal/Kg)	3881	3883	4483	4483	3881	3883	4483	4483

MPC, milk protein concentrate; WPC, whey protein concentrate.

Table S3 Primers used in Real-time PCR

	forward primer (5'-3')	reverse primer (5'-3')
β -actin	CCCGCGAGTACAACCTTCTTG	ACCCATACCCACCATCACAC
UCP1	GTGAGTTCGACAACCTCCGAAGTG	CATGAGGTCATATGTCACCAGCTC
HSL	CGCCTTACGGAGTCTATGC	GAGGACACCTTGGCTTGA
ACC	CAATCCTCGGCACATGGAGA	GCTCAGCCAAGCGGATGTAGA
FASN	CAGGTGTGTGATGGGAAG	TGTGGATGATGTTGATGATAG
SCD1	ACCTTGCTCTGGGGGATATT	TCCGCCCTTCTCTTTGACA
CPT1	CCCTAAGCCCACAAGGCTAC	TCTCTGTCCCTCCCTTCTCGG
ACOX1	CAAGGAGAGTGCTACGGGTTA	TTCAGGTAGCCGTTATCCAT
FGF21	GTGCGAGGCATACCCCATC	CCGTCCTCCCTGATCTCCA
PPAR α	TGGTGCATTTGGGCGTAACTC	ACATGCGTGGACTCCATAGTG
CBS	CGTGATGCCTGAGAAGATGAGT	CACCGATGATTTTACAACCTGG
CTH	CCAGCACTTTGCCACTCA	TGCCTCCATACACTTCATCC
ATF4	GCCATCTCCCAGAAAGT	GAACCACGAGGAACACC

UCP1, uncoupling protein 1; HSL, hormone-sensitive lipase; ACC, acetyl-Coenzyme A carboxylase alpha; FASN, fatty acid synthase; SCD1, stearoyl-CoA desaturase-1; CPT1, carnitine palmitoyl transferase 1; ACOX1, acyl-Coenzyme A oxidase 1; FGF21, fibroblast growth factor 21; PPAR α , Peroxisome proliferator-activated receptor alpha. CBS, cystathionine β -synthase; CTH, cystathionine γ -lyase; ATF4, activating transcription factor 4.