

Supplementary Materials

Table S1. Primer information with gene/enzyme descriptions and determined efficiencies. Fw–forward, Rv–reverse.

Gene symbol	Gene/enzyme description	NCBI accession no.	Primer sequence	Efficiency
<i>Cholesterol synthesis genes</i>				
<i>Hmgcs1</i>	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1	NM_145942.4	Fw: GCCGTGAACTGGGTCGAA Rv: GCATATATAGCAATGTCTCCTGCAA	1.88
<i>Hmgcr</i>	3-hydroxy-3-methylglutaryl-Coenzyme A reductase	NM_008255.2	Fw: CTTGTGGAATGCCTTGTGATTG Rv: AGCCGAAGCAGCACATGAT	1.83
<i>Fdft1</i>	farnesyl diphosphate farnesyl transferase 1	NM_010191.2	Fw: CCAAACAGGACTGGGACAAG Rv: GACGAGAAAGGCCAATTCC	1.90
<i>Sqle</i>	squalene epoxidase/monooxygenase	NM_009270.3	Fw: TCAACCCCAGTCCAGTTCTC Rv: GACTCCTTCAGGTGCTCAGG	1.77
<i>Lss</i>	lanosterol synthase	NM_146006.1	Fw: GGCACCAATGGATCACAGAT Rv: AAACCTCAGGTCTGTGGTGTGC	1.81
<i>Cyp51</i>	lanosterol 14 α -demethylase	NM_020010.2	Fw: ACGCTGCCTGGCTATTGC Rv: TTGATCTCTCGATGGGCTCTATC	1.75
<i>Tm7sf2</i>	transmembrane 7 superfamily member 2/sterol- Δ^{14} - reductase	NM_028454.2	Fw: GCCTCGGTTCCCTTTGACTT Rv: ATCAGCAGGGCCAGGTTA	1.82
<i>Sc4mol</i>	sterol-C4-methyl oxidase-like	NM_025436.2	Fw: CGGAATTGTGCTTTTGTGTG Rv: GCGGGTTGAGAGGAATATCA	2.01
<i>Nsdhl</i>	NAD(P) dependent steroid dehydrogenase-like /sterol-4 α -carboxylate 3-dehydrogenase	NM_010941.3	Fw: TGCAGCTCTAGGTGGAAAGG Rv: GAACGTCCAGAAAGGGATTG	2.00
<i>Hsd17b7</i>	hydroxysteroid (17 β) dehydrogenase 7	NM_010476.3	Fw: GCTCACTGTGACACCGTACAA Rv: CCGGTTTTTGGTGGAAGAG	1.94
<i>Sc5d</i>	sterol-C5-desaturase/lathosterol oxidase	NM_172769	Fw: CCTTAATGAAACACCCACAGTTT Rv: CTCCAGCAGGAACAGTGAGAC	1.84
<i>Ebp</i>	phenylalkylamine Ca ²⁺ antagonist (emopamil) binding protein/sterol- $\Delta^{8,7}$ -isomerase	NM_007898.2	Fw: TGTCCTACAGCTTGTGGTGTCT Rv: AATAAACGGGGTGGCCTATC	1.89
<i>Dhcr7</i>	7-dehydrocholesterol reductase	NM_007856.2	Fw: GCTTCAGGCAGGCACTTAGA Rv: GGATTTTCGAAGCCATCAGG	1.85
<i>Dhcr24</i>	24-dehydrocholesterol reductase	NM_053272.2	Fw: GGTCATGACGGACGACGTA Rv: AGGGCTTGTAGTAACTGCCAAT	1.91

Table S1. Cont.

Gene symbol	Gene/enzyme description	NCBI accession no.	Primer sequence	Efficiency
<i>Cholesterol-related genes</i>				
<i>Srebf2</i>	sterol regulatory element binding transcription factor 2	NM_033218.1	Fw: GCGTTCTGGAGACCATGGA Rv: ACAAAGTTGCTCTGAAAACAAATCA	1.62
<i>Ldlr</i>	low density lipoprotein receptor	NM_010700.3	Fw: AGGCTGTGGGCTCCATAGG Rv: TGCGGTCCAGGGTCATCT	1.79
<i>Lxra</i>	nuclear receptor subfamily 1, group H, member 3 (Nr1h3)/liver X receptor	NM_013839.4	Fw: ACTTCAGTTACAACCGGAAGA Rv: GCTCTGGAGAACTCAAAGATGG	1.91
<i>Cd36</i>	CD36 antigen	NM_001159558.1	Fw: AAAACGACTGCAGGTCAACA Rv: CATTCTGCTTTTTCATCACCA	2.00
<i>Scarb1</i>	scavenger receptor class B, member 1	NM_016741.2	Fw: TCAGAAGCTGTCTTGGTCTGAAC Rv: GTTCATGGGGATCCCAGTGA	1.77
<i>Abcg5</i>	ATP-binding cassette subfamily G, member 5	NM_031884.1	Fw: CTTACCCACGGTTCCTTTCA Rv: ACGCATAATCACTGCCTGCT	1.72
<i>Abcg8</i>	ATP-binding cassette subfamily G member 8	NM_026180.2	Fw: AAGACGGGCTGTACTGCT Rv: AGTAGATGGGCATCGCGTAG	2.00
<i>Bile acid synthesis genes</i>				
<i>Cyp7a1</i>	cholesterol 7-alpha-monooxygenase	NM_007824.2	Fw: CAGGGAGATGCTCTGTGTTC Rv: AGGCATACATCCCTTCCGTGA	1.88
<i>Cyp7b1</i>	25-hydroxycholesterol 7-alpha-hydroxylase	NM_007825.4	Fw: CCGATTCTGCCGTCTCCTT Rv: GCAGCCTTACTCTGCAAAGCTT	1.82
<i>Cyp8b1</i>	7-alpha-hydroxycholesterol-4-en-3-one	NM_010012.3	Fw: AAGGCTGGCTTCCTGAGCTT Rv: AACAGCTCATCGGCCTCATC	1.71
<i>Cyp27a1</i>	sterol 26-hydroxylase	NM_024264.4	Fw: CCTCACCTATGGGATCTTCATC Rv: TTAAAGGCATCCGTGTAGAGC	1.90
<i>Reference genes</i>				
<i>Utp6</i>	small subunit (SSU) processome component	NM_144826.3	Fw: TTTCGGTTGAGTTTTTCAGGA Rv: CCCTCAGGTTTACCATCTTGC	1.82
<i>Hmbs</i>	hydroxymethylbilane synthase	NM_013551.2	Fw: TCCCTGAAGGATGTGCCTA Rv: AAGGGTTTTCCCGTTTGC	1.73
<i>Ppib</i>	peptidylprolyl isomerase B	NM_011149.2	Fw: GGAGATGGCACAGGAGGAAA Rv: CCGTAGTGCTTCAGTTTGAAGTTCT	1.84

Table S2. Fold change (FC) differences of expression of cholesterologenic genes. Significant p values are bolded. HFC – high-fat diet with cholesterol, HFnC–high-fat diet without cholesterol

Gene symbol	HFC/HFnC						Females/Males			
	Females and males		Females		Males		HFnC		HFC	
	FC	p value	FC	p value	FC	p value	FC	p value	FC	p value
<i>Hmgcs1</i>	0.105	0.015	0.098	0.003	0.120	0.164	2.257	0.053	1.837	0.87
<i>Hmgcr</i>	0.160	0.002	0.160	0.003	0.159	0.075	1.806	0.087	1.822	0.789
<i>Fdft1</i>	0.344	0.011	0.403	0.018	0.241	0.075	1.729	0.086	2.89	0.281
<i>Sqle</i>	0.072	0.001	0.076	0.036	0.067	0.025	1.158	0.705	1.315	0.657
<i>Lss</i>	0.245	0.002	0.244	0.002	0.247	0.018	1.432	0.158	1.413	0.744
<i>Cyp51</i>	0.176	0.001	0.159	0.033	0.197	0.013	1.296	0.45	1.047	0.882
<i>Tm7sf2</i>	0.318	0.001	0.39	0.026	0.241	0.012	1.077	0.796	1.745	0.534
<i>Sc4mol</i>	0.062	0.014	0.06	0.075	0.065	0.055	2.295	0.216	2.139	0.500
<i>Nsdhl</i>	0.100	0.005	0.104	0.067	0.095	0.014	1.819	0.276	2.004	0.616
<i>Hsd17b7</i>	0.223	0.001	0.219	0.055	0.229	0.003	1.505	0.306	1.439	0.442
<i>Ebp</i>	0.308	0.012	0.266	0.001	0.406	0.176	2.356	0.004	1.541	0.620
<i>Sc5d</i>	0.272	0.113	0.233	0.117	0.495	0.072	5.646	0.106	2.66	0.467
<i>Dhcr7</i>	0.253	0.004	0.235	0.016	0.272	0.024	1.027	0.93	0.887	0.919
<i>Dhcr24</i>	0.467	0.001	0.451	0.001	0.488	0.008	1.370	0.045	1.265	0.476

Figure S1. Gallbladder bile acid composition. Black columns represent male and white columns female mice. Error bars represent SEMs. $\cdot p < 0.1$; $* p < 0.05$; $** p < 0.01$; $*** p < 0.001$.

