

Systems-wide effects of short-term feed deprivation in obese mice

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Running title: Systems-wide effects of short-term feed deprivation

Abbreviations: BCAA: branched-chain amino acids, BCFA: branched chain fatty acids, eWAT: epididymal adipose tissue, ILC2: innate lymphoid cell type 2, SCFA: short-chain fatty acids, UCP1: uncoupling protein 1.

Figure S1

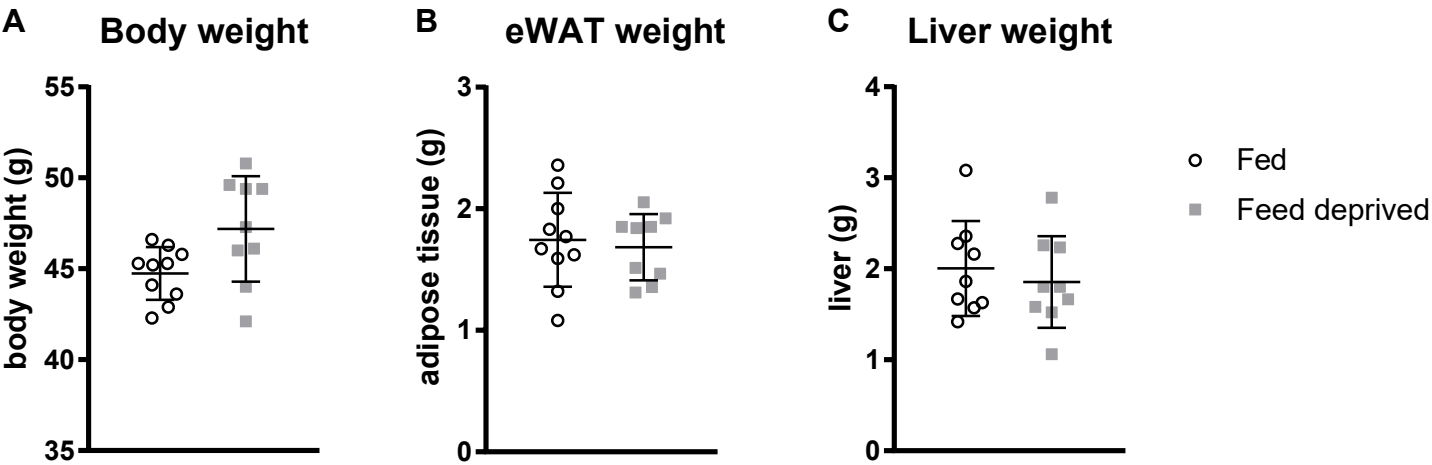


Figure S2

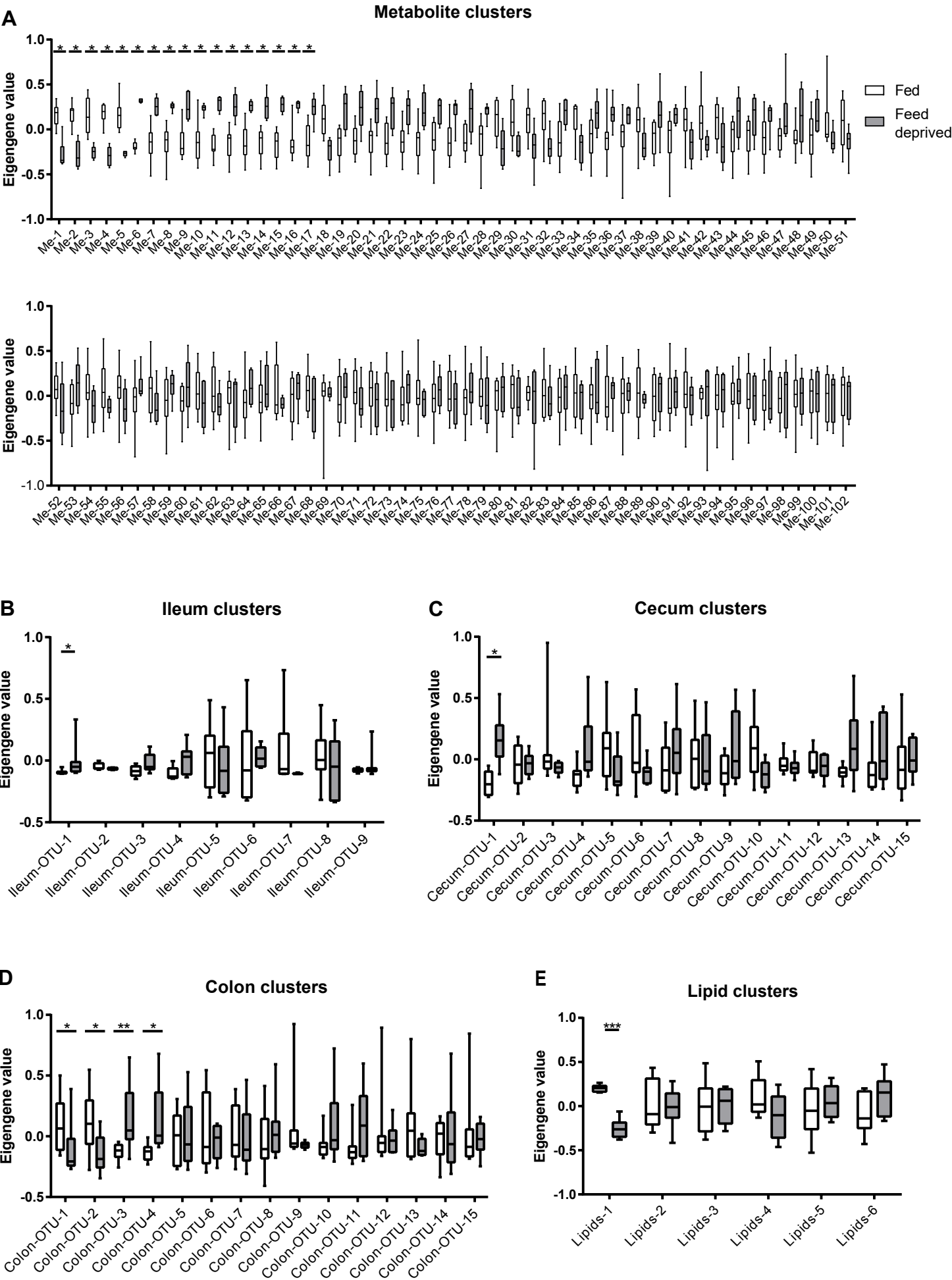


Figure S3

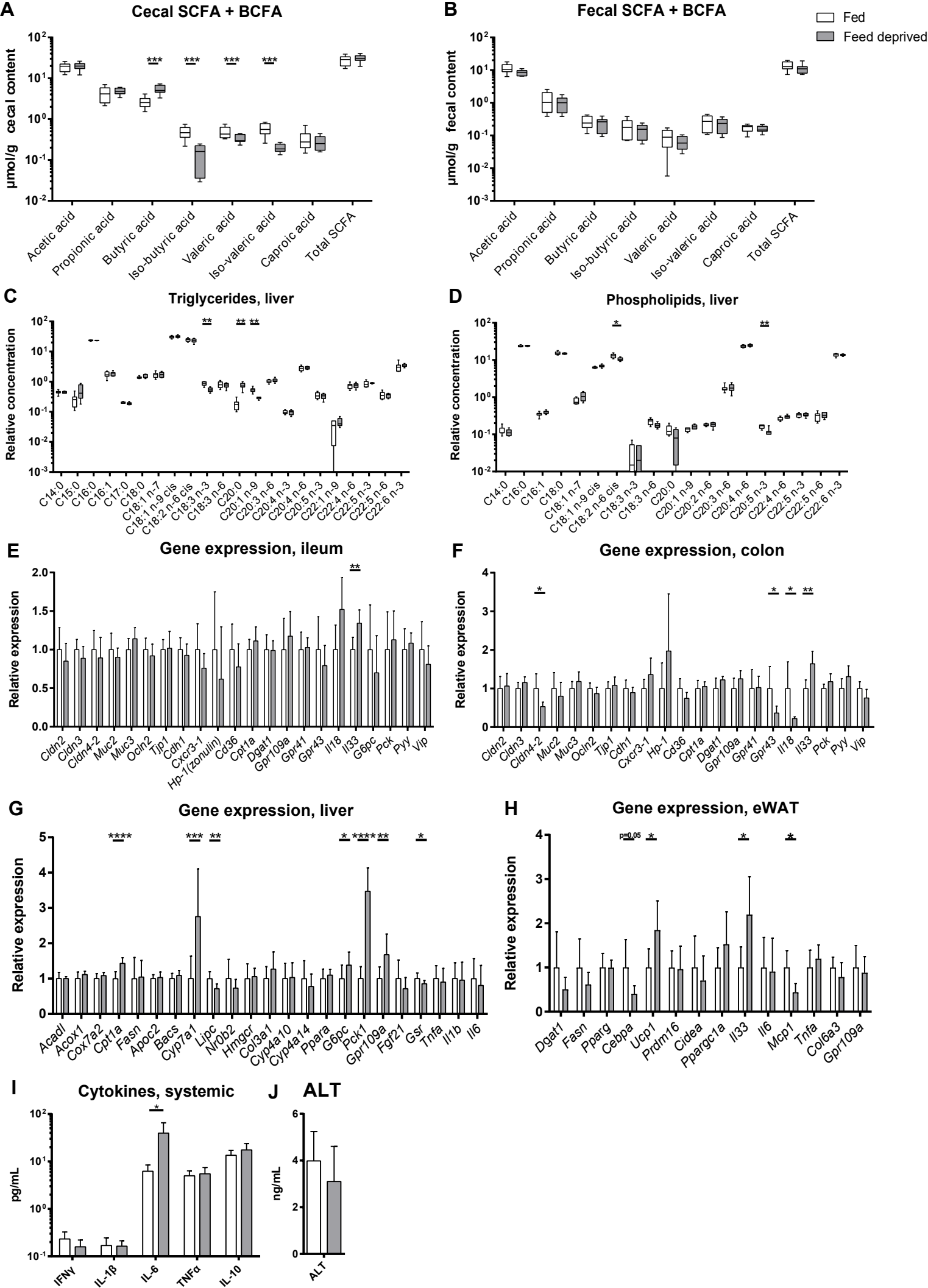


Figure S4

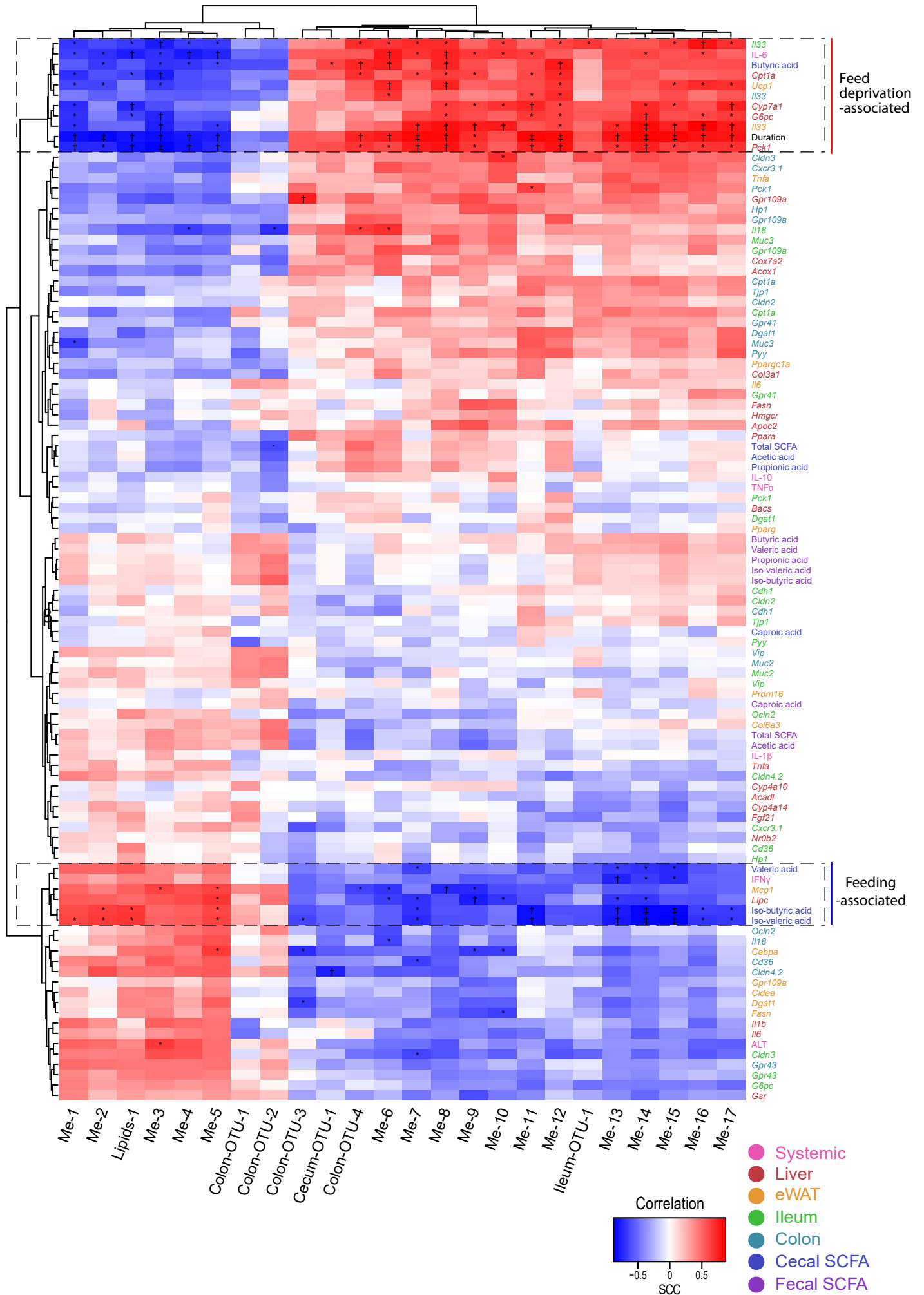


Figure S5

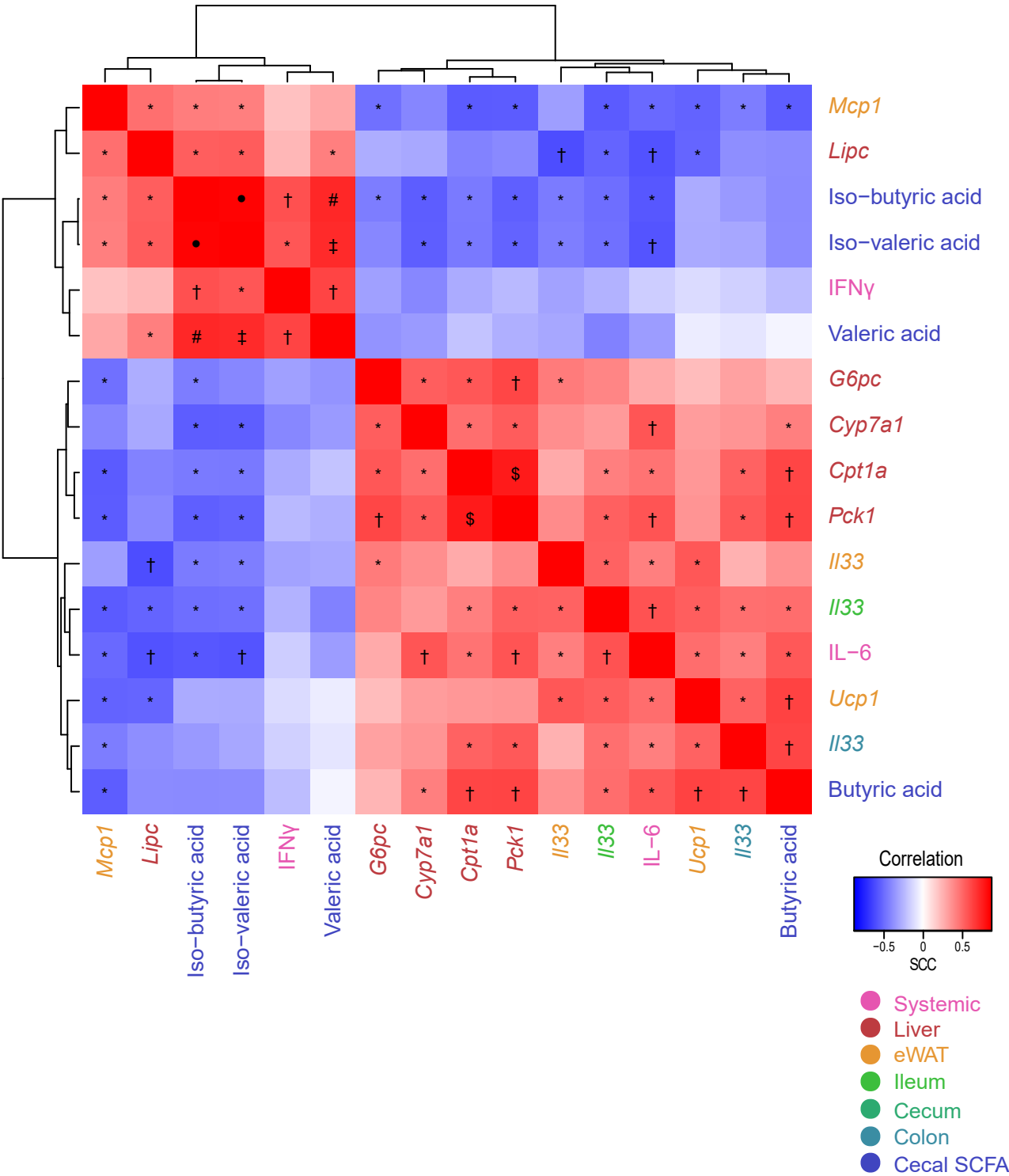


Figure S6

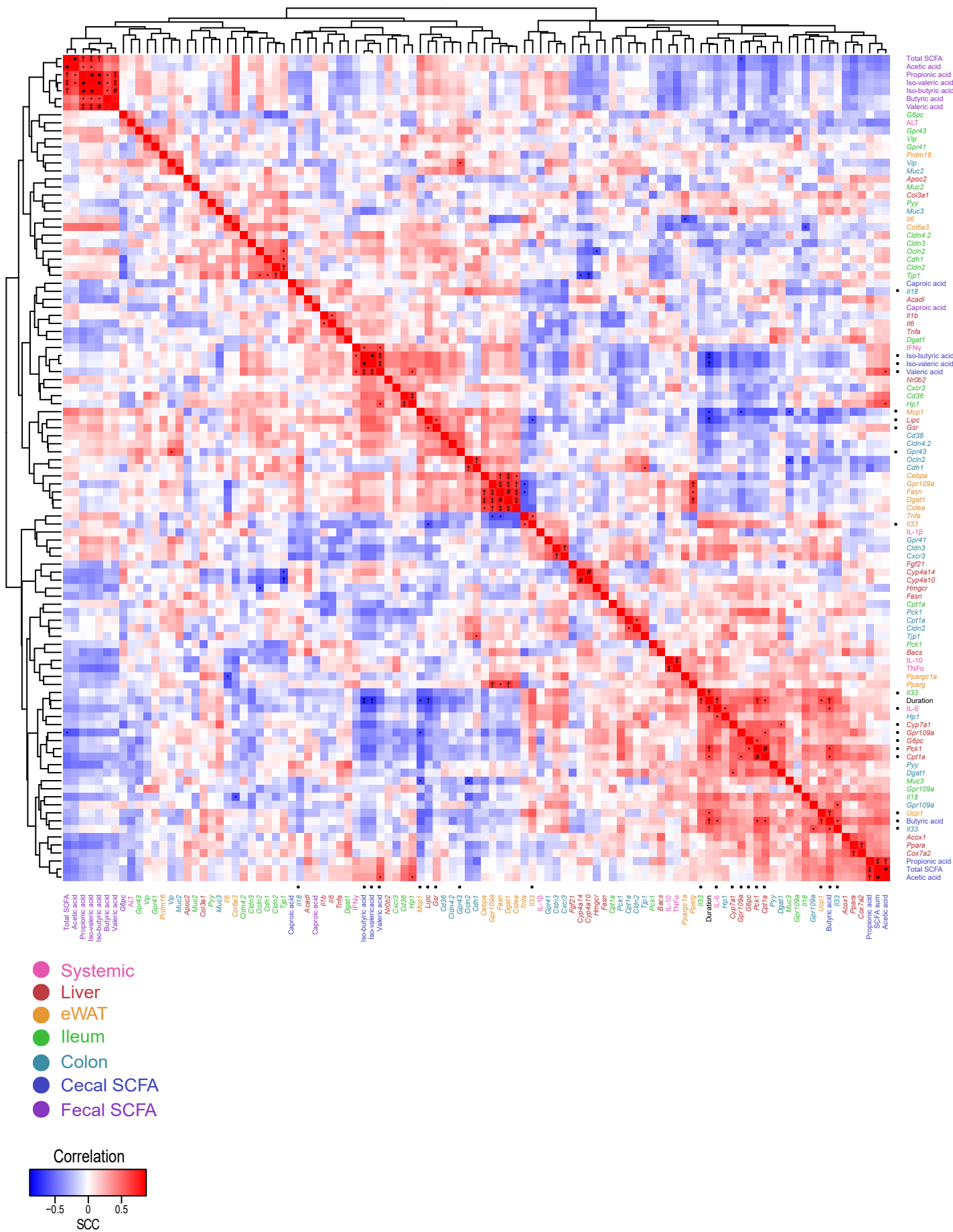


Figure S7

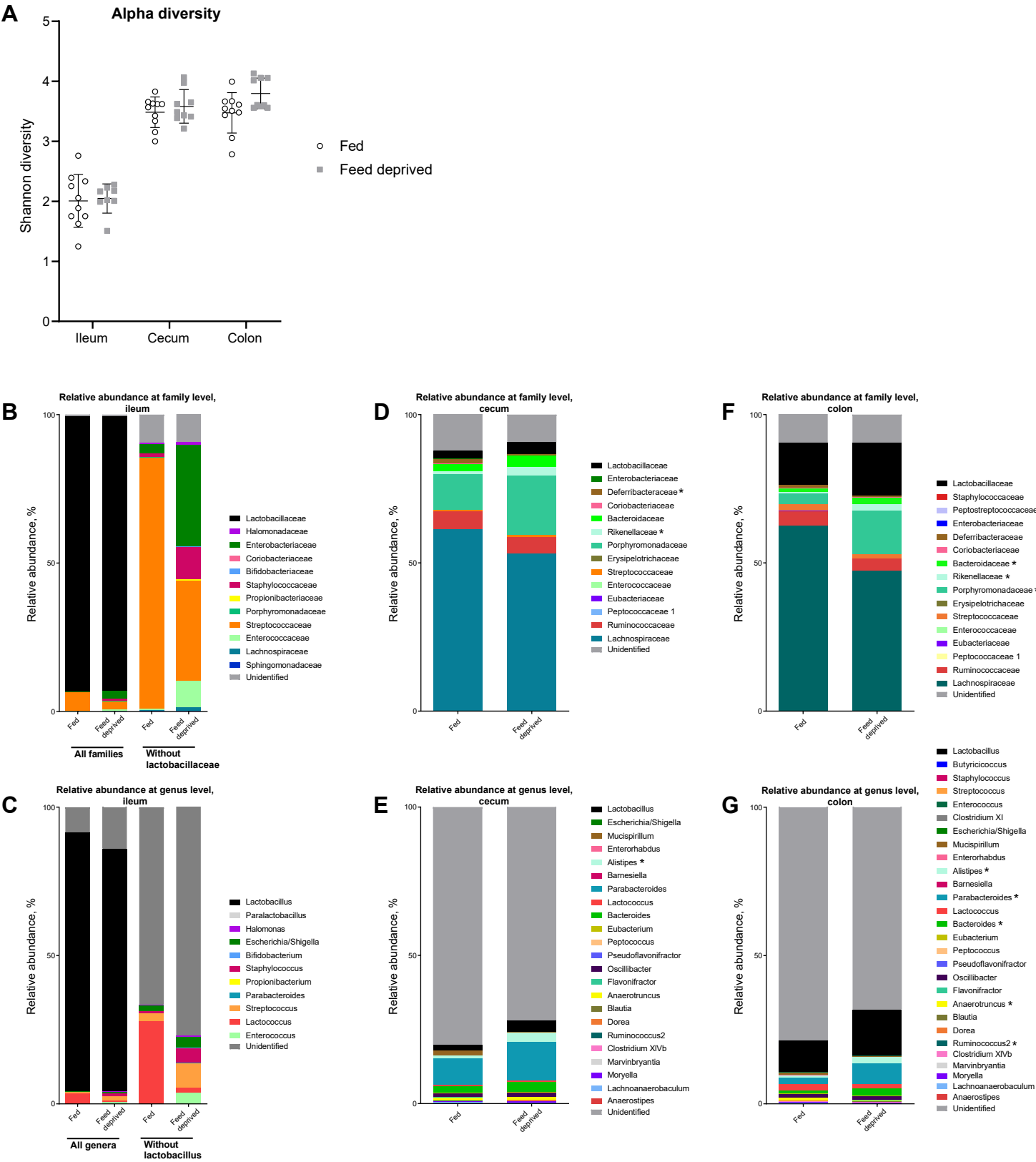


Figure S8

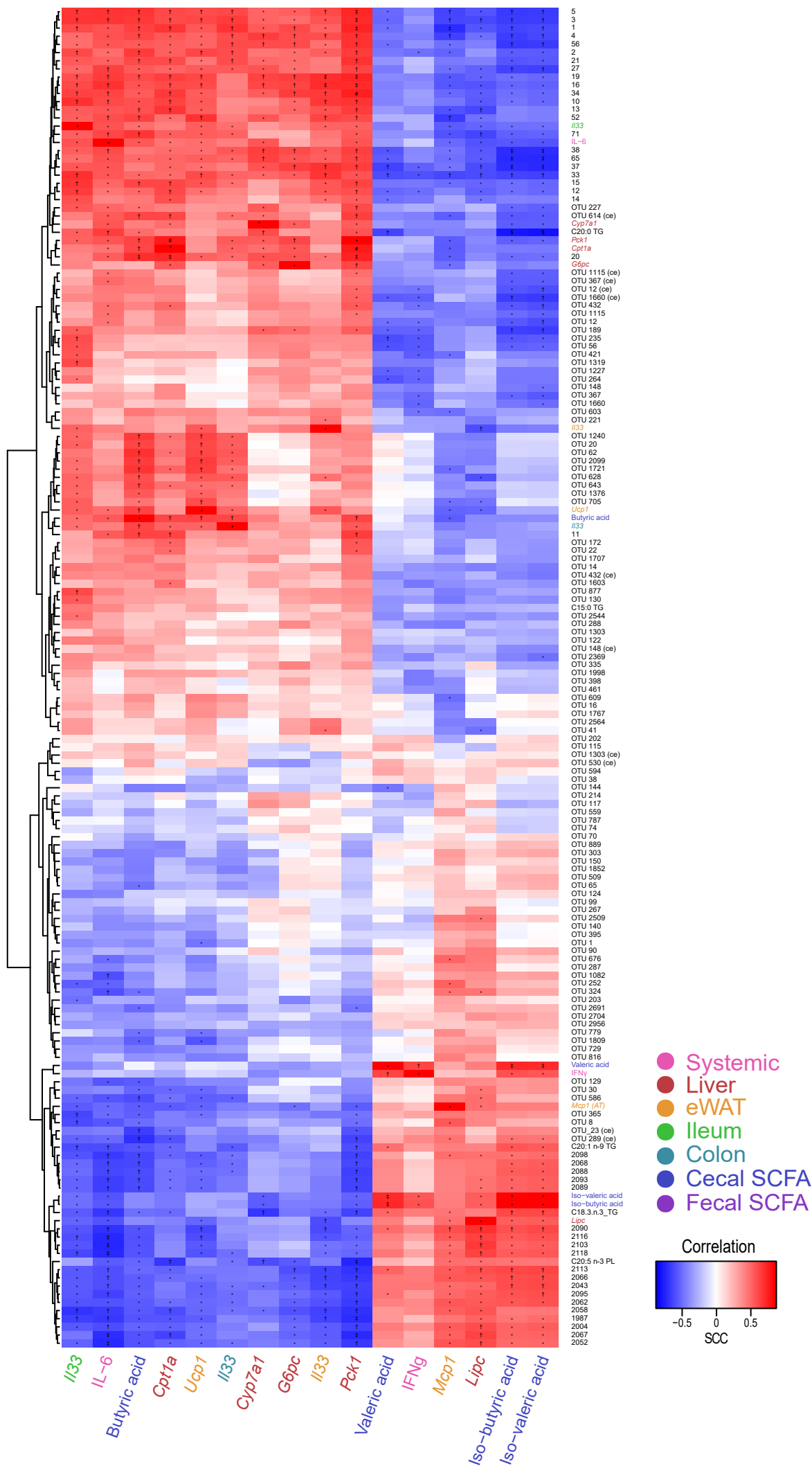


Table S1A

OTU ID	Tissue	Taxonomy‡	Cluster
OTU 1	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 8	Colon	<i>Lachnospiraceae</i>	Colon-OTU-4
OTU 12 (ce)	Colon	<i>Alistipes</i>	Cecum-OTU-1
OTU 12	Cecum	<i>Alistipes</i>	Colon-OTU-3
OTU 14	Colon	<i>Porphyromonadaceae</i>	Colon-OTU-4
OTU 16	Colon	<i>Peptococcus</i>	Colon-OTU-4
OTU 20	Colon	<i>Porphyromonadaceae</i>	Colon-OTU-4
OTU 22	Colon	<i>Bacteroides</i>	Colon-OTU-3
OTU 23 (ce)	Cecum	<i>Lachnospiraceae</i>	Cecum-OTU-1
OTU 30	Colon	<i>Anaerotruncus</i>	Colon-OTU-2
OTU 38	Colon	<i>Clostridiales</i>	Colon-OTU-2
OTU 41	Colon	<i>Oscillibacter</i>	Colon-OTU-4
OTU 56	Ileum	<i>Staphylococcus</i>	Ileum-OTU-1
OTU 62	Colon	<i>Porphyromonadaceae</i>	Colon-OTU-4
OTU 65	Colon	<i>Mucispirillum</i>	Colon-OTU-1
OTU 70	Colon	<i>Firmicutes</i>	Colon-OTU-1
OTU 74	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 90	Colon	<i>Butyricicoccus</i>	Colon-OTU-4
OTU 99	Colon	<i>Coriobacteriaceae</i>	Colon-OTU-2
OTU 115	Colon	<i>Enterococcus</i>	Colon-OTU-4
OTU 117	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 122	Colon	<i>Firmicutes</i>	Colon-OTU-4
OTU 124	Colon	<i>Ruminococcaceae</i>	Colon-OTU-1
OTU 129	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 130	Colon	<i>Porphyromonadaceae</i>	Colon-OTU-4
OTU 140	Colon	<i>Clostridiales</i>	Colon-OTU-2
OTU 144	Colon	<i>Lachnoanaerobaculum</i>	Colon-OTU-1
OTU 148 (ce)	Cecum	<i>Alistipes</i>	Cecum-OTU-1
OTU 148	Colon	<i>Alistipes</i>	Colon-OTU-3
OTU 150	Colon	<i>Mucispirillum</i>	Colon-OTU-1
OTU 172	Colon	<i>Bacteroides</i>	Colon-OTU-3
OTU 189	Ileum	<i>Enterococcus</i>	Ileum-OTU-1
OTU 202	Colon	<i>Escherichia/Shigella</i>	Colon-OTU-4
OTU 203	Colon	<i>Ruminococcus2</i>	Colon-OTU-4
OTU 214	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 221	Colon	<i>Clostridiales</i>	Colon-OTU-4
OTU 227	Ileum	<i>Enterococcus</i>	Ileum-OTU-1
OTU 235	Ileum	<i>Staphylococcus</i>	Ileum-OTU-1
OTU 252	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 264	Ileum	<i>Staphylococcus</i>	Ileum-OTU-1
OTU 267	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 287	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 288	Colon	<i>Clostridium XI</i>	Colon-OTU-4
OTU 289 (ce)	Cecum	<i>Lachnospiraceae</i>	Cecum-OTU-1
OTU 303	Colon	<i>Mucispirillum</i>	Colon-OTU-1
OTU 324	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 335	Ileum	<i>Lactococcus</i>	Ileum-OTU-1
OTU 365	Colon	<i>Lachnospiraceae</i>	Colon-OTU-4
OTU 367 (ce)	Cecum	<i>Alistipes</i>	Cecum-OTU-1
OTU 367	Colon	<i>Alistipes</i>	Colon-OTU-3
OTU 395	Colon	<i>Clostridiales</i>	Colon-OTU-2
OTU 398	Colon	<i>Bacteria</i>	Colon-OTU-3
OTU 421	Ileum	<i>Enterococcus</i>	Ileum-OTU-1
OTU 432 (ce)	Cecum	<i>Alistipes</i>	Cecum-OTU-1
OTU 432	Colon	<i>Alistipes</i>	Colon-OTU-3
OTU 461	Colon	<i>Bacteria</i>	Colon-OTU-3
OTU 509	Colon	<i>Mucispirillum</i>	Colon-OTU-1
OTU 530 (ce)	Cecum	<i>Parabacteroides</i>	Cecum-OTU-1
OTU 559	Colon	<i>Lachnospiraceae</i>	Colon-OTU-4
OTU 586	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 594	Colon	<i>Clostridiales</i>	Colon-OTU-2
OTU 603	Colon	<i>Bacteria</i>	Colon-OTU-4
OTU 609	Colon	<i>Peptococcus</i>	Colon-OTU-4

OTU 614 (ce)	Cecum	<i>Alistipes</i>	Cecum-OTU-1
OTU 628	Colon	<i>Bacteroidetes</i>	Colon-OTU-4
OTU 643	Colon	<i>Bacteroidetes</i>	Colon-OTU-4
OTU 676	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 705	Colon	<i>Bacteroidetes</i>	Colon-OTU-4
OTU 729	Colon	<i>Clostridiales</i>	Colon-OTU-2
OTU 779	Colon	<i>Lachnospiraceae</i>	Colon-OTU-1
OTU 787	Colon	<i>Clostridiales</i>	Colon-OTU-2
OTU 816	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 877	Colon	<i>Bacteroidales</i>	Colon-OTU-4
OTU 889	Colon	<i>Anaerotruncus</i>	Colon-OTU-2
OTU 1082	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 1115 (ce)	Cecum	<i>Alistipes</i>	Cecum-OTU-1
OTU 1115	Colon	<i>Alistipes</i>	Colon-OTU-3
OTU 1227	Ileum	<i>Staphylococcus</i>	Ileum-OTU-1
OTU 1240	Colon	<i>Porphyromonadaceae</i>	Colon-OTU-4
OTU 1303 (ce)	Cecum	<i>Parabacteroides</i>	Cecum-OTU-1
OTU 1303	Colon	<i>Parabacteroides</i>	Colon-OTU-3
OTU 1319	Ileum	<i>Staphylococcus</i>	Ileum-OTU-1
OTU 1376	Colon	<i>Porphyromonadaceae</i>	Colon-OTU-4
OTU 1603	Colon	<i>Clostridiales</i>	Colon-OTU-3
OTU 1660 (ce)	Cecum	<i>Alistipes</i>	Cecum-OTU-1
OTU 1660	Colon	<i>Alistipes</i>	Colon-OTU-3
OTU 1707	Colon	<i>Bacteroides</i>	Colon-OTU-3
OTU 1721	Colon	<i>Porphyromonadaceae</i>	Colon-OTU-4
OTU 1767	Colon	<i>Peptococcus</i>	Colon-OTU-4
OTU 1809	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 1852	Colon	<i>Mucispirillum</i>	Colon-OTU-1
OTU 1998	Colon	<i>Bacteria</i>	Colon-OTU-4
OTU 2099	Colon	<i>Bacteroidetes</i>	Colon-OTU-4
OTU 2369	Colon	<i>Porphyromonadaceae</i>	Colon-OTU-4
OTU 2509	Colon	<i>Oscillibacter</i>	Colon-OTU-2
OTU 2544	Colon	<i>Porphyromonadaceae</i>	Colon-OTU-4
OTU 2564	Colon	<i>Oscillibacter</i>	Colon-OTU-4
OTU 2691	Colon	<i>Lachnospiraceae</i>	Colon-OTU-4
OTU 2704	Colon	<i>Lachnospiraceae</i>	Colon-OTU-2
OTU 2956	Colon	<i>Lachnospiraceae</i>	Colon-OTU-4

‡ The lowest identified taxonomic level is shown, if classification at family-level was not possible.

Table S1B

ID	Name	m/z ratio	rt (sec)	Ion	Database	ID level	Log2 fold change	Cluster
16	Unknown	544.9673	37			4	2.52	Me-3
19	Unknown	321.9758	37			4	2.25	Me-3
34	Unknown	446.9905	37			4	2.13	Me-3
52	Unknown	196.9611	38			4	2.08	Me-8
37	Unknown	540.0867	39			4	2.3	Me-5
2004	Disaccharide	381.0793	42	[M+K]	HMDB	3	-2.06	Me-5
2103	Dipeptide - Prolyl-glutamine	244.1291	42	[M+H]	HMDB	4	-2.95	Me-6
2066	Disaccharide	360.1500	42	[M+NH4]	HMDB	4	-3.01	Me-5
2062	Disaccharide (isotope of 2066)	361.1531	43	[M+NH4]	HMDB	4	-2.83	Me-5
2113	Disaccharide fragment	307.1019	43	[M+H]	HMDB	4	-3.6	Me-5
2043	Disaccharide fragment	289.0919	43	[M+H]	HMDB	4	-2.46	Me-5
2118	Dipeptide fragment	217.1174	43	[M+H]	METLIN	4	-6.18	Me-6
21	Unknown	159.0287	49			4	2.67	Me-11
71	Gluconolactone, Galactonolactone or Gulonolactone fragment	161.0444	65	[M+H-H2O]	HMDB	3	2.04	Me-6
33	Gluconolactone, Galactonolactone or Gulonolactone	196.0813	66	[M+NH4]	HMDB	3	2.26	Me-6
2	Unknown	226.1284	78			4	8.26	Me-6
4	Unknown	328.1231	80			4	5.19	Me-11
2058	Hydroxybutyrylcarnitine	248.1490	82	[M+H]	HMDB	3	-2.03	Me-3
1987	Unknown	297.1443	122			4	-2.06	Me-4
2090	Unknown	255.1634	161			4	-2.83	Me-6
2116	Dipeptide fragment	254.1609	161	[M+H-H2O] or [M+NH4-H2O]	HMDB	4	-4.96	Me-6
56	Unknown	266.1054	177			4	2.28	Me-11
11	Unknown	516.7704	211			4	2.58	Me-4
65	Unknown	232.1000	259			4	2.06	Me-11
27	Unknown (isotope of 38)	271.0800	262			4	2.16	Me-11
38	Unknown	270.0771	262			4	2.21	Me-11
5	Unknown	524.1183	291			4	4.82	Me-6
20	Unknown	473.2967	301			4	2.53	Me-11
2067	Unknown	307.1174	313			4	-2.28	Me-4
2052	Unknown	360.1652	313			4	-2.1	Me-4
10	Tetrahydrocortisone isotope or Dihydrocortisol isotope	366.2352	314	[M+H]	HMDB	3	2.78	Me-1
15	Tetrahydrocortisone or Dihydrocortisol	365.2320	314	[M+H]	HMDB	3	2.72	Me-1
2095	Unknown	490.1740	318			4	-2.75	Me-4
13	18-Hydroxycortisol or 6-beta-hydrocortisol	379.2113	319	[M+H]	HMDB	3	2.84	Me-3
1	Hydroxysanguinarine	348.0866	340	[M+H]	METLIN	3	9.74	Me-6
3	Hydroxysanguinarine isotope	349.0898	341	[M+H]	METLIN	3	7.32	Me-6
2068	O-glycosyl compound fragment (isotope of 2093)	375.1841	351	[M+NH4]	HMDB	4	-2.98	Me-4
2088	O-glycosyl compound fragment	379.1362	351	[M+Na]	HMDB	4	-2.86	Me-4
2098	O-glycosyl compound fragment	417.1867	351	[M+H]	HMDB	4	-3.39	Me-4
2093	O-glycosyl compound fragment	374.1809	351	[M+NH4]	HMDB	4	-3.28	Me-4
2089	O-glycosyl compound fragment	321.1331	351	[M+H]	HMDB	4	-3.38	Me-4
14	Cortisol or 18-Hydroxycorticosterone	363.2166	374	[M+H]	HMDB	3	2.53	Me-1
12	Cortisol isotope or 18-Hydroxycorticosterone isotope	364.2200	374	[M+H]	HMDB	3	2.68	Me-1

Table S1C

ID	Type	Cluster
C20:5 <i>n</i> -3	Phospholipid	Lipids-1
C18:3 <i>n</i> -3	Triglyceride	Lipids-1
C20:1 <i>n</i> -9	Triglyceride	Lipids-1
C20:0	Triglyceride	Lipids-1
C15:0	Triglyceride	Lipids-1

Table S2

Family	Total taxIDs	taxIDs with hits	TaxIDs with BUK pathway	TaxIDs with BUT pathway	TaxIDs with either BUT or BUK pathway	% BUK of total	% BUT of total	% BUT/BUK of total	% BUK of hits	% BUT of hits	% BUT/BUK of hits
<i>Bacteroidaceae</i>	882	132	79	0	79	9.0%	0.0%	9.0%	59.8%	0.0%	59.8%
<i>Coriobacteriaceae</i>	125	23	11	0	11	8.8%	0.0%	8.8%	47.8%	0.0%	47.8%
<i>Deferribacteraceae</i>	76	6	4	0	4	5.3%	0.0%	5.3%	66.7%	0.0%	66.7%
<i>Enterobacteriaceae</i>	19011	512	196	0	196	1.0%	0.0%	1.0%	38.3%	0.0%	38.3%
<i>Enterococcaceae</i>	2756	75	52	0	52	1.9%	0.0%	1.9%	69.3%	0.0%	69.3%
<i>Lachnospiraceae</i>	1463	286	175	80	201	12.0%	5.5%	13.7%	61.2%	28.0%	70.3%
<i>Peptococcaceae</i>	597	72	43	3	43	7.2%	0.5%	7.2%	59.7%	4.2%	59.7%
<i>Peptostreptococcaceae</i>	651	89	41	5	42	6.3%	0.8%	6.5%	46.1%	5.6%	47.2%
<i>Porphyromonadaceae</i>	448	52	26	0	26	5.8%	0.0%	5.8%	50.0%	0.0%	50.0%
<i>Rikenellaceae</i>	107	31	24	0	24	22.4%	0.0%	22.4%	77.4%	0.0%	77.4%
<i>Ruminococcaceae</i>	741	110	59	12	65	8.0%	1.6%	8.8%	53.6%	10.9%	59.1%
<i>Staphylococcaceae</i>	8884	117	60	0	60	0.7%	0.0%	0.7%	51.3%	0.0%	51.3%
<i>Streptococcaceae</i>	4246	215	87	0	87	2.0%	0.0%	2.0%	40.5%	0.0%	40.5%