

Supplemental Table S1. Association of Plasma Sphingolipid Species with Insulin Sensitivity

Sphingolipids (pmol/mL)	Mean ± SD	r	P value
Ceramides (Cer)			
C14:0	12.6 ± 5.40	-0.03	0.76
C16:0	65.0 ± 26.9	-0.05	0.58
C18:1	6.00 ± 3.48	-0.22	0.0062
C18:0	45.4 ± 28.2	-0.10	0.24
C20:0	77.9 ± 40.2	-0.03	0.73
C22:0	603 ± 311	0.02	0.85
C24:1	524 ± 265	0.12	0.15
C24:0	1998 ± 994	0.15	0.069
C26:1	9.29 ± 5.99	0.16	0.054
C26:0	17.4 ± 9.29	0.20	0.014
C28:1	0.72 ± 0.73	0.06	0.45
C28:0	0.87 ± 1.47	-0.05	0.52
C30:1	0.44 ± 0.44	-0.002	0.98
C30:0	0.08 ± 0.17	0.05	0.53
C32:1	1.43 ± 2.29	-0.07	0.43
C32:0	0.35 ± 0.55	-0.01	0.86
C34:1	0.67 ± 1.02	-0.07	0.43
C34:0	0.14 ± 0.25	-0.02	0.81
Total Cer	3363 ± 1478	0.12	0.14
Total VLC Cer	4.71 ± 5.88	-0.04	0.64
Monohexosyl ceramides (MHC)			
C14:0	8.10 ± 4.86	0.22	0.0077
C16:0	952 ± 617	-0.02	0.85
C18:1	59.2 ± 49.6	-0.19	0.018
C18:0	48.0 ± 30.8	-0.07	0.42
C20:0	90.2 ± 64.7	0.05	0.57
C22:0	1204 ± 767	0.05	0.52
C24:1	796 ± 577	-0.001	0.99
C24:0	1427 ± 943	0.07	0.42
C26:1	13.4 ± 9.89	-0.03	0.68
C26:0	7.77 ± 5.57	0.14	0.083
C28:1	2.27 ± 1.87	0.20	0.016
C28:0	1.43 ± 1.40	0.22	0.0075
C30:1	1.14 ± 0.98	0.11	0.21
C30:0	7.92 ± 5.93	0.09	0.28
C32:1	1.97 ± 2.61	0.07	0.40
C32:0	0.35 ± 0.59	0.04	0.61
C34:1	0.59 ± 0.50	0.23	0.0048
C34:0	0.28 ± 0.28	0.30	0.0002
Total MHC	4622 ± 2725	0.03	0.69

Total VLC MHC	15.9 ± 10.5	0.17	0.039
Sphingomyelins (SM)			
C14:0	6271 ± 2145	0.21	0.012
C16:0	24287 ± 6963	-0.12	0.15
C18:1	6109 ± 2394	-0.23	0.0046
C18:0	7374 ± 2526	-0.21	0.011
C20:0	6904 ± 2275	-0.01	0.88
C22:0	11971 ± 3893	-0.07	0.38
C24:1	15654 ± 5090	-0.04	0.60
C24:0	8620 ± 3189	-0.06	0.48
C26:1	130 ± 51.5	0.02	0.82
C26:0	43.9 ± 19.7	-0.02	0.81
C28:1	18.5 ± 8.07	0.34	<0.0001
C28:0	39.3 ± 20.7	0.31	0.0001
C30:1	10.1 ± 4.39	0.29	0.0004
C30:0	8.35 ± 3.89	0.32	<0.0001
C32:1	1.36 ± 0.74	0.21	0.012
C32:0	2.74 ± 1.49	0.35	<0.0001
C34:1	0.99 ± 0.51	0.26	0.0016
C34:0	1.22 ± 0.61	0.31	0.0001
Total SM	87446 ± 23734	-0.09	0.26
Total VLC SM	82.5 ± 36.2	0.35	<0.0001
Sphingosine	121 ± 54.8	0.11	0.17
Dh-Sphingosine	9.89 ± 19.9	0.11	0.19
S1P	412 ± 187	0.01	0.91
Dh-S1P	70.7 ± 33.2	0.12	0.15
SPL (Total)	96045 ± 25667	-0.08	0.36

Dh, dihydro; SIP, sphingosine-1-phosphate; SPL, sphingolipids; VLC, very-long-chain

Supplemental Table S2. Association of Plasma Sphingolipid Species with Insulin Secretion

Sphingolipids (pmol/mL)	Mean $\pm$ SD	r	P value
Ceramides (Cer)			
C14:0	12.6 $\pm$ 5.40	-0.07	0.32
C16:0	65.0 $\pm$ 26.9	-0.01	0.88
C18:1	6.00 $\pm$ 3.48	0.06	0.40
C18:0	45.4 $\pm$ 28.2	0.07	0.34
C20:0	77.9 $\pm$ 40.2	0.01	0.93
C22:0	603 $\pm$ 311	-0.03	0.72
C24:1	524 $\pm$ 265	-0.05	0.49
C24:0	1998 $\pm$ 994	-0.16	0.024
C26:1	9.29 $\pm$ 5.99	-0.14	0.051
C26:0	17.4 $\pm$ 9.29	-0.16	0.018
C28:1	0.72 $\pm$ 0.73	-0.11	0.10
C28:0	0.87 $\pm$ 1.47	-0.02	0.83
C30:1	0.44 $\pm$ 0.44	-0.09	0.20
C30:0	0.08 $\pm$ 0.17	0.02	0.76
C32:1	1.43 $\pm$ 2.29	-0.02	0.79
C32:0	0.35 $\pm$ 0.55	-0.07	0.31
C34:1	0.67 $\pm$ 1.02	-0.002	0.97
C34:0	0.14 $\pm$ 0.25	-0.02	0.77
Total Cer	3363 $\pm$ 1478	-0.12	0.084
Total VLC Cer	4.71 $\pm$ 5.88	-0.04	0.56
Monohexosyl ceramides (MHC)			
C14:0	8.10 $\pm$ 4.86	-0.11	0.11
C16:0	952 $\pm$ 617	0.01	0.89
C18:1	59.2 $\pm$ 49.6	0.06	0.37
C18:0	48.0 $\pm$ 30.8	0.03	0.64
C20:0	90.2 $\pm$ 64.7	-0.05	0.50
C22:0	1204 $\pm$ 767	0.001	0.98
C24:1	796 $\pm$ 577	0.02	0.81
C24:0	1427 $\pm$ 943	-0.05	0.47
C26:1	13.4 $\pm$ 9.89	0.05	0.46
C26:0	7.77 $\pm$ 5.57	0.05	0.46
C28:1	2.27 $\pm$ 1.87	-0.16	0.024
C28:0	1.43 $\pm$ 1.40	-0.06	0.42
C30:1	1.14 $\pm$ 0.98	-0.10	0.15
C30:0	7.92 $\pm$ 5.93	-0.08	0.23
C32:1	1.97 $\pm$ 2.61	-0.07	0.31
C32:0	0.35 $\pm$ 0.59	0.002	0.97
C34:1	0.59 $\pm$ 0.50	-0.08	0.28
C34:0	0.28 $\pm$ 0.28	-0.12	0.086
Total MHC	4622 $\pm$ 2725	-0.01	0.86

Total VLC MHC	15.9 ± 10.5	-0.12	0.096
Sphingomyelins (SM)			
C14:0	6271 ± 2145	-0.12	0.086
C16:0	24287 ± 6963	0.12	0.076
C18:1	6109 ± 2394	0.23	0.0009
C18:0	7374 ± 2526	0.22	0.0012
C20:0	6904 ± 2275	0.08	0.26
C22:0	11971 ± 3893	0.16	0.018
C24:1	15654 ± 5090	0.11	0.13
C24:0	8620 ± 3189	0.12	0.089
C26:1	130 ± 51.5	0.05	0.50
C26:0	43.9 ± 19.7	0.02	0.82
C28:1	18.5 ± 8.07	-0.03	0.64
C28:0	39.3 ± 20.7	-0.25	0.0003
C30:1	10.1 ± 4.39	-0.27	<0.0001
C30:0	8.35 ± 3.89	-0.20	0.0044
C32:1	1.36 ± 0.74	-0.13	0.057
C32:0	2.74 ± 1.49	-0.16	0.024
C34:1	0.99 ± 0.51	-0.12	0.086
C34:0	1.22 ± 0.61	-0.06	0.39
Total SM	87446 ± 23734	0.14	0.038
Total VLC SM	82.5 ± 36.2	-0.27	<0.0001
Sphingosine			
Dh-Sphingosine	121 ± 54.8	0.09	0.18
S1P	9.89 ± 19.9	0.03	0.72
Dh-S1P	412 ± 187	0.04	0.55
Dh-S1P	70.7 ± 33.2	0.09	0.20
Total SPL	96045 ± 25667	0.13	0.070

Dh, dihydro; S1P, sphingosine-1-phosphate; SPL, sphingolipids; VLC, very-long-chain