

Table 1. Primer characteristics used for qPCR.

Gene symbol	Primer forward (5' to 3')	PCR product	NCBI	Slope	Correlation	Primer
	Primer reverse (5' to 3')	size (bp)	GeneBank		coefficient	efficiency
<i>Reference genes</i>						
<i>Actb</i>	GACCTCTATGCCAACACAGT	154	NM_031144	-3.45	1.00	1.95
	CACCAATCCACACAGAGTAC					
<i>Canx</i>	CCAGATGCAGATCTGAAGAC	175	NM_172008	-3.55	1.00	1.91
	CTGGGTCCTCAATTTACGT					
<i>Mdh1</i>	CAGACAAAGAAGAGGTTGCC	206	NM_033235	-3.30	1.00	2.01
	CGTCAGGCAGTTTGTATTGG					
<i>Target genes</i>						
<i>Acaca</i>	TACAACGCAGGCATCAGAAG	244	NM_022193	-3.54	1.00	1.92
	TGTGCTGCAGGAAGATTGAC					
<i>Elovl5</i>	ATGAACTGGGTTCCCTGCGG	102	NM_134382	-3.37	1.00	1.98
	GGAAGGGACAGAGGACAGGC					
<i>Elovl6</i>	AAGTTTGAAGTGCAGGAAGCCG	211	NM_134383	-3.57	1.00	1.91

	CACCTAGTTCGGGTGCTTTGC					
<i>Fads1</i>	CATTTCCAGCACCAACGCCAA	188	NM_053445	-3.54	1.00	1.92
	TAGAGAGGCAGCAAGGCTGG					
<i>Fads2</i>	CATCGACCGCAAGGTCTACAAC	139	NM_031344	-3.24	1.00	2.04
	CTTGCCCACGAAATCCAGGTC					
<i>Fasn</i>	AGGTGCTAGAGGCCCTGCTA	281	NM_017332	-3.57	1.00	1.91
	GTGCACAGACACCTTCCCAT					
<i>G6pd</i>	TTGTACCAGGGTGATGCCTTCC	199	NM_017006	-3.56	1.00	1.91
	GCTCACTCTGTTTGCGGATGTC					
<i>Hmgcr</i>	TGGCAGGACGCAACCTCTAC	173	NM_013134	-3.53	0.99	1.92
	GGCAGCAGGTTTCTTGTCGG					
<i>Scd</i>	TGCACCCCCAGACACTTGTA	94	NM_031841	-3.57	1.00	1.91
	GGATGCATGGAAACGCCATAG					
<i>Sqle</i>	TGTTGTGAACGTGCTGGCTC	80	NM_017136	-3.44	0.99	1.95
	AAGCTTTTCGGAGCTGACGC					

Abbreviations: *Acaca*, acetyl-CoA carboxylase alpha; *Actb*, actin beta; *Canx*, calnexin; *Elovl5*, ELOVL fatty acid elongase 5; *Elovl6*, ELOVL fatty acid elongase 6; *Fads1*, fatty acid desaturase 1; *Fads2*, fatty acid desaturase 2; *Fasn*, fatty acid synthase; *G6pd*, glucose-6-phosphate dehydrogenase; *Hmgcr*, 3-hydroxy-3-methylglutaryl-CoA reductase; *Mdh1*, malate dehydrogenase 1; *Scd*, stearyl-CoA desaturase; *Sqle*, squalene epoxidase.

Table S2. Plasma amino acid concentrations of obese Zucker rats fed semi-synthetic diets with either casein (C), insect meal (IM), IM with additional methionine (IM+Met), IM with additional cysteine (IM+Cys) or IM with additional essential amino acids (EAA) for 4 weeks.

	C	IM	IM+Met	IM+Cys	IM+EAA
	<i>μmol/L plasma</i>				
Alanine	717 ± 93 ^b	829 ± 48 ^a	750 ± 98 ^b	763 ± 66 ^{ab}	728 ± 74 ^b
Arginine	169 ± 19	166 ± 15	162 ± 17	160 ± 20	169 ± 28
Aspartic acid	23.4 ± 2.0 ^b	30.7 ± 2.2 ^a	30.3 ± 3.5 ^a	30.0 ± 3.2 ^a	29.8 ± 2.7 ^a
Citrulline	77.1 ± 4.7 ^b	85.5 ± 6.4 ^a	83.8 ± 6.5 ^a	82.1 ± 7.4 ^{ab}	78.8 ± 6.8 ^{ab}
Cysteine	138 ± 17	144 ± 9	147 ± 20	154 ± 13	151 ± 9
Glutamic acid	161 ± 27 ^b	196 ± 26 ^a	195 ± 32 ^a	184 ± 21 ^{ab}	175 ± 29 ^{ab}
Glutamin	705 ± 80	665 ± 70	685 ± 60	677 ± 50	705 ± 72
Glycine	70.8 ± 10.2 ^b	129 ± 16 ^a	140 ± 14 ^a	139 ± 15 ^a	131 ± 11 ^a
Histidine	101 ± 11 ^a	77.5 ± 4.5 ^b	84.8 ± 10.0 ^b	83.0 ± 5.6 ^b	78.5 ± 7.6 ^b
Leucine	273 ± 39 ^a	231 ± 21 ^b	224 ± 36 ^b	223 ± 14 ^b	233 ± 28 ^b
Lysine	447 ± 73 ^a	338 ± 23 ^{bc}	323 ± 36 ^c	330 ± 28 ^c	383 ± 79 ^b
Methionine	59.4 ± 12.7 ^b	61.1 ± 6.8 ^b	81.8 ± 17.2 ^a	57.4 ± 7.4 ^b	74.8 ± 11.3 ^a
Ornithine	70.6 ± 12.7 ^c	105 ± 14 ^a	88.3 ± 12.4 ^b	94.2 ± 9.7 ^{ab}	97.9 ± 15.1 ^{ab}
Phenylalanine	93.9 ± 8.8	91.3 ± 4.2	87.2 ± 8.6	88.8 ± 4.0	91.7 ± 7.6
Proline	355 ± 83 ^a	228 ± 30 ^b	211 ± 45 ^b	191 ± 37 ^{bc}	182 ± 38 ^c
Serine	176 ± 17 ^c	209 ± 15 ^a	194 ± 17 ^b	190 ± 15 ^{bc}	186 ± 13 ^{bc}
Taurine	358 ± 44 ^b	370 ± 66 ^{ab}	402 ± 41 ^{ab}	430 ± 68 ^a	421 ± 71 ^a
Threonine	254 ± 37	263 ± 24	259 ± 20	249 ± 35	234 ± 35
Tryptophan	103 ± 8 ^a	85.6 ± 12.6 ^b	85.1 ± 8.9 ^b	87.4 ± 4.9 ^b	86.5 ± 9.1 ^b
Tyrosine	151 ± 34	167 ± 27	160 ± 29	149 ± 25	155 ± 32

Valine	427 ± 58^a	382 ± 34^b	364 ± 61^{bc}	366 ± 34^{bc}	337 ± 38^c
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Values are means $\pm$ SD for $n = 10$ animals per group. Means without a common superscript letter differ, $P < 0.05$.