Supporting information

Supplemental Tables

Table S1 The compositions of the experimental diets (g/100g)

Ingredient	CON[1]	HF[2]	MR[3]
Soy protein[4]	7.59	7.59	7.59
L-Arginine	0.66	0.66	0.66
L-Histidine	0.18	0.18	0.18
L-Isoleucine	0.51	0.51	0.51
L-Leucine	0.64	0.64	0.64
L-Lysine	0.11	0.11	0.11
L-Methionine	0.69	0.69	0.00
L-Phenylalanine	0.85	0.85	0.85
L-Threonine	0.65	0.65	0.65
L-Tryptophan	0.10	0.10	0.10
L-Valine	0.57	0.57	0.57
L-Glutamic acid	1.37	1.37	2.06
L-Glycine	2.08	2.08	2.08
Corn starch	64.09	44.29	44.29
maltodextrin	5.00	5.00	5.00
Sucrose	0.10	0.10	0.10
Soybean oil	2.00	2.00	2.00
Pork Lard	2.20	22.00	22.00

Cellulose	5.00	5.00	5.00
Mineral mixture-AIN-76A	3.50	3.50	3.50
Mineral vitamin-AIN-76A	1.00	1.00	1.00
Choline chloride	0.11	0.11	0.11
CMC	1.00	1.00	1.00
Total	100.00	100.00	100.00

[1]CON, control diet, was mainly based upon the AIN-76A formulation; 73%, 17% and 10% of calories from carbohydrate, protein, and fat, respectively; energy density 3.8kcal/g.

[2]HF, high fat diet, 41%, 14% and 45% of calories from carbohydrate, protein, and fat, respectively; energy density 4.7 kcal/g.

[3]MR, high fat diet in which methionine was restricted, 41%, 14% and 45% of calories from carbohydrate, protein, and fat, respectively; energy density 4.7 kcal/g; The glutamic acid was increased to compensate for the reduced methionine content and to create equal amounts of total amino acids.

[4]Amino acid composition of soy protein were as follows: 6.19% leucine, 4.11% isoleucine, 5.49% valine, 1.18% methionine, 1.66% cysteine, 4.09% phenylalanine, 2.57% tyrosine, 4.83% lysine, 2.21% threonine, 1.07% tryptophan, 1.99% histidine, 6.11% arginine, 3.30% serine, 3.25% alanine, 5.56% proline, 3.27% glycine, 17.49% glutamic acid 9.44% aspartic acid. 1 g cysteine is equal to 0.64 g methionine.[1]

Table S2 Sequence of primers in quantitative real-time reverse transcription polymerase chain reaction

Genes	Forward (5′–3′)	Reverse (5′–3′)

Nr1	AGAGCCCGACCCTAAAAAGAA	CCCTCCTCCCTCTCAATAGC
Nr2a	ACGTGACAGAACGCGAACTT	TCAGTGCGGTTCATCAATAACG
Nr2b	GGCTCCGAGACTTCTACCTG	GCTTATCGCCTGTTCCGT
CAMK2A	AAACACTCAACAAAATCAAACGAC	GCCACAGAGAGACCAAAAGCA
CAMK2B	GAGAACCTGAGATACTGGACGGAT	ATTTCATCAAACACTTGTATGGAC
CAMK2D	A	C
CREB	CATCTTGACAACTATGCTGGCTACG	TTGATGATCTCCTGTTTTCGTGCT
Egr-1	AGCAGCTCATGCAACATCATC	AGTCCTTACAGGAAGACTGAACT
BDNF	TCGGCTCCTTTCCTCACTCA	CTCATAGGGTTGTTCGCTCGG
TrkB	TCATACTTCGGTTGCATGAAGG	TCATACTTCGGTTGCATGAAGG
RC3	CTGGGGCTTATGCCTGCTG	GTACACCAAATCCTAGCGGAAC
Gap-43	TCCAAGCCAGACGACGATATT	CACACTCTCCGCTCTTTATCTTC
PSD-95	TGGTGTCAAGCCGGAAGATAA	GCTGGTGCATCACCCTTCT
SYNAPO	TCTGTGCGAGAGGTAGCAGA	AAGCACTCCGTGAACTCCTG
	CCTGCCCGTAACTTCCGTG	GAGCGGCGGTAGGGAAAAG

Nr1, N-methyl-D-aspartate (NMDA) receptor 1; Nr2a, N-methyl-D-aspartate (NMDA) receptor 2a; Nr2b, N-methyl-D-aspartate (NMDA) receptor 2b; CAMK2A, Ca2+/calmodulin-dependent protein kinase II alpha chain; CAMK2B, Ca2+/calmodulin-dependent protein kinase II beta chain; CAMK2D, Ca2+/calmodulin-dependent protein kinase II delta chain; CREB, cAMP response element-binding protein; Egr-1, Early growth response protein 1; BDNF, brain-derived neurotrophic factor; TrkB, Tyrosine kinase receptor B; RC3, neurogranin; Gap-43, neuromodulin; PSD-95, postsynaptic density protein 95; SYNAPO, synaptopodin.

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References

27 1. B. M. Di, L. J. Wykes, R. O. Ball and P. B. Pencharz, *Am. J. Clin. Nutr.*, 2001, **74**, 761.

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