

Molecular Basis of Unequal Alternative Splicing of Human SCD5 and Its Alteration by Natural Genetic Variations

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Supplementary Tables

Table S1. Standard deviation values of Figure S1B.

Dilution (rel c)	-log(rel c)	Ct ± S.D.	
		SCD5A	SCD5B
640	2.8062	21.8307 ± 0.0431	28.7317 ± 0.1735
320	2.5051	22.7080 ± 0.0130	29.6060 ± 0.1310
160	2.2041	23.7545 ± 0.0403	30.5980 ± 0.1861
80	1.9031	24.9387 ± 0.0530	31.9597 ± 0.0798
40	1.6021	25.7480 ± 0.0638	32.6195 ± 0.1407

Table S2. Standard deviation values of Figure 2D.

Tissue	Relative expression values \pm S.D.		
	SCD5A	SCD5B	SCD1
liver	0.0005 \pm 3.94E-05	0.0001 \pm 4.56E-05	0.1680 \pm 4.73E-03
brain	0.1294 \pm 4.42E-03	0.0017 \pm 1.26E-04	0.2031 \pm 1.53E-02
pancreas	0.0706 \pm 4.62E-03	0.0052 \pm 1.82E-03	0.0134 \pm 1.69E-03
kidney	0.0136 \pm 9.33E-04	0.0004 \pm 1.16E-04	0.0028 \pm 1.29E-04
lung	0.0113 \pm 1.62E-03	0.0004 \pm 2.28E-05	0.1609 \pm 5.08E-03
small intestine	0.0034 \pm 1.71E-04	0.0002 \pm 6.53E-05	0.0163 \pm 3.41E-03
spleen	0.0040 \pm 1.68E-04	0.0002 \pm 5.61E-05	0.0190 \pm 3.76E-04
skeletal muscle	0.0003 \pm 5.39E-05	0.0000 \pm 8.15E-06	0.0002 \pm 1.66E-05
ovary	0.1890 \pm 1.67E-02	0.0290 \pm 1.72E-03	0.0668 \pm 9.78E-03
testis	0.0319 \pm 5.04E-03	0.0047 \pm 1.88E-04	0.0710 \pm 1.66E-02

Table S3. Standard deviation values of Figure 2E.

Tissue	% of total SCD5 \pm S.D.	
	SCD5A	SCD5B
liver	75.19 \pm 10.06	24.81 \pm 10.06
brain	98.73 \pm 0.11	1.27 \pm 0.11
pancreas	93.65 \pm 0.85	6.35 \pm 0.85
kidney	97.54 \pm 0.38	2.46 \pm 0.38
lung	96.60 \pm 0.62	3.40 \pm 0.62
small intesine	92.42 \pm 1.32	7.58 \pm 1.32
spleen	90.65 \pm 7.65	9.35 \pm 7.65
skeletal muscle	88.91 \pm 4.01	11.09 \pm 4.01
ovary	90.40 \pm 3.23	9.60 \pm 3.23
testis	93.04 \pm 5.21	6.96 \pm 5.21

Table S4. Standard deviation values of Figure 2F.

Tissue mRNA	% of total SCD \pm S.D.		
	SCD5A	SCD5B	SCD1
liver	0.38 \pm 0.13	0.13 \pm 0.08	99.49 \pm 0.14
brain	42.69 \pm 0.55	0.55 \pm 0.04	56.76 \pm 3.08
pancreas	80.56 \pm 5.45	5.45 \pm 0.70	13.99 \pm 0.55
kidney	82.28 \pm 2.07	2.07 \pm 0.27	15.65 \pm 2.21
lung	6.67 \pm 0.24	0.24 \pm 0.07	93.09 \pm 0.85
small intestine	18.06 \pm 1.50	1.50 \pm 0.42	80.44 \pm 2.66
spleen	14.73 \pm 1.18	1.18 \pm 0.41	84.09 \pm 6.45
skeletal muscle	60.52 \pm 7.69	7.69 \pm 3.39	31.78 \pm 5.16
ovary	72.21 \pm 7.61	7.61 \pm 2.29	20.18 \pm 2.50
testis	46.23 \pm 3.23	3.23 \pm 1.97	50.54 \pm 6.12

Table S5. Standard deviation values of Figure S2.

Tissue	Relative expression values \pm S.D.					
	SCD5A		SCD5B		SCD1	
	Actin	Tubulin	Actin	Tubulin	Actin	Tubulin
liver	0.0039 \pm 1.45E-03	0.0047 \pm 5.20E-04	0.0015 \pm 5.06E-04	0.0026 \pm 3.93E-04	0.8315 \pm 1.75E-01	1.2756 \pm 2.18E-01
brain	0.5686 \pm 1.48E-01	0.0859 \pm 4.34E-03	0.0065 \pm 1.01E-03	0.0012 \pm 2.03E-04	0.6552 \pm 6.60E-02	0.1180 \pm 1.80E-02
pancreas	0.2513 \pm 3.27E-02	0.1370 \pm 2.73E-02	0.0143 \pm 1.81E-03	0.0102 \pm 1.30E-03	0.0413 \pm 3.37E-03	0.0250 \pm 3.74E-03
kidney	0.0357 \pm 6.81E-03	0.0522 \pm 2.64E-03	0.0007 \pm 7.24E-05	0.0014 \pm 1.31E-04	0.0055 \pm 7.27E-05	0.0104 \pm 7.63E-04
lung	0.0419 \pm 5.70E-03	0.0271 \pm 2.67E-03	0.0017 \pm 3.42E-04	0.0008 \pm 4.29E-04	0.5225 \pm 8.17E-02	0.3729 \pm 2.75E-02
small intesine	0.0142 \pm 6.91E-04	0.0144 \pm 4.22E-03	0.0012 \pm 4.16E-04	0.0014 \pm 6.05E-04	0.0560 \pm 3.92E-03	0.0609 \pm 1.54E-02
spleen	0.0052 \pm 5.41E-04	0.0043 \pm 2.56E-04	0.0003 \pm 1.48E-04	0.0010 \pm 1.20E-04	0.0196 \pm 2.19E-03	0.0530 \pm 1.01E-02
skeletal muscle	0.0276 \pm 4.76E-03	0.0061 \pm 6.40E-04	0.0026 \pm 9.42E-04	0.0012 \pm 2.15E-04	0.0162 \pm 8.42E-03	0.0028 \pm 1.31E-03
ovary	1.0894 \pm 3.32E-01	0.2071 \pm 3.53E-02	0.0903 \pm 2.34E-02	0.0172 \pm 1.27E-03	0.2728 \pm 8.78E-02	0.0516 \pm 6.81E-03
testis	0.4978 \pm 1.25E-01	0.1119 \pm 9.70E-03	0.0206 \pm 5.57E-03	0.0046 \pm 4.90E-04	0.4726 \pm 1.75E-01	0.1040 \pm 1.67E-02

Table S6. Standard deviation values of Figure 4C and E.

SCD5 expression		% of total SCD5 \pm S.D.	
		SCD5A	SCD5B
mRNA	endogenous	69.83 \pm 4.06	30.17 \pm 4.06
	minigene	69.70 \pm 0.74	30.30 \pm 0.74
protein	minigene	75.38 \pm 10.27	24.62 \pm 10.27

Table S7. Standard deviation values of Figure S5 and Figure 6B.

	% of total SCD5 mRNA \pm S.D.		% of total SCD5 protein \pm S.D.	
	SCD5A	SCD5B	SCD5A	SCD5B
wild type	74.87 \pm 1.50	25.13 \pm 1.50	83.31 \pm 6.57	16.69 \pm 6.57
rs145164872_G	79.76 \pm 1.31	20.24 \pm 1.31	83.03 \pm 6.83	16.97 \pm 6.83
rs1430176385_A	86.65 \pm 0.88	13.35 \pm 0.88	99.16 \pm 0.57	0.84 \pm 0.57
rs140750150_G	76.64 \pm 5.08	23.36 \pm 5.08	90.96 \pm 4.14	9.04 \pm 4.14
rs140750150_T	74.39 \pm 1.14	25.61 \pm 1.14	87.57 \pm 4.20	12.43 \pm 4.20
rs1250613148_A	72.02 \pm 0.49	27.98 \pm 0.49	83.11 \pm 2.79	16.89 \pm 2.79
rs1225904796_T	80.41 \pm 3.01	19.59 \pm 3.01	87.02 \pm 3.84	12.98 \pm 3.84
rs1011850309_A	71.74 \pm 1.09	28.26 \pm 1.09	68.24 \pm 6.47	31.76 \pm 6.47
rs1011850309_C	62.53 \pm 5.53	37.47 \pm 5.53	24.56 \pm 4.17	75.44 \pm 4.17

Table S8. Sequence and annealing temperature of cloning primers. Restriction endonuclease recognition sites are highlighted in underlined bold letters.

Primer name	Sequence 5' → 3'	T _m (°C)
T7	TAATACGACTCACTATAGGG	48
SCD5_e3-AS	TTCTCCCCTTCTCAATAACA	48
SCD5_e3-S	GAGCCCACCACAAGTACTCA	54
SCD5_i3-AS	ATGACACTGGGCTTAAAGGAA	50
SCD5_i3-S-NotI	AAATTT <u>GCGGCCGC</u> AGATTAGTCATGTGCAGGCTGT	53
SCD5_i4-AS-Eco32I	AAATTT <u>GATATC</u> CACATCTCCTCCATACTTTCACA	53
SCD5_i4-S	TTACCAAGGTGAGTTAGTACAGAA	52
SCD5_e4a-AS	GTTTCCATACATGTGGGCGG	54
SCD5_e4a-S	CTTGGCCTCTATTCTCCGC	53
pcDNArev	TAGAAGGCACAGTCGAGG	50
SCD5_RNS-S-XhoI	AAATTT <u>CTCGAG</u> GCCTGCCGCTGCTG	49
SCD5_i3-AS-NotI	AAATTT <u>GCGGCCGC</u> CTGGGCTTAAAGGAAATCCA	50
SCD5_i4-S-Eco32I	AAATTT <u>GATATC</u> TCTTGAAGTGGTGGCCTGTG	54
SCD5_RNS-AS-KpnI	AAATTT <u>GGTACC</u> ACATGTGGGATGGCTGTTC	51

Table S9. Sequence and annealing temperature of mutagenic primers. Nucleotide exchanges are highlighted in underlined bold lowercase letters.

Mutagenic primer name	Sequence 5' → 3'	T _m (°C)
rs1430176385G>A-S	TTTTTTATCA <u>a</u> TACACAGCAC	57
rs1430176385G>A-AS	TAAAGAAAATGACTGAGAGTTC	57
rs140750150C>G-S	TTTATCAGTA <u>g</u> ACAGCACATC	56
rs140750150C>T-S	TTTATCAGTA <u>t</u> ACAGCACATCC	56
rs140750150C>G/T-AS	AAATAAAGAAAATGACTGAGAG	56
rs145164872A>G-S	GATCCAGAGA <u>g</u> AGTAAGTGAATGGG	63
rs145164872A>G-AS	CGGACCACAGGATCAGCA	63
rs1011850309G>A-S	TGCCCTGTAG <u>a</u> TACTATAAGATC	59
rs1011850309G>C-S	TGCCCTGTAG <u>c</u> TACTATAAGATC	57
rs1011850309G>A/C-AS	AGACACCATATCACCATG	59
rs1225904796C>T-S	GTGTCTTGCC <u>t</u> TGTAGGTACTATAAG	60
rs1225904796C>T-AS	CATATCACCATGAGGACC	60
rs1250613148C>A-S	TGGTGTCTTG <u>a</u> CCTGTAGGTA	65
rs1250613148C>A-AS	TATCACCATGAGGACCCG	65