

1 **Table S1.** Compositions of experimental diets

Ingredient (g/kg)	HF	TMAO	FO
Casein	200	197.04	197.04
Cornstarch	250	250	250
Sucrose	200	200	200
Corn oil	50	50	30
Lard	200	200	200
Mineral mix	35	35	35
Vitamin mix	10	10	10
Cellulose	50	50	50
Choline bitartrate	2	2	2
DL-methionine	3	3	3
TMAO·2H ₂ O	0	2.96	2.96
Fish oil	-	-	20

2 Note: “-”, none added

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17 **Table S2.** Primers used in this study

Gene	Serial number	Forward/reverse primer
IRS1	NM_010570.4	5'-ATGTCGCCAGTGGGAGATT-3'
		5'-CTTCGGCAGTTGCGGTATA-3'
IRS2	NM_001081212.1	5'-GACGGCTGTTTCGCAATT-3'
		5'-GGACGCCAAGCACAAGTA-3'
PI3K α 1	NM_001077495.1	5'-CCTCTCCTTATAAAGCTCCTGGAA-3'
		5'-GATCACAATCAAGAAGCTGTCGTAA-3'
Akt1	NM_009652.3	5'-ACACGATGTTGGCAAAGAA-3'
		5'-GTGCTGGAGGACAACGACT-3'
Akt2	NM_001110208.1	5'-TTCTACAACCAGGACCACGAGC-3'
		5'-TGATGCTGAGGAAGAACCGATG-3'
GYS2	NM_145572.2	5'-CCAGCTTGATAAGTTCAACA-3'
		5'-ATCAGGCTTCCTCTTCAGCA-3'
G6pase	NM_008061.3	5'-GAAGGCCAAGAGATGGTGTGA-3'
		5'-TGCAGCTCTTGCGGTACATG-3'
GLUT2	NM_031197.2	5'-CTGTCTGTGTCCAGCTTTGCA-3'
		5'-CAAGCCACCCACCAAAGAAC-3'
FBP	NM_019395.3	5'-ACCCTGACCCGCTTCGTC-3'
		5'-CAGACGAGATGGCTTTGA-3'
PEPCK	NM_011044.2	5'-CCCAGGAAGTGAGGAAGTTTGT-3'
		5'-GGAGCCGTCGCAGATGTG-3'
GLUT4	NM_009204.2	5'-ACTAAGAGCACCGAGACCAA-3'
		5'-CTGCCCAGAAAGAGTCTAAAG-3'
MCP-1	NM_011333.3	5'-AGCTCTCTCTTCCTCCAC CA-3'
		5'-CTACAGCTTCTTTGGGAC ACC-3'
TNF- α	NM_013693	5'-CACCACGCTCTTCTGT-3'
		5'-CTTTGAGATCCATCG-3'
IL-6	NM_031168.1	5'-AGCCAGAGTCCTTCAGAGAGAT-3'

		5'-GCACTAGGTTTGCCGAGTAGA T-3'
IL-10	NM_010548.2	5'-GGCGCTGTCATCGATT-3'
		5'-AGCTCTGTCTAGGTCC-3'
IL-1 β	NM_008361.3	5'-CTCCATGAGCTTTGTACAAGG-3'
		5'-TGCTGATGTACCAGTTGGGG-3'
IL-18	NM_008360.1	5'-AACTTTGGCCGACTTCACTGTACAA-3'
		5'-ACTTTGATGTAAGTTAGTGAGAGTG-3'
NLRP3	NM_145827.3	5'-ATGGTATGCCAGGAGGACAG-3'
		5'-ATGCTCCTTGACCAGTTGGA-3'
TLR-2	NM_011905.3	5'-TCTCTTGACATCAGCAGGAACACT-3'
		5'-GCAGCCGAGGCAAGAACAAAGAAA-3'
TLR-4	NM_021297.2	5'-CCGCTCTGGCATCATCTTCATTGT-3'
		5'-CCATTCCAGGTAGGTGTTT-3'
GPR120	NM_181748.2	5'-GCATAGGAGAAATCTCATGG-3'
		5'-GAGTTGGCAAACGTGAAGGC-3'
F4/80	NM_010130.4	5'-CCTGATGGTGAGAAACCTGA-3'
		5'-CCCCAGGAAACTCCAGATAA-3'
CD11b	NM_008401.2	5'-CATGGCTTCAATCTGGACAC-3'
		5'-TGCTGTAGTCACACTGGTAGAGG-3'
CCL3	NM_011337.2	5'-TCACCTGCTCAACATCATG-3'
		5'-TCAGGCATTCAGTTCAGGT-3'
CD11c	NM_021334.2	5'-CTGGATAGCCTTTCTTCTGCTG-3'
		5'-GCACACTGTGTCCGAACTC-3'
NOS2	NM_010927.3	5'-CTGCAGCACTTGGATCAGGAACCTG-3'
		5'-GGAGTAGCCTGTGTGCACCTGGAA-3'
Arg	NM_001281645.1	5'-CAGAAGAATGGAAGAGTCAG-3'
		5'-CAGATATGCAGGGAGTCACC-3'
CCL22	NM_009137.2	5'-CATCATGGCTACCCTGCGT-3'
		5'-CCTAGGACAGTTTATGGAGT-3'

MR	NM_008625.2	5'-TGACAAATCCAGTTGTTGAGGTGTT-3'
		5'-AAAATGTTGAATATTGTGGTGAGCT-3'
18S	NM_001025002.1	5'-GTTGGTGGAGCGATTTGTCTG-3'
		5'-TTGCTCAATCTCGGGTGGC-3'

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