

Supplementary

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“Impact of a high-fat diet on the metabolomics profile of 129Sv and Bl6 mouse strains”

Supplementary Table S1

Two-way ANOVA [Diet (control diet or high-fat diet) x Strain (Bl6 or 129Sv)] summary table of high-fat diet (HFD)-induced changes in metabolite levels (log2 values. Mean \pm SEM) and their ratios in Bl6 and 129Sv strain. Bonferroni post-hoc test was used for multiple comparisons. * Statistically significant difference between control and HFD in Bl6 or 129Sv groups; ⁺ Statistically significant difference between control diet groups. [@] Statistically significant difference between HFD groups. * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$; **** $p \leq 0.0001$

	Bl6		129Sv		Two-way ANOVA		
	Control diet Mean ± SEM	HFD Mean ± SEM	Control diet Mean ± SEM	HFD Mean ± SEM			
						<i>F</i>	<i>p</i>
Acylcarnitines							
Carnitine (C0)	4.50 ± 0.07	3.35 ± 0.09****	4.56 ± 0.10	3.02 ± 0.09****	Diet Strain Diet X Strain	226.1 2.14 4.59	<0.0001 0.15 0.04
Acetylcarnitine (C2)	3.48 ± 0.09	2.13 ± 0.112****	4.25 ± 0.18 ⁺⁺	2.17 ± 0.20****	Diet Strain Diet X Strain	118.9 6.52 5.51	<0.0001 0.01 0.02
Propionylcarnitine (C3)	-0.53 ± 0.06	-0.73 ± 0.05	-0.20 ± 0.05 ⁺⁺⁺	-0.57 ± 0.05****	Diet Strain Diet X Strain	28.76 21.65 2.31	<0.0001 <0.0001 0.14
Hydroxybutyryl- carnitine (C3-DC)	-1.83 ± 0.08	-1.82 ± 0.05	-1.60 ± 0.08	-1.75 ± 0.06	Diet Strain	1.07 4.54	0.31 0.04

					Diet X Strain	1.32	0.26
Hydroxypropionyl-carnitine (C3-OH)	-2.22 ± 0.04	-2.25 ± 0.06	-2.12 ± 0.05	-2.31 ± 0.09	Diet	3.07	0.09
					Strain	0.13	0.72
					Diet X Strain	1.81	0.19
Butyryl- and isobutyrylcarnitine (C4-)	-1.05 ± 0.09	$-1.52 \pm 0.05^{***}$	$-0.59 \pm 0.09^{+++}$	$-1.48 \pm 0.04^{****}$	Diet	86.77	<0.0001
					Strain	12.06	0.001
					Diet X Strain	8.18	0.006
Propenoylcarnitine (C3:1)	-2.43 ± 0.06	-2.47 ± 0.07	-2.24 ± 0.06	-2.38 ± 0.08	Diet	1.74	0.19
					Strain	4.11	0.05
					Diet X Strain	0.49	0.49
Butenoylcarnitine (C4:1)	-1.76 ± 0.05	-1.89 ± 0.07	-1.58 ± 0.05	$-1.92 \pm 0.07^{**}$	Diet	13.95	0.0005
					Strain	1.41	0.24
					Diet X Strain	2.81	0.10
Isovalerylcarnitine and 2-methylbutyrylcarnitine (C5-)	-1.33 ± 0.05	-1.33 ± 0.06	-1.12 ± 0.05	-1.25 ± 0.08	Diet	1.14	0.29
					Strain	5.52	0.02
					Diet X Strain	1.16	0.29
Methylglutarylcarnitine (C5-M-DC)	-3.18 ± 0.05	-3.21 ± 0.07	-3.08 ± 0.11	-3.14 ± 0.09	Diet	0.38	0.54
					Strain	1.07	0.31
					Diet X Strain	0.03	0.87
Glutarylcarnitine (C5-DC)	-3.13 ± 0.08	-3.19 ± 0.05	-2.98 ± 0.08	-3.15 ± 0.06	Diet	2.57	0.12
					Strain	1.84	0.18
					Diet X Strain	0.59	0.44
Hydroxyvaleryl-carnitine (C5-OH)	-2.89 ± 0.07	-2.98 ± 0.07	-2.94 ± 0.05	-3.02 ± 0.08	Diet	1.46	0.23
					Strain	0.53	0.47
					Diet X Strain	0.009	0.92
Tiglylcarnitine (C5:1)	-2.81 ± 0.05	-2.84 ± 0.05	-2.78 ± 0.07	-2.87 ± 0.07	Diet	0.86	0.36
					Strain	0.0005	0.98
					Diet X Strain	0.33	0.56
Glutaconylcarnitine (C5:1-DC)	-2.58 ± 0.07	-2.58 ± 0.05	-2.50 ± 0.07	-2.56 ± 0.07	Diet	0.25	0.62
					Strain	0.67	0.42
					Diet X Strain	0.22	0.64
Hexanoylcarnitine (C6)	-4.45 ± 0.04	-4.58 ± 0.06	-4.48 ± 0.07	-4.52 ± 0.04	Diet	2.37	0.13
					Strain	0.05	0.83
					Diet X Strain	0.78	0.38

Hexenoylcarnitine (C6:1)	-5.14 ± 0.06	-5.12 ± 0.04	-5.12 ± 0.06	-5.14 ± 0.04	Diet Strain Diet X Strain	0.01 0.003 0.15	0.92 0.96 0.70
Pimelylcarnitine (C7-DC)	-3.86 ± 0.06	-3.72 ± 0.08	-3.65 ± 0.08	-3.63 ± 0.04	Diet Strain Diet X Strain	1.36 5.15 0.86	0.25 0.03 0.36
Octanoylcarnitine (C8)	-2.55 ± 0.06	-2.61 ± 0.05	-2.53 ± 0.06	-2.45 ± 0.05	Diet Strain Diet X Strain	0.04 2.94 1.64	0.85 0.09 0.21
Nonanoylcarnitine (C9)	-3.27 ± 0.12	-3.09 ± 0.08	-3.07 ± 0.03	-3.14 ± 0.07	Diet Strain Diet X Strain	0.51 0.86 2.56	0.48 0.36 0.12
Decanoylcarnitine (C10)	-2.35 ± 0.10	-2.34 ± 0.07	-2.34 ± 0.06	-2.42 ± 0.09	Diet Strain Diet X Strain	0.15 0.17 0.36	0.70 0.68 0.55
Decenoylcarnitine (C10:1)	-3.65 ± 0.07	-3.58 ± 0.07	-3.50 ± 0.06	-3.58 ± 0.04	Diet Strain Diet X Strain	0.002 1.53 1.69	0.96 0.22 0.20
Decadienyl-carnitine (C10:2)	-3.40 ± 0.05	-3.31 ± 0.07	-3.25 ± 0.06	3.45 ± 0.08	Diet Strain Diet X Strain	0.66 0.002 5.09	0.42 0.96 0.03
Dodecanoyl-carnitine (C12)	-3.64 ± 0.05	-3.67 ± 0.08	-3.24 ± 0.12 ⁺⁺	-3.65 ± 0.05**	Diet Strain Diet X Strain	7.20 6.61 5.62	0.01 0.01 0.02
Dodecanedioyl-carnitine C12-DC	-1.88 ± 0.07	-1.88 ± 0.07	-1.89 ± 0.04	-2.00 ± 0.05	Diet Strain Diet X Strain	0.87 1.08 0.81	0.36 0.30 0.37
Dodecenoyl-carnitine (C12:1)	-3.50 ± 0.08	-3.69 ± 0.08	-3.14 ± 0.11 ⁺	-3.53 ± 0.08*	Diet Strain Diet X Strain	10.94 8.93 1.33	0.002 0.005 0.25
Tetradecanoyl-carnitine (C14)	-3.54 ± 0.08	-3.89 ± 0.08	-3.01 ± 0.22 ⁺	-3.65 ± 0.11*	Diet Strain Diet X Strain	12.94 8.04 1.13	0.0008 0.007 0.29
					Diet	5.18	0.03

Tetradecenoyl-carnitine (C14:1)	-3.96 ± 0.17	-4.23 ± 0.14	-3.53 ± 0.19	-3.98 ± 0.10	Strain	4.53	0.04
					Diet X Strain	0.29	0.59
Hydroxytetradecenoylcarnitine (C14:1-OH)	-5.07 ± 0.10	-4.98 ± 0.09	-4.65 ± 0.14	-4.96 ± 0.11	Diet	0.97	0.33
					Strain	3.64	0.06
					Diet X Strain	3.26	0.08
Tetradecadienyl-carnitine (C14:2)	-4.85 ± 0.10	-5.06 ± 0.15	-4.37 ± 0.13 ⁺	-5.17 ± 0.05****	Diet	19.03	<0.0001
					Strain	2.54	0.12
					Diet X Strain	6.74	0.01
Hydroxytetradecadienylcarnitine C14:2-OH	-6.86 ± 0.07	-6.95 ± 0.09	-6.70 ± 0.09	-6.80 ± 0.11	Diet	1.01	0.32
					Strain	2.91	0.10
					Diet X Strain	0.001	0.97
Hexadecanoyl-carnitine (C16)	-2.71 ± 0.11	-2.92 ± 0.10	-1.84 ± 0.26 ⁺⁺	-2.45 ± 0.11	Diet	6.09	0.02
					Strain	16.48	0.0002
					Diet X Strain	1.46	0.23
Hydroxyhexadecanoylcarnitine (C16-OH)	-4.50 ± 0.13	-4.54 ± 0.06	-4.27 ± 0.10	-4.50 ± 0.10	Diet	1.81	0.19
					Strain	1.88	0.18
					Diet X Strain	0.84	0.37
Hexadecenoyl-carnitine (C16:1)	-3.94 ± 0.09	-4.37 ± 0.11	-3.43 ± 0.22	-4.27 ± 0.11**	Diet	18.11	0.0001
					Strain	4.12	0.05
					Diet X Strain	1.81	0.19
Hydroxyhexadecenoylcarnitine (C16:1-OH)	-6.75 ± 0.10	-6.70 ± 0.22	-6.53 ± 0.11	-6.70 ± 0.12	Diet	0.19	0.66
					Strain	0.72	0.40
					Diet X Strain	0.66	0.42
Hexadecadienyl-carnitine C16:2	-4.31 ± 0.05	-4.45 ± 0.04	-4.30 ± 0.08	-4.55 ± 0.05*	Diet	10.92	0.002
					Strain	0.60	0.44
					Diet X Strain	0.79	0.38
Hydroxyhexadecadienylcarnitine (C16:2-OH)	-4.24 ± 0.10	-4.30 ± 0.06	-4.11 ± 0.08	-4.57 ± 0.09**	Diet	9.73	0.003
					Strain	0.67	0.42
					Diet X Strain	5.63	0.02
Octadecanoylcarnitine (C18)	-4.10 ± 0.08	-3.57 ± 0.05**	-3.72 ± 0.14	-3.09 ± 0.12***@	Diet	31.10	<0.0001
					Strain	16.85	0.0002
					Diet X Strain	0.28	0.60
Octadecenoyl-carnitine (C18:1)	-3.58 ± 0.13	-3.57 ± 0.11	-3.22 ± 0.19	-3.10 ± 0.17	Diet	0.19	0.66
					Strain	7.55	0.009

					Diet X Strain	0.15	0.71
Hydroxyocta- decenoylcarnitine (C18:1-OH)	-4.46 ± 0.08	-4.56 ± 0.08	-4.10 ± 0.06 ⁺	-4.53 ± 0.12**	Diet	8.63	0.005
					Strain	4.79	0.03
					Diet X Strain	3.48	0.07
Octadecadienyl-carnitine (C18:2)	-5.18 ± 0.11	-5.95 ± 0.10**	-4.52 ± 0.21 ⁺	-5.70 ± 0.12****	Diet	41.68	<0.0001
					Strain	9.23	0.004
					Diet X Strain	1.82	0.18
Amino Acids							
Alanine (Ala)	8.15 ± 0.05	8.27 ± 0.11	8.21 ± 0.08	7.97 ± 0.15	Diet	0.38	0.54
					Strain	1.31	0.26
					Diet X Strain	2.98	0.09
Arginine (Arg)	6.20 ± 0.14	6.16 ± 0.16	6.82 ± 0.15 ⁺	6.28 ± 0.15	Diet	3.91	0.05
					Strain	6.14	0.02
					Diet X Strain	2.81	0.10
Asparagine (Asn)	5.12 ± 0.14	5.20 ± 0.14	5.36 ± 0.09	5.14 ± 0.17	Diet	0.26	0.61
					Strain	0.41	0.53
					Diet X Strain	1.16	0.29
Aspartate (Asp)	5.66 ± 0.12	5.24 ± 0.22	5.99 ± 0.19	5.69 ± 0.14	Diet	3.78	0.06
					Strain	4.50	0.04
					Diet X Strain	0.12	0.73
Citrulline (Cit)	5.41 ± 0.06	5.74 ± 0.09*	5.73 ± 0.09 ⁺	5.67 ± 0.09	Diet	2.62	0.11
					Strain	2.40	0.13
					Diet X Strain	5.78	0.02
Glutamine (Gln)	9.37 ± 0.06	9.12 ± 0.07	9.04 ± 0.08 ⁺	9.12 ± 0.12	Diet	1.00	0.32
					Strain	3.64	0.06
					Diet X Strain	3.86	0.06
Glutamate (Glu)	7.26 ± 0.26	7.09 ± 0.21	7.37 ± 0.15	7.50 ± 0.16	Diet	0.01	0.93
					Strain	1.73	0.19
					Diet X Strain	0.59	0.45
Glycine (Gly)	7.68 ± 0.07	7.41 ± 0.10	7.95 ± 0.09	7.20 ± 0.05****	Diet	40.05	<0.0001
					Strain	0.19	0.67
					Diet X Strain	8.84	0.005

Histidine (His)	5.74 ± 0.05	6.04 ± 0.09	5.96 ± 0.04	6.09 ± 0.10	Diet	8.33	0.006
					Strain	3.34	0.07
					Diet X Strain	1.08	0.30
Isoleucine (Ile)	6.22 ± 0.10	6.62 ± 0.19	6.99 ± 0.08 ⁺⁺	7.48 ± 0.15 ^{@@@}	Diet	10.70	0.002
					Strain	35.75	<0.0001
					Diet X Strain	0.12	0.73
Leucine (Leu)	7.04 ± 0.08	7.38 ± 0.15	7.68 ± 0.08 ⁺⁺	8.08 ± 0.14 ^{@@@}	Diet	10.34	0.002
					Strain	34.63	<0.0001
					Diet X Strain	0.08	0.77
Lysine (Lys)	7.48 ± 0.11	7.99 ± 0.16	8.38 ± 0.14 ⁺⁺⁺	8.10 ± 0.15	Diet	0.71	0.40
					Strain	13.35	0.0007
					Diet X Strain	8.35	0.006
Methionine (Met)	5.59 ± 0.12	5.96 ± 0.20	6.31 ± 0.20 ⁺	6.01 ± 0.21	Diet	0.03	0.85
					Strain	4.35	0.04
					Diet X Strain	3.21	0.08
Ornithine (Orn)	5.45 ± 0.12	4.93 ± 0.17	6.14 ± 0.10 ⁺⁺	5.70 ± 0.13 ^{@@}	Diet	13.22	0.0007
					Strain	30.28	<0.0001
					Diet X Strain	0.09	0.76
Phenylalanine (Phe)	5.96 ± 0.07	5.82 ± 0.09	6.30 ± 0.08	6.25 ± 0.11 ^{@@}	Diet	1.15	0.29
					Strain	18.85	<0.0001
					Diet X Strain	0.26	0.61
Proline (Pro)	6.41 ± 0.12	6.69 ± 0.23	6.60 ± 0.13	6.61 ± 0.22	Diet	0.67	0.42
					Strain	0.09	0.76
					Diet X Strain	0.56	0.46
Serine (Ser)	6.52 ± 0.10	6.58 ± 0.14	7.11 ± 0.08 ⁺⁺	6.81 ± 0.13	Diet	1.20	0.28
					Strain	13.53	0.0006
					Diet X Strain	2.45	0.12
Tryptophan (Trp)	6.17 ± 0.08	5.87 ± 0.08	6.42 ± 0.06	6.17 ± 0.10	Diet	12.32	0.001
					Strain	12.54	0.0009
					Diet X Strain	0.11	0.75
Tyrosine (Tyr)	5.84 ± 0.13	5.93 ± 0.14	5.93 ± 0.11	6.26 ± 0.18	Diet	2.19	0.15
					Strain	2.19	0.15
					Diet X Strain	0.74	0.39
Valine (Val)					Diet	18.55	<0.0001

	7.41 ± 0.07	7.95 ± 0.21	8.05 ± 0.09 ⁺	8.71 ± 0.16 ^{**@@}	Strain Diet X Strain	25.59 0.21	<0.0001 0.65
Biogenic Amines							
Asymmetric dimethylarginine (ADMA)	-1.32 ± 0.15	-1.45 ± 0.14	-1.15 ± 0.17	-1.15 ± 0.12	Diet	0.19	0.66
					Strain	2.26	0.14
					Diet X Strain	0.16	0.69
Alpha-Aminoadipic acid (Alpha-AAA)	1.73 ± 0.11	2.02 ± 0.11	1.11 ± 0.07 ⁺⁺	0.91 ± 0.05 ^{@@@@}	Diet	0.15	0.70
					Strain	57.02	<0.0001
					Diet X Strain	4.78	0.04
Carnosine	2.26 ± 0.08	2.17 ± 0.18	0.77 ± 0.15 ⁺⁺⁺⁺	0.79 ± 0.14 ^{@@@@}	Diet	0.07	0.79
					Strain	96.09	<0.0001
					Diet X Strain	0.16	0.69
Creatinine	2.93 ± 0.06	2.83 ± 0.06	3.06 ± 0.08	2.91 ± 0.08	Diet	3.22	0.08
					Strain	2.15	0.15
					Diet X Strain	0.09	0.77
Histamine	-0.78 ± 0.14	-0.76 ± 0.08	-0.60 ± 0.07	-0.82 ± 0.09	Diet	1.11	0.30
					Strain	0.31	0.58
					Diet X Strain	1.46	0.23
Putrescine	-0.42 ± 0.12	-0.12 ± 0.14	-0.83 ± 0.16	-1.12 ± 0.11 ^{@@@@}	Diet	0.005	0.95
					Strain	26.63	<0.0001
					Diet X Strain	4.66	0.04
Serotonin (5-HT)	3.05 ± 0.37	3.47 ± 0.36	3.11 ± 0.20	3.18 ± 0.19	Diet	0.78	0.39
					Strain	0.16	0.69
					Diet X Strain	0.39	0.54
Spermidine	0.93 ± 0.10	0.93 ± 0.09	1.26 ± 0.14	0.83 ± 0.08 [*]	Diet	4.05	0.05
					Strain	1.32	0.26
					Diet X Strain	4.21	0.05
Spermine	-0.47 ± 0.13	-0.55 ± 0.12	-0.40 ± 0.12	-0.50 ± 0.17	Diet	0.44	0.51
					Strain	0.19	0.67
					Diet X Strain	0.01	0.92
					Diet	5.79	0.02

Trans-4-Hydroxyproline (t4-OH-Pro)	3.23 ± 0.08	3.46 ± 0.07	3.27 ± 0.08	2.69 ± 0.06****@@@	Strain	24.55	<0.0001
					Diet X Strain	31.77	<0.0001
Kynurenine	0.27 ± 0.11	-0.61 ± 0.15****	0.68 ± 0.08	-0.05 ± 0.13***@	Diet	46.38	<0.0001
					Strain	16.81	0.0002
					Diet X Strain	0.42	0.52
Methionine sulfoxide (Met-SO)	-0.04 ± 0.52	1.19 ± 0.68	1.30 ± 0.28	1.80 ± 0.33	Diet	3.60	0.06
					Strain	4.59	0.04
					Diet X Strain	0.62	0.44
Nitro-Tyrosine	-0.35 ± 0.08	-0.40 ± 0.13	-0.09 ± 0.04	-0.14 ± 0.07	Diet	0.38	0.54
					Strain	8.88	0.006
					Diet X Strain	0.00	0.98
cis-4-Hydroxyproline (c4-OH-Pro)	-1.61 ± 0.49	-1.85 ± 0.32	-2.29 ± 0.11	-2.97 ± 0.00	Diet	1.70	0.22
					Strain	6.50	0.03
					Diet X Strain	0.40	0.54
Glycerophospholipids							
<i>Lysophosphatidylcholine acyls</i>							
lysoPC a C14:0	2.81 ± 0.09	2.59 ± 0.14	2.73 ± 0.12	2.81 ± 0.162	Diet	0.27	0.61
					Strain	0.27	0.61
					Diet X Strain	1.15	0.29
lysoPC a C16:0	7.08 ± 0.07	7.27 ± 0.07	7.13 ± 0.06	7.03 ± 0.08	Diet	0.40	0.53
					Strain	1.72	0.20
					Diet X Strain	4.43	0.04
lysoPC a C16:1	2.45 ± 0.11	2.46 ± 0.14	1.51 ± 0.10 ⁺⁺⁺⁺	1.44 ± 0.13@@@	Diet	0.07	0.79
					Strain	65.22	<0.0001
					Diet X Strain	0.09	0.77
lysoPC a C17:0	0.90 ± 0.07	0.80 ± 0.06	1.53 ± 0.06 ⁺⁺⁺⁺	1.12 ± 0.09***@	Diet	13.54	0.0006
					Strain	46.48	<0.0001
					Diet X Strain	5.06	0.03
lysoPC a C18:0	5.91 ± 0.08	6.56 ± 0.08****	6.05 ± 0.05	6.61 ± 0.07****	Diet	72.70	<0.0001
					Strain	1.57	0.22
					Diet X Strain	0.46	0.50

lysoPC a C18:1	5.02 ± 0.10	6.36 ± 0.12****	4.55 ± 0.08 ⁺	6.11 ± 0.14****	Diet Strain Diet X Strain	168.24 10.50 1.04	<0.0001 0.002 0.31
lysoPC a C18:2	6.31 ± 0.08	6.79 ± 0.12*	6.24 ± 0.06	6.81 ± 0.14**	Diet Strain Diet X Strain	27.07 0.05 0.21	<0.0001 0.82 0.65
lysoPC a C20:3	2.40 ± 0.16	4.13 ± 0.09****	1.56 ± 0.09 ⁺⁺⁺⁺	3.50 ± 0.11****@@	Diet Strain Diet X Strain	255.48 41.19 0.91	<0.0001 <0.0001 0.35
lysoPC a C20:4	4.46 ± 0.10	4.67 ± 0.10	4.10 ± 0.06	4.59 ± 0.14**	Diet Strain Diet X Strain	12.08 4.61 1.85	0.001 0.04 0.18
lysoPC a C24:0	-0.09 ± 0.09	0.05 ± 0.07	0.44 ± 0.05 ⁺⁺⁺⁺	0.47 ± 0.10@@	Diet Strain Diet X Strain	1.19 38.20 0.47	0.28 <0.0001 0.49
lysoPC a C26:0	-2.54 ± 0.12	-1.86 ± 0.08****	-2.50 ± 0.07	-1.95 ± 0.11***	Diet Strain Diet X Strain	42.23 0.09 0.47	<0.0001 0.77 0.50
lysoPC a C26:1	-1.78 ± 0.14	-1.38 ± 0.12	-1.50 ± 0.11	-1.26 ± 0.14	Diet Strain Diet X Strain	6.18 2.57 0.43	0.02 0.11 0.51
lysoPC a C28:0	-1.74 ± 0.27	-1.91 ± 0.09	-2.02 ± 0.22	-1.77 ± 0.13	Diet Strain Diet X Strain	0.05 0.14 1.23	0.82 0.71 0.27
lysoPC a C28:1	-2.24 ± 0.10	-1.67 ± 0.09***	-2.33 ± 0.05	-1.60 ± 0.11****	Diet Strain Diet X Strain	54.37 0.006 0.81	<0.0001 0.94 0.37
<i>Phosphatidylcholine diacyls</i>							
PC aa C24:0	-2.63 ± 0.09	-2.39 ± 0.14	-2.60 ± 0.12	-2.40 ± 0.13	Diet Strain Diet X Strain	3.30 0.01 0.03	0.08 0.92 0.86
PC aa C26:0	-1.07 ± 0.10	-0.86 ± 0.07	-1.09 ± 0.06	-0.76 ± 0.09*	Diet Strain	11.09 0.23	0.002 0.63

					Diet X Strain	0.57	0.45
PC aa C28:1	-1.85 ± 0.08	-1.13 ± 0.07****	-1.71 ± 0.06	-0.78 ± 0.07****@@	Diet	152.02	<0.0001
					Strain	13.89	0.0005
					Diet X Strain	2.44	0.13
PC aa C30:0	0.24 ± 0.14	0.98 ± 0.10**	0.65 ± 0.16	0.89 ± 0.13	Diet	12.82	0.0008
					Strain	1.39	0.24
					Diet X Strain	3.45	0.07
PC aa C30:2	-6.43 ± 0.07	-5.53 ± 0.07****	-5.98 ± 0.05 ⁺⁺⁺⁺	-5.11 ± 0.06****@@@	Diet	211.25	<0.0001
					Strain	51.16	<0.0001
					Diet X Strain	0.04	0.84
PC aa C32:0	3.86 ± 0.10	4.14 ± 0.07	4.35 ± 0.13 ⁺	4.05 ± 0.12	Diet	0.0009	0.98
					Strain	3.25	0.08
					Diet X Strain	6.86	0.01
PC aa C32:1	3.35 ± 0.12	4.13 ± 0.07***	3.35 ± 0.16	3.38 ± 0.14@@@	Diet	9.75	0.003
					Strain	8.21	0.006
					Diet X Strain	8.21	0.006
PC aa C32:2	-0.55 ± 0.07	-0.35 ± 0.07	-0.51 ± 0.08	-0.43 ± 0.06	Diet	4.01	0.05
					Strain	0.07	0.79
					Diet X Strain	0.80	0.38
PC aa C32:3	-4.06 ± 0.07	-3.67 ± 0.06**	-3.78 ± 0.06 ⁺	-3.30 ± 0.07****@@@	Diet	40.65	<0.0001
					Strain	23.10	<0.0001
					Diet X Strain	0.46	0.50
PC aa C34:1	6.88 ± 0.10	8.75 ± 0.08****	7.01 ± 0.10	8.52 ± 0.14****	Diet	251.74	<0.0001
					Strain	0.20	0.65
					Diet X Strain	2.71	0.11
PC aa C34:2	8.19 ± 0.08	8.68 ± 0.07***	8.59 ± 0.07 ⁺⁺	8.70 ± 0.08	Diet	16.40	0.0002
					Strain	8.03	0.007
					Diet X Strain	6.62	0.01
PC aa C34:3	4.05 ± 0.08	4.02 ± 0.08	3.63 ± 0.09 ⁺⁺	3.37 ± 0.09@@@	Diet	2.85	0.10
					Strain	38.23	<0.0001
					Diet X Strain	1.81	0.19
PC aa C34:4	-0.57 ± 0.08	-0.38 ± 0.09	-0.89 ± 0.07 ⁺	-0.91 ± 0.10@@@	Diet	1.10	0.30
					Strain	26.69	<0.0001
					Diet X Strain	1.62	0.21

PC aa C36:0	0.63 ± 0.05	0.39 ± 0.15	1.12 ± 0.08 ⁺⁺	0.80 ± 0.10 [@]	Diet Strain Diet X Strain	9.61 12.60 0.72	0.003 0.0009 0.40
PC aa C36:1	4.29 ± 0.12	7.31 ± 0.10 ^{****}	4.38 ± 0.09	7.36 ± 0.08 ^{****}	Diet Strain Diet X Strain	618.63 1.47 0.23	<0.0001 0.23 0.64
PC aa C36:2	7.38 ± 0.07	8.81 ± 0.07 ^{****}	7.93 ± 0.05 ⁺⁺⁺⁺	9.12 ± 0.06 ^{****@@}	Diet Strain Diet X Strain	440.90 47.39 3.40	<0.0001 <0.0001 0.07
PC aa C36:3	6.37 ± 0.08	7.71 ± 0.08 ^{****}	6.30 ± 0.05	7.43 ± 0.08 ^{****}	Diet Strain Diet X Strain	304.61 5.89 2.15	<0.0001 0.02 0.15
PC aa C36:4	7.18 ± 0.08	7.63 ± 0.08 ^{***}	7.41 ± 0.05	7.60 ± 0.08	Diet Strain Diet X Strain	19.88 2.01 3.43	<0.0001 0.16 0.07
PC aa C36:5	2.98 ± 0.09	3.17 ± 0.08	2.70 ± 0.06	2.65 ± 0.10 ^{@@@}	Diet Strain Diet X Strain	0.79 23.19 2.05	0.38 <0.0001 0.16
PC aa C36:6	-1.31 ± 0.09	-1.25 ± 0.08	-1.39 ± 0.08	-1.47 ± 0.08	Diet Strain Diet X Strain	0.01 3.18 0.79	0.91 0.08 0.38
PC aa C38:0	0.38 ± 0.07	0.80 ± 0.05 ^{****}	0.72 ± 0.06 ⁺⁺	1.05 ± 0.06 ^{**@}	Diet Strain Diet X Strain	38.76 23.86 0.50	<0.0001 <0.0001 0.48
PC aa C38:1	-2.70 ± 0.98	0.13 ± 0.27 ^{**}	-2.10 ± 0.47	0.45 ± 0.16 ^{**}	Diet Strain Diet X Strain	29.48 0.87 0.07	<0.0001 0.36 0.79
PC aa C38:3	4.55 ± 0.10	6.07 ± 0.07 ^{****}	4.79 ± 0.04	5.90 ± 0.07 ^{****}	Diet Strain Diet X Strain	311.10 0.24 7.77	<0.0001 0.63 0.008
PC aa C38:4	6.28 ± 0.08	6.95 ± 0.11 ^{****}	6.62 ± 0.07	7.13 ± 0.10 ^{**}	Diet Strain Diet X Strain	41.13 7.98 0.75	<0.0001 0.007 0.39
PC aa C38:5					Diet	60.13	<0.0001

	5.05 ± 0.11	5.67 ± 0.09****	5.15 ± 0.06	5.81 ± 0.07****	Strain	2.15	0.15
					Diet X Strain	0.05	0.82
PC aa C38:6	6.63 ± 0.09	6.50 ± 0.08	6.95 ± 0.05 ⁺	6.70 ± 0.09	Diet	6.15	0.02
					Strain	10.61	0.002
					Diet X Strain	0.56	0.46
PC aa C40:1	-2.00 ± 0.09	-1.93 ± 0.07	-1.79 ± 0.09	-1.72 ± 0.05	Diet	0.82	0.37
					Strain	7.50	0.009
					Diet X Strain	0.01	0.94
PC aa C40:2	-1.91 ± 0.12	-1.68 ± 0.08	-1.28 ± 0.05 ⁺⁺⁺⁺	-1.31 ± 0.09 [@]	Diet	1.27	0.26
					Strain	32.18	<0.0001
					Diet X Strain	2.05	0.16
PC aa C40:3	-0.84 ± 0.09	-0.22 ± 0.09****	-0.68 ± 0.07	-0.27 ± 0.05**	Diet	43.94	<0.0001
					Strain	0.49	0.49
					Diet X Strain	2.00	0.16
PC aa C40:4	1.64 ± 0.10	2.17 ± 0.09****	2.02 ± 0.06 ⁺	2.34 ± 0.07*	Diet	30.19	<0.0001
					Strain	12.43	0.001
					Diet X Strain	2.08	0.16
PC aa C40:5	2.23 ± 0.12	2.92 ± 0.11****	2.81 ± 0.06 ⁺⁺⁺	3.53 ± 0.08****@@@	Diet	56.61	<0.0001
					Strain	40.04	<0.0001
					Diet X Strain	0.02	0.88
PC aa C40:6	4.85 ± 0.09	4.97 ± 0.08	5.42 ± 0.07 ⁺⁺⁺	5.34 ± 0.10 [@]	Diet	0.06	0.81
					Strain	30.60	<0.0001
					Diet X Strain	1.43	0.24
PC aa C42:0	-2.67 ± 0.09	-2.55 ± 0.12	-2.22 ± 0.10 ⁺	-2.40 ± 0.09	Diet	0.07	0.79
					Strain	8.53	0.006
					Diet X Strain	1.99	0.17
PC aa C42:1	-2.83 ± 0.10	-2.83 ± 0.09	-2.53 ± 0.08	-2.62 ± 0.13	Diet	0.22	0.64
					Strain	6.44	0.01
					Diet X Strain	0.19	0.67
PC aa C42:2	-2.27 ± 0.10	-2.17 ± 0.05	-1.73 ± 0.09 ⁺⁺⁺⁺	-2.14 ± 0.06**	Diet	3.75	0.06
					Strain	12.57	0.0009
					Diet X Strain	10.07	0.003
PC aa C42:4	-2.47 ± 0.06	-2.53 ± 0.11	-2.15 ± 0.08 ⁺	-2.28 ± 0.08	Diet	1.25	0.27
					Strain	11.97	0.001

					Diet X Strain	0.17	0.69
PC aa C42:5	-1.76 ± 0.11	-1.92 ± 0.06	-1.25 ± 0.08 ⁺⁺⁺	-1.69 ± 0.10 ^{**}	Diet	10.81	0.002
					Strain	17.12	0.0002
					Diet X Strain	2.61	0.11
PC aa C42:6	-0.04 ± 0.08	-0.27 ± 0.09	0.36 ± 0.08 ⁺⁺	0.12 ± 0.07 [@]	Diet	8.25	0.006
					Strain	22.98	<0.0001
					Diet X Strain	0.01	0.93
<i>Phosphatidylcholine acyl-alkyls</i>							
PC ae C30:0	-2.56 ± 0.07	-2.33 ± 0.03*	-2.38 ± 0.04	-2.26 ± 0.05	Diet	12.43	0.001
					Strain	6.67	0.01
					Diet X Strain	1.19	0.28
PC ae C30:1	-4.07 ± 0.12	-3.89 ± 0.19	-4.06 ± 0.24	-3.73 ± 0.29	Diet	1.33	0.25
					Strain	0.15	0.70
					Diet X Strain	0.11	0.74
PC ae C30:2	-1.95 ± 0.05	-1.35 ± 0.08	-1.38 ± 0.06	-2.79 ± 0.33 ^{*****@@@}	Diet	5.62	0.02
					Strain	6.45	0.01
					Diet X Strain	34.76	<0.0001
PC ae C32:1	-0.36 ± 0.06	0.12 ± 0.07 ^{****}	0.14 ± 0.05 ⁺⁺⁺⁺	0.60 ± 0.08 ^{*****@@@}	Diet	48.53	<0.0001
					Strain	52.43	<0.0001
					Diet X Strain	0.03	0.86
PC ae C32:2	-2.88 ± 0.08	-1.60 ± 0.09 ^{****}	-2.40 ± 0.06 ⁺⁺⁺	-1.34 ± 0.09 ^{****}	Diet	211.46	<0.0001
					Strain	21.03	<0.0001
					Diet X Strain	1.86	0.18
PC ae C34:0	-0.98 ± 0.07	-0.65 ± 0.06*	-0.24 ± 0.09 ⁺⁺⁺⁺	-0.27 ± 0.06 ^{@@}	Diet	4.64	0.04
					Strain	62.51	<0.0001
					Diet X Strain	6.32	0.02
PC ae C34:1	1.79 ± 0.07	2.94 ± 0.05 ^{****}	1.88 ± 0.07	2.93 ± 0.10 ^{****}	Diet	233.91	<0.0001
					Strain	0.32	0.57
					Diet X Strain	0.49	0.49
PC ae C34:2	1.72 ± 0.08	1.70 ± 0.05	2.26 ± 0.08 ⁺⁺⁺⁺	2.33 ± 0.06 ^{@@@@}	Diet	0.09	0.77
					Strain	67.52	<0.0001
					Diet X Strain	0.44	0.51
PC ae C34:3					Diet	74.40	<0.0001

	-0.10 ± 0.08	$0.61 \pm 0.07^{****}$	$0.66 \pm 0.06^{++++}$	$1.27 \pm 0.09^{*****@@@}$	Strain	87.13	<0.0001
					Diet X Strain	0.45	0.51
PC ae C36:0	-1.26 ± 0.08	$-0.52 \pm 0.06^{*****}$	$-0.83 \pm 0.06^{+++}$	$-0.27 \pm 0.07^{*****}$	Diet	90.34	<0.0001
					Strain	25.08	<0.0001
					Diet X Strain	1.72	0.20
PC ae C36:1	0.64 ± 0.08	$2.17 \pm 0.05^{****}$	$1.23 \pm 0.07^{++++}$	$2.41 \pm 0.07^{****}$	Diet	256.70	<0.0001
					Strain	28.46	<0.0001
					Diet X Strain	1.70	0.20
PC ae C36:2	2.87 ± 0.07	$3.26 \pm 0.05^{***}$	$3.80 \pm 0.06^{++++}$	$3.76 \pm 0.06^{@@@}$	Diet	8.96	0.004
					Strain	144.82	<0.0001
					Diet X Strain	12.96	0.0008
PC ae C36:3	1.02 ± 0.07	$1.77 \pm 0.05^{****}$	1.19 ± 0.07	$1.84 \pm 0.08^{****}$	Diet	105.32	<0.0001
					Strain	3.23	0.08
					Diet X Strain	0.52	0.47
PC ae C36:4	1.90 ± 0.08	$2.34 \pm 0.05^{***}$	$2.20 \pm 0.07^{+}$	$2.53 \pm 0.07^{**}$	Diet	31.60	<0.0001
					Strain	12.85	0.0008
					Diet X Strain	0.65	0.42
PC ae C36:5	0.84 ± 0.09	$1.32 \pm 0.06^{***}$	$1.34 \pm 0.06^{++++}$	$1.90 \pm 0.08^{*****@@@}$	Diet	50.30	<0.0001
					Strain	54.23	<0.0001
					Diet X Strain	0.32	0.57
PC ae C38:0	1.51 ± 0.10	1.29 ± 0.08	1.30 ± 0.07	1.22 ± 0.07	Diet	3.29	0.08
					Strain	2.84	0.10
					Diet X Strain	0.74	0.39
PC ae C38:1	-1.85 ± 0.15	$-0.69 \pm 0.12^{****}$	-1.51 ± 0.19	$-0.32 \pm 0.14^{****}$	Diet	59.06	<0.0001
					Strain	5.36	0.03
					Diet X Strain	0.003	0.96
PC ae C38:2	0.33 ± 0.08	0.07 ± 0.08	$1.58 \pm 0.07^{++++}$	$0.71 \pm 0.07^{*****@@@}$	Diet	56.51	<0.0001
					Strain	156.60	<0.0001
					Diet X Strain	16.09	0.0002
PC ae C38:3	-0.20 ± 0.08	$0.64 \pm 0.06^{****}$	$0.41 \pm 0.05^{++++}$	$0.92 \pm 0.04^{*****@}$	Diet	120.33	<0.0001
					Strain	51.18	<0.0001
					Diet X Strain	7.34	0.01
PC ae C38:4	1.94 ± 0.07	$2.38 \pm 0.07^{***}$	$2.64 \pm 0.07^{++++}$	$2.76 \pm 0.08^{@@}$	Diet	14.93	0.0004
					Strain	57.20	<0.0001

					Diet X Strain	5.05	0.03
PC ae C38:5	1.74 ± 0.07	2.58 ± 0.04****	1.79 ± 0.06	2.65 ± 0.06****	Diet	210.03	<0.0001
					Strain	1.09	0.30
					Diet X Strain	0.06	0.80
PC ae C38:6	0.91 ± 0.08	1.03 ± 0.05	1.59 ± 0.06 ⁺⁺⁺⁺	1.65 ± 0.07 ^{@@@@}	Diet	1.84	0.18
					Strain	99.78	<0.0001
					Diet X Strain	0.16	0.69
PC ae C40:1	1.25 ± 0.06	1.37 ± 0.08	1.22 ± 0.08	1.48 ± 0.05	Diet	6.76	0.01
					Strain	0.33	0.57
					Diet X Strain	0.99	0.33
PC ae C40:2	-1.41 ± 0.06	-1.11 ± 0.06**	-0.81 ± 0.06 ⁺⁺⁺⁺	-0.91 ± 0.04	Diet	1.32	0.26
					Strain	48.79	<0.0001
					Diet X Strain	7.85	0.007
PC ae C40:3	-2.10 ± 0.08	-1.66 ± 0.07***	-1.62 ± 0.08 ⁺⁺⁺⁺	-1.52 ± 0.04	Diet	17.06	0.0002
					Strain	21.89	<0.0001
					Diet X Strain	6.83	0.01
PC ae C40:4	0.40 ± 0.07	0.05 ± 0.08*	1.07 ± 0.08 ⁺⁺⁺⁺	0.42 ± 0.08****@	Diet	41.17	<0.0001
					Strain	43.97	<0.0001
					Diet X Strain	3.76	0.06
PC ae C40:5	-0.79 ± 0.09	-0.28 ± 0.06****	-0.30 ± 0.06 ⁺⁺⁺⁺	-0.06 ± 0.05*	Diet	36.63	<0.0001
					Strain	31.31	<0.0001
					Diet X Strain	4.46	0.04
PC ae C40:6	1.06 ± 0.07	0.90 ± 0.05	1.90 ± 0.07 ⁺⁺⁺⁺	1.60 ± 0.09*@@@@	Diet	10.87	0.002
					Strain	119.50	<0.0001
					Diet X Strain	0.98	0.33
PC ae C42:0	-2.67 ± 0.09	-2.55 ± 0.12**	-2.22 ± 0.10	-2.40 ± 0.09**	Diet	23.53	<0.0001
					Strain	3.19	0.08
					Diet X Strain	0.003	0.96
PC ae C42:1	-1.30 ± 0.09	-1.15 ± 0.09	-0.96 ± 0.06 ⁺⁺	-1.01 ± 0.03	Diet	0.45	0.51
					Strain	11.85	0.001
					Diet X Strain	2.08	0.16
PC ae C42:2	-1.50 ± 0.11	-0.70 ± 0.07****	-1.32 ± 0.08	-0.71 ± 0.05****	Diet	75.03	<0.0001
					Strain	1.16	0.29
					Diet X Strain	1.32	0.26

PC ae C42:3	-0.60 ± 0.10	-0.56 ± 0.07	-0.78 ± 0.05	-0.64 ± 0.10	Diet Strain Diet X Strain	1.19 2.46 0.31	0.28 0.12 0.58
PC ae C42:4	-2.74 ± 0.10	-2.82 ± 0.15	-2.46 ± 0.05	-2.77 ± 0.08	Diet Strain Diet X Strain	3.86 2.70 1.43	0.06 0.11 0.24
PC ae C42:5	-1.23 ± 0.06	-1.16 ± 0.05	-0.74 ± 0.05 ⁺⁺⁺⁺	-0.97 ± 0.04*	Diet Strain Diet X Strain	0.55 37.19 3.44	0.46 <0.0001 0.07
PC ae C44:3	-3.07 ± 0.10	-3.02 ± 0.13	-3.20 ± 0.09	-3.04 ± 0.09	Diet Strain Diet X Strain	0.95 0.48 0.29	0.34 0.49 0.59
PC ae C44:4	-2.61 ± 0.09	-2.42 ± 0.10	-2.51 ± 0.21	-2.44 ± 0.10	Diet Strain Diet X Strain	1.10 0.10 0.22	0.30 0.75 0.64
PC ae C44:5	-2.06 ± 0.08	-1.96 ± 0.12	-2.06 ± 0.08	-2.05 ± 0.07	Diet Strain Diet X Strain	0.37 0.33 0.27	0.55 0.57 0.61
PC ae C44:6	-2.41 ± 0.15	-2.84 ± 0.07	-2.22 ± 0.19	-2.44 ± 0.14	Diet Strain Diet X Strain	5.03 4.21 0.47	0.03 0.05 0.50
Sphingolipids							
SM(OH) C14:1	0.17 ± 0.06	0.87 ± 0.07 ^{****}	0.95 ± 0.06 ⁺⁺⁺⁺	1.72 ± 0.04 ^{****@@@}	Diet Strain Diet X Strain	153.01 190.26 0.34	<0.0001 <0.0001 0.56
SM(OH) C16:1	-0.89 ± 0.06	-0.50 ± 0.05 ^{****}	-0.38 ± 0.06 ⁺⁺⁺⁺	0.14 ± 0.05 ^{****@@@}	Diet Strain Diet X Strain	73.57 116.19 1.55	<0.0001 <0.0001 0.22
SM(OH) C22:1	1.15 ± 0.08	1.56 ± 0.06 ^{***}	2.04 ± 0.05 ⁺⁺⁺⁺	2.18 ± 0.07 ^{@@@}	Diet Strain Diet X Strain	16.63 124.66 3.83	0.0002 <0.0001 0.06
SM(OH) C22:2					Diet	57.77	<0.0001

	2.28 ± 0.07	1.96 ± 0.07*	3.41 ± 0.08 ⁺⁺⁺⁺	2.69 ± 0.05 ^{*****@@@}	Strain	184.09	<0.0001
					Diet X Strain	8.81	0.005
SM(OH) C24:1	0.53 ± 0.07	0.64 ± 0.07	0.42 ± 0.07	0.65 ± 0.08	Diet	5.72	0.02
					Strain	0.50	0.48
					Diet X Strain	0.77	0.38
SM C16:0	4.10 ± 0.06	5.03 ± 0.06 ^{****}	4.58 ± 0.04 ⁺⁺⁺⁺	5.43 ± 0.04 ^{*****@@@}	Diet	306.49	<0.0001
					Strain	76.63	<0.0001
					Diet X Strain	0.66	0.42
SM C16:1	1.88 ± 0.06	2.35 ± 0.04 ^{****}	2.53 ± 0.05 ⁺⁺⁺⁺	2.96 ± 0.07 ^{*****@@@}	Diet	64.96	<0.0001
					Strain	124.59	<0.0001
					Diet X Strain	0.13	0.72
SM C18:0	2.85 ± 0.09	3.62 ± 0.06 ^{****}	2.95 ± 0.12	3.43 ± 0.10 ^{**}	Diet	43.44	<0.0001
					Strain	0.19	0.66
					Diet X Strain	2.21	0.14
SM C18:1	0.64 ± 0.04	0.98 ± 0.06 ^{**}	0.69 ± 0.07	1.21 ± 0.07 ^{****}	Diet	48.73	<0.0001
					Strain	5.22	0.03
					Diet X Strain	2.14	0.15
SM C20:2	-0.33 ± 0.07	-0.38 ± 0.08	-0.78 ± 0.09 ⁺⁺	-1.09 ± 0.10 ^{@@@@}	Diet	4.40	0.04
					Strain	45.10	<0.0001
					Diet X Strain	2.26	0.14
SM C22:3	-2.63 ± 0.07	-2.17 ± 0.08 ^{***}	-2.37 ± 0.06	-2.18 ± 0.09	Diet	18.72	<0.0001
					Strain	2.87	0.10
					Diet X Strain	3.46	0.07
SM C24:0	3.05 ± 0.11	3.69 ± 0.06 ^{****}	3.81 ± 0.08 ⁺⁺⁺⁺	3.90 ± 0.07	Diet	20.53	<0.0001
					Strain	35.14	<0.0001
					Diet X Strain	11.47	0.001
SM C24:1	4.29 ± 0.08	4.18 ± 0.14	488 ± 0.05 ⁺⁺⁺	4.63 ± 0.07 ^{@@}	Diet	4.22	0.05
					Strain	34.12	<0.0001
					Diet X Strain	0.72	0.40
SM C26:0	-2.07 ± 0.09	-1.94 ± 0.08	-1.80 ± 0.09	-1.87 ± 0.10	Diet	0.11	0.75
					Strain	3.29	0.08
					Diet X Strain	1.28	0.26
SM C26:1	-2.42 ± 0.13	-2.32 ± 0.10	-1.92 ± 0.14 ⁺	-2.21 ± 0.13	Diet	0.58	0.45
					Strain	6.05	0.02

					Diet X Strain	2.53	0.12
Monosaccharides							
Hexoses (H1)	12.79 ± 0.23	13.28 ± 0.07	13.05 ± 0.17	12.78 ± 0.14	Diet Strain	0.46	0.50
					Diet X Strain	0.48	0.49
					Diet X Strain	5.08	0.03
Metabolite ratios							
Short chain acylcarnitines (SCACs)	3.85 ± 0.07	2.89 ± 0.08****	4.53 ± 0.16 ⁺⁺⁺	2.96 ± 0.12****	Diet	122.43	<0.0001
					Strain	10.78	0.002
					Diet X Strain	7.12	0.01
Medium chain acylcarnitines (MCACs)	-0.33 ± 0.05	-0.31 ± 0.05	-0.25 ± 0.03	-0.31 ± 0.05	Diet	0.16	0.69
					Strain	0.94	0.34
					Diet X Strain	0.95	0.34
Long chain acylcarnitines (LCACs)	0.34 ± 0.05	0.22 ± 0.04	0.72 ± 0.14 ⁺	0.35 ± 0.07*	Diet	8.00	0.007
					Strain	8.78	0.005
					Diet X Strain	2.01	0.16
(C2+C3) / C0	-0.94 ± 0.09	-1.02 ± 0.06	-0.25 ± 0.25 ⁺	-0.63 ± 0.18	Diet	1.86	0.18
					Strain	10.15	0.003
					Diet X Strain	0.77	0.38
C3/C4	0.52 ± 0.08	0.79 ± 0.05	0.39 ± 0.08	0.91 ± 0.08****	Diet	30.92	<0.0001
					Strain	0.01	0.94
					Diet X Strain	3.25	0.08
C4/C0	-5.55 ± 0.11***	-4.87 ± 0.07	-5.15 ± 0.15	-4.50 ± 0.09***	Diet	36.50	<0.0001
					Strain	11.93	0.001
					Diet X Strain	0.02	0.89
C4/C5	0.28 ± 0.09**	-0.19 ± 0.07	0.53 ± 0.09	-0.23 ± 0.09****	Diet	49.53	<0.0001
					Strain	1.47	0.23
					Diet X Strain	2.62	0.11
C5/C0	-5.83 ± 0.08****	-4.68 ± 0.12	-5.68 ± 0.13	-4.27 ± 0.12****	Diet	126.77	<0.0001
					Strain	5.99	0.02
					Diet X Strain	1.20	0.28

C3/C0	-5.03 ± 0.07****	-4.08 ± 0.10	-4.77 ± 0.11 ⁺⁺	-3.59 ± 0.11****	Diet Strain Diet X Strain	120.14 15.19 1.32	0.00 0.0003 0.26
C18/C18:1	-0.52 ± 0.14*	0.003 ± 0.10	-0.50 ± 0.10	0.01 ± 0.09**	Diet Strain Diet X Strain	22.24 0.01 0.001	<0.0001 0.93 0.98
(C16 + C18)/C0 (CPT-1)	-6.73 ± 0.08	-5.55 ± 0.10****	-6.05 ± 0.30 ⁺	-4.75 ± 0.15****	Diet Strain Diet X Strain	44.50 15.97 0.09	<0.0001 0.0002 0.77
(C16 + C18:1)/C2 (CPT-2)	-5.55 ± 0.10	-4.34 ± 0.10****	-5.61 ± 0.11	-3.90 ± 0.14****	Diet Strain Diet X Strain	164.80 2.75 4.80	<0.0001 0.10 0.03
C2/C0	-1.03 ± 0.09	-1.21 ± 0.07	-0.32 ± 0.26 ⁺	-0.86 ± 0.21	Diet Strain Diet X Strain	3.99 8.62 0.95	0.05 0.005 0.34
Total AC / C0	-0.46 ± 0.07	-0.11 ± 0.05	0.12 ± 0.23 ⁺	0.29 ± 0.13	Diet Strain Diet X Strain	3.32 11.44 0.38	0.07 0.001 0.54
Total AC-DC / Total AC	-4.03 ± 0.07	-3.21 ± 0.07****	-4.54 ± 0.15 ⁺⁺	-3.27 ± 0.11****	Diet Strain Diet X Strain	99.11 7.45 4.65	<0.0001 0.009 0.04
Total AC-OH / Total AC	-4.94 ± 0.06	-4.20 ± 0.07****	-5.46 ± 0.12 ⁺⁺⁺	-4.35 ± 0.10****	Diet Strain Diet X Strain	100.32 13.90 4.39	<0.0001 0.0005 0.04
Total AC	4.04 ± 0.07	3.24 ± 0.06****	4.68 ± 0.15 ⁺⁺⁺	3.31 ± 0.10****	Diet Strain Diet X Strain	108.64 11.60 7.23	<0.0001 0.001 0.01
Total AC-DC	0.02 ± 0.04	0.03 ± 0.03	0.14 ± 0.05	0.04 ± 0.04	Diet Strain Diet X Strain	0.99 2.67 1.65	0.32 0.11 0.21
Total AC-OH	-0.89 ± 0.04	-0.97 ± 0.03	-0.79 ± 0.04	-1.04 ± 0.04****	Diet Strain Diet X Strain	17.20 0.08 4.90	0.0001 0.78 0.03
					Diet	14.50	0.0004

Branched-chain amino acids (BCAA)	8.56 ± 0.08	9.00 ± 0.19	9.23 ± 0.08 ⁺⁺	9.76 ± 0.15* ^{@@@}	Strain	30.83	<0.0001
					Diet X Strain	0.14	0.71
Aromatic amino acids (AAA)	7.59 ± 0.08	7.47 ± 0.10	7.83 ± 0.07	7.83 ± 0.11	Diet	0.46	0.50
					Strain	10.57	0.002
					Diet X Strain	0.52	0.47
BCAA/AAA	0.96 ± 0.05	1.53 ± 0.10***	1.40 ± 0.07 ⁺⁺	1.94 ± 0.13*** [@]	Diet	36.18	<0.0001
					Strain	20.82	<0.0001
					Diet X Strain	0.04	0.84
Gly/Glu	0.42 ± 0.22	0.31 ± 0.17	0.58 ± 0.14	-0.30 ± 0.19**	Diet	7.61	0.008
					Strain	1.56	0.22
					Diet X Strain	4.78	0.03
Glu/His	1.52 ± 0.24	1.06 ± 0.18	1.41 ± 0.14	1.41 ± 0.20	Diet	1.44	0.24
					Strain	0.41	0.53
					Diet X Strain	1.39	0.24
Gly/Ser	1.15 ± 0.08	0.83 ± 0.11	0.84 ± 0.09	0.39 ± 0.10** [@]	Diet	17.25	0.0001
					Strain	16.29	0.0002
					Diet X Strain	0.48	0.49
Tyr/Phe	-0.12 ± 0.09	0.10 ± 0.07	-0.37 ± 0.08	0.005 ± 0.11*	Diet	12.26	0.001
					Strain	4.14	0.05
					Diet X Strain	0.77	0.38
Arg/Cit	0.79 ± 0.11	0.42 ± 0.13	1.09 ± 0.17	0.61 ± 0.12	Diet	9.96	0.003
					Strain	3.21	0.08
					Diet X Strain	0.15	0.70
Glucogenic amino acids	11.02 ± 0.06	10.96 ± 0.10	11.07 ± 0.06	11.10 ± 0.09	Diet	0.02	0.89
					Strain	1.42	0.24
					Diet X Strain	0.28	0.60
Ketogenic amino acids	8.28 ± 0.09	8.72 ± 0.15	9.08 ± 0.11 ⁺⁺⁺	9.11 ± 0.12	Diet	3.85	0.06
					Strain	24.95	<0.0001
					Diet X Strain	3.03	0.09
Glucogenic + Ketogenic amino acids	8.07 ± 0.08	8.11 ± 0.13	8.47 ± 0.06 ⁺	8.68 ± 0.11 ^{@@}	Diet	1.68	0.20
					Strain	23.81	<0.0001
					Diet X Strain	0.68	0.41
Essential amino acids	9.87 ± 0.07	10.10 ± 0.14	10.30 ± 0.08 ⁺	10.57 ± 0.11 [@]	Diet	6.14	0.02
					Strain	19.16	<0.0001

					Diet X Strain	0.04	0.84
Non-essential amino acids	10.74 ± 0.07	10.63 ± 0.10	10.81 ± 0.06	10.67 ± 0.10	Diet	2.02	0.16
					Strain	0.39	0.54
					Diet X Strain	0.03	0.86
Total DMA	-3.47 ± 0.44	-4.17 ± 0.45	-2.72 ± 0.33	-3.66 ± 0.30	Diet	4.55	0.04
					Strain	2.70	0.11
					Diet X Strain	0.10	0.76
Spermidine/putrescine	1.35 ± 0.14	1.05 ± 0.10	2.09 ± 0.16 ⁺⁺	1.95 ± 0.13 ^{@@@}	Diet	2.64	0.11
					Strain	37.19	<0.0001
					Diet X Strain	0.35	0.56
Kynurenin/tryptophan	-5.90 ± 0.11	-6.48 ± 0.12 ^{**}	-5.74 ± 0.10	-6.22 ± 0.12 [*]	Diet	22.69	<0.0001
					Strain	3.52	0.07
					Diet X Strain	0.21	0.65
Serotonin/tryptophan	-3.01 ± 0.46	-2.28 ± 0.31	-3.32 ± 0.19	-2.99 ± 0.21	Diet	3.44	0.08
					Strain	3.19	0.09
					Diet X Strain	0.51	0.48
Serotonin/kynurenine	2.75 ± 0.04	4.22 ± 0.31	2.47 ± 0.25	3.18 ± 0.24	Diet	12.49	0.002
					Strain	4.61	0.04
					Diet X Strain	1.49	0.24
Met/Met-SO	5.76 ± 0.48	4.97 ± 0.62	5.01 ± 0.14	4.31 ± 0.24	Diet	3.80	0.06
					Strain	3.33	0.08
					Diet X Strain	0.01	0.91
ADMA/Arg	-7.64 ± 0.14	-7.72 ± 0.20	-7.94 ± 0.17	-7.49 ± 0.24	Diet	0.92	0.34
					Strain	0.03	0.87
					Diet X Strain	1.85	0.18
Kynurenine/Alpha-amioadipate	-1.45 ± 0.17	-2.63 ± 0.17 ^{*****}	-0.30 ± 0.09 ⁺⁺⁺	-0.97 ± 0.19 ^{@@@@}	Diet	25.57	<0.0001
					Strain	59.61	<0.0001
					Diet X Strain	2.00	0.17
Leucine/kynurenine	6.77 ± 0.11	7.99 ± 0.13 ^{*****}	7.00 ± 0.11	8.13 ± 0.12 ^{*****}	Diet	102.68	<0.0001
					Strain	2.57	0.12
					Diet X Strain	0.14	0.71
SFA aa	4.28 ± 0.09	4.55 ± 0.06	4.74 ± 0.12 ⁺⁺	4.54 ± 0.10	Diet	0.13	0.72
					Strain	5.68	0.02
					Diet X Strain	6.22	0.02

PUFA aa	9.95 ± 0.07	10.72 ± 0.06****	10.28 ± 0.05 ⁺⁺	10.80 ± 0.06****	Diet Strain Diet X Strain	116.00 12.32 4.15	<0.0001 0.001 0.05
MUFA aa	7.22 ± 0.10	9.25 ± 0.08****	7.33 ± 0.10	9.15 ± 0.14****	Diet Strain Diet X Strain	320.5 0.004 1.07	<0.0001 0.95 0.31
UFA aa	10.16 ± 0.07	11.17 ± 0.06****	10.46 ± 0.05 ⁺⁺	11.21 ± 0.08****	Diet Strain Diet X Strain	193.4 7.76 4.17	<0.0001 0.008 0.05
Total PC aa	10.18 ± 0.07	11.18 ± 0.06****	10.49 ± 0.05 ⁺⁺	11.23 ± 0.08****	Diet Strain Diet X Strain	191.90 8.02 4.35	<0.0001 0.007 0.04
SFA ae	2.20 ± 0.07	2.16 ± 0.06	2.25 ± 0.05	2.25 ± 0.05	Diet Strain Diet X Strain	0.09 1.35 0.08	0.76 0.25 0.78
PUFA ae	5.24 ± 0.06	5.62 ± 0.04****	5.84 ± 0.06 ⁺⁺⁺⁺	5.99 ± 0.05 ^{@@@}	Diet Strain Diet X Strain	24.46 83.45 4.73	<0.0001 <0.0001 0.04
MUFA ae	3.16 ± 0.06	4.09 ± 0.05****	3.39 ± 0.05 ⁺	4.18 ± 0.05****	Diet Strain Diet X Strain	283.2 9.59 1.85	<0.0001 0.003 0.18
UFA ae	5.55 ± 0.06	6.05 ± 0.04****	6.09 ± 0.05 ⁺⁺⁺⁺	6.38 ± 0.06 ^{**@@@}	Diet Strain Diet X Strain	56.40 67.18 4.08	<0.0001 <0.0001 0.05
Total PC ae	5.68 ± 0.06	6.15 ± 0.04****	6.19 ± 0.05 ⁺⁺⁺⁺	6.46 ± 0.06 ^{**@@@}	Diet Strain Diet X Strain	49.67 61.01 3.30	<0.0001 <0.0001 0.07
SFA (PC ae + PC aa)	4.59 ± 0.07	4.81 ± 0.06	4.99 ± 0.10 ⁺⁺	4.81 ± 0.09	Diet Strain Diet X Strain	0.06 5.79 5.42	0.81 0.02 0.02
PUFA (PC ae + PC aa)	10.01 ± 0.07	10.76 ± 0.06****	10.35 ± 0.05 ⁺⁺⁺	10.85 ± 0.06****	Diet Strain Diet X Strain	112.6 13.70 4.28	<0.0001 0.0006 0.04
MUFA (PC ae + PC aa)					Diet	319.40	<0.0001

	7.30 ± 0.10	9.29 ± 0.08****	7.43 ± 0.09	9.19 ± 0.14****	Strain	0.02	0.89
					Diet X Strain	1.10	0.30
UFA (PC ae + PC aa)	10.21 ± 0.07	11.21 ± 0.06****	10.53 ± 0.05 ⁺⁺	11.26 ± 0.08****	Diet	188.90	<0.0001
					Strain	8.74	0.005
					Diet X Strain	4.29	0.04
Total LysoPC	8.46 ± 0.07	8.97 ± 0.08****	8.42 ± 0.05	8.86 ± 0.09***	Diet	42.68	<0.0001
					Strain	1.21	0.28
					Diet X Strain	0.24	0.63
lysoPC a C16:1/ lysoPC a C16:0	-4.62 ± 0.11	-4.81 ± 0.09	-5.63 ± 0.07 ⁺⁺⁺⁺	-5.59 ± 0.07 ^{@@@}	Diet	0.79	0.38
					Strain	104.1	<0.0001
					Diet X Strain	1.65	0.21
lysoPC a C18:2/ lysoPC a C18:1	1.29 ± 0.06	0.43 ± 0.06****	1.69 ± 0.05 ⁺⁺	0.70 ± 0.13****	Diet	132.9	<0.0001
					Strain	17.86	0.0001
					Diet X Strain	0.72	0.40
lysoPC a C20:4/ lysoPC a C20:3	2.06 ± 0.10	0.55 ± 0.08****	2.55 ± 0.08 ⁺⁺	1.09 ± 0.12**** ^{@@}	Diet	243.6	<0.0001
					Strain	29.88	<0.0001
					Diet X Strain	0.09	0.76
Total SM	6.12 ± 0.06	6.59 ± 0.06****	6.69 ± 0.05 ⁺⁺⁺⁺	6.94 ± 0.04 ^{@@@}	Diet	46.73	<0.0001
					Strain	76.91	<0.0001
					Diet X Strain	4.68	0.04
Total SM-non-OH	5.89 ± 0.06	6.41 ± 0.06****	6.40 ± 0.05 ⁺⁺⁺⁺	6.72 ± 0.04**** ^{@@}	Diet	63.55	<0.0001
					Strain	59.02	<0.0001
					Diet X Strain	3.76	0.06
Total SM-OH	3.35 ± 0.06	3.45 ± 0.05	4.23 ± 0.06 ⁺⁺⁺⁺	4.08 ± 0.05 ^{@@@}	Diet	0.18	0.67
					Strain	179.10	<0.0001
					Diet X Strain	4.93	0.03
Total SM-OH / Total SM-non-OH	-2.53 ± 0.03	-2.96 ± 0.03****	-2.16 ± 0.04 ⁺⁺⁺⁺	-2.64 ± 0.03**** ^{@@@}	Diet	172.0	<0.0001
					Strain	102.6	<0.0001
					Diet X Strain	0.42	0.52

Supplementary Table S2. Significantly different metabolites in B16 and 129Sv with standard and HFD. The Bonferroni correction was applied ($p < 0.00027$) to compare two mouse strains.

Standard food			High fat diet		
Metabolite	<i>t</i> -value	adjusted <i>p</i> -value	Metabolite	<i>t</i> -value	adjusted <i>p</i> -value
Higher in B16					
LysoPC a C16:1	6.20	0.000003	LysoPC a C16:1	5.34	0.00002
LysoPC a C20:3	4.71	0.0001	LysoPC a C20:3	4.45	0.0002
Carnosine	8.26	<0.000001	Alpha-AAA	6.24	0.00002
			Carnosine	5.98	0.000005
			Putrescine	5.59	0.000005
			t4-OH-Pro	8.38	<0.000001
			PC aa C32:1	4.68	0.0001
			PC aa C34:3	5.26	0.00003
			SM C20:2	5.48	0.00002

Higher in 129Sv					
C3	-4.34	0.0002	PC aa C30:2	-4.90	0.00007
LysoPC a C17:0	-6.77	0.000001	PC aa C40:5	-4.60	0.0001
LysoPC a C24:0	-5.27	0.00002	PC ae C32:1	-4.44	0.0002
Ile	-6.19	0.000003	PC ae C34:0	-4.43	0.0002
Leu	-5.66	0.000009	PC ae C34:2	-7.71	<0.000001
Lys	-5.19	0.00003	PC ae C34:3	-5.85	0.000007
Orn	-4.52	0.0002	PC ae C36:2	-6.32	0.000002
Ser	-4.83	0.00007	PC ae C36:5	-5.96	0.000005
Val	-5.72	0.000008	PC ae C38:2	-6.16	0.000003
PC aa C30:2	-5.22	0.00003	PC ae C38:6	-7.29	<0.000001
PC aa C36:0	-5.15	0.00003	PC ae C40:6	-6.84	0.000001
PC aa C36:2	-6.47	0.000001	SM (OH) C14:1	-10.33	<0.000001
PC aa C40:2	-4.88	0.00006	SM (OH) C16:1	-9.73	<0.000001
PC aa C40:5	-4.36	0.0002	SM (OH) C22:1	-6.49	0.000002
PC aa C40:6	-5.05	0.00004	SM (OH) C22:2	-8.34	<0.000001
PC ae C30:2	-7.32	<0.000001	SM C16:0	-5.47	0.00002
PC ae C32:1	-6.05	0.000004	SM C16:1	-7.57	<0.000001

PC ae C32:2	-4.67	0.0001	CPT-1	-4.52	0.0002
PC ae C34:0	-6.63	0.000001	Spermidine/Putrescine	-5.53	0.00002
PC ae C34:2	-4.67	0.0001	Kynurenine/Alpha-AAA	-5.76	0.00004
PC ae C34:3	-7.42	<0.000001			
PC ae C36:1	-5.63	0.00001			
PC ae C36:2	-10.54	<0.000001			
PC ae C36:5	4.57	0.0001			
PC ae C38:2	-11.44	<0.000001			
PC ae C38:3	-6.42	0.000001			
PC ae C38:4	-7.38	<0.000001			
PC ae C38:6	6.94	<0.000001			
PC ae C40:2	7.05	<0.000001			
PC ae C40:3	-4.53	0.0001			
PC ae C40:4	-6.26	0.000002			
PC ae C40:5	-4.76	0.00008			

PC ae C40:6	-8.66	<0.000001			
PC ae C42:5	-6.10	0.000003			
SM (OH) C14:1	-9.22	<0.000001			
SM (OH) C16:1	-6.11	0.000003			
SM (OH) C22:1	-9.31	<0.000001			
SM (OH) C22:2	-10.79	<0.000001			
SM C16:0	-6.94	<0.000001			
SM C16:1	-8.22	<0.000001			
SM C24:0	-5.74	0.000008			
SM C24:1	-6.53	0.000001			
BCAA	-6.14	0.000003			
BCAA/AAA	5.14	0.00003			
Ketogenic amino acids	-5.61	0.00001			
Kynurenine/ Alpha-AAA	-5.04	0.00009			

Supplementary Figure S1. Locomotor activity of Bl6 and 129Sv mice in the first three hours of 24 h Phenotyper trial (Log2 values, data expressed as mean \pm SEM). Total distance traveled in the 1st hour of day 1 (A) and week 9 (G), 2nd hour of day 1 (B) and week 9 (H) and 3rd hour of day 1 (C) and week 9 (I). Time spent in the center zone in the 1st hour of day 1 (D) and week 9 (J), 2nd hour of day 1 (E) and week 9 (F) and 3rd hour of day 1 (K) and week 9 (L). Two-way ANOVA (Bonferroni post hoc test): ** $p \leq 0.01$ (diet effect), + $p \leq 0.05$, ++ $p \leq 0.01$, +++ $p \leq 0.001$, ++++ $p \leq 0.0001$ (strain effect).

