

Data File 1. Significance of metabolite release and uptake. Related to Figure 1.

metabolite	liver	portal	colon	pancreas	spleen	head	leg	heart	lung	kidney	ear	# of significance
not significant												0
significant release												1
significant uptake												-1
1-methyladenosine	0	0	0	0	0	0	0	0	0	-1	0	1
1-methyl-histidine	1	-1	-1	-1	0	0	0	0	0	0	0	4
2_3-dihydroxybenzoic acid	0	0	0	0	-1	0	0	0	0	-1	-1	3
2-3-Pyridinedicarboxylic acid	0	0	-1	0	0	0	0	0	0	0	0	1
2-aminooctanoic acid	0	-1	-1	0	-1	0	0	0	0	0	0	3
2-dehydrogluconate	0	0	0	0	1	0	0	0	0	-1	0	2
2-Deoxy-D-ribose	0	-1	0	0	-1	0	0	0	0	-1	0	3
2-hydroxy Hippuric Acid	0	0	0	0	0	0	-1	0	0	-1	0	2
2-hydroxybutyrate	1	0	0	0	0	0	0	0	0	0	1	2
2-hydroxy-isocaproate	0	0	0	1	1	1	1	0	0	0	0	4
2-hydroxy-isovalerate	0	0	0	0	0	0	1	0	0	-1	0	2
2-Hydroxyoctanoic acid	0	0	0	0	0	0	1	0	0	0	0	1
2-Isopropylmalic acid	1	0	-1	0	0	-1	0	0	0	0	0	3
2-Ketobutyric acid	0	0	-1	0	0	0	0	0	0	0	0	1
2-Keto-isocaproate	0	-1	-1	0	-1	0	1	0	0	0	0	4
2-Keto-isovalerate	0	-1	-1	0	-1	0	0	0	0	0	0	3
2-Methylbutyrylglycine	0	0	0	0	0	0	0	0	0	-1	0	1
2-Methylhippuric acid	0	-1	-1	0	0	-1	0	0	0	-1	0	4
2-Oxoadic acid	0	0	0	0	0	0	0	0	0	0	0	0
2-Phenylpropionic acid	-1	1	1	0	-1	0	0	0	1	0	0	5
3-(3-Methoxyphenyl)propionic acid	0	0	0	0	0	0	0	0	0	0	0	0
3-4-Dihydroxybenzeneacetic acid	0	0	0	0	0	0	0	0	0	0	0	0
3-4-Dihydroxyhydrocinnamic acid	0	0	0	0	0	0	1	0	0	-1	0	2
3-Hydroxyanthranilic acid	1	0	0	0	0	0	0	0	-1	0	1	3
3-Hydroxybenzoic acid	0	0	0	0	-1	0	0	0	0	-1	0	2
3-hydroxybutyrate	0	0	1	0	0	0	-1	0	-1	-1	0	4
3-hydroxyisobutyrate	1	-1	0	-1	-1	0	-1	0	0	-1	0	6
3-Hydroxyphenyllactate	0	0	0	0	0	0	1	0	0	-1	0	2
3-Methoxytyramine	0	0	0	0	0	0	0	0	0	-1	0	1
3-Methylindole	0	0	0	0	0	0	0	0	0	0	0	0
3-phenylpropanoic acid	-1	1	1	0	0	0	0	-1	0	0	0	4
4-Aminhippuric acid	0	-1	0	0	0	0	0	0	0	-1	0	2
4-Methylvaleric acid	0	0	0	0	0	0	0	0	0	0	0	0
4-Pyridoxic acid	1	0	0	0	0	0	0	0	0	-1	-1	3
5-Hydroxylysine	0	-1	-1	-1	0	0	0	0	0	0	1	4
5-Keto-D-gluconic acid	0	0	0	0	0	0	-1	0	-1	-1	0	3
5-Methylcytidine	1	0	0	0	0	0	0	0	0	-1	0	2
5-Methylcytosine	0	0	0	0	0	0	-1	0	0	-1	0	2
acetate	-1	1	1	0	-1	1	-1	0	0	0	0	6
acetoacetate	1	0	0	1	-1	0	-1	0	-1	-1	0	6
acetyl carnitine C2	0	0	0	0	0	0	-1	1	0	0	0	2
acetylcholine	0	-1	-1	0	0	0	0	0	0	0	0	2
acetyl-isoleucine	0	0	0	-1	-1	0	0	0	0	-1	0	3
acetylylsine	0	0	0	0	0	0	0	0	0	-1	0	1
acetyl-valine	1	0	0	0	-1	0	0	0	0	-1	0	3
aconitate	1	0	-1	0	-1	0	0	0	1	-1	0	5
adenosine	0	0	0	0	-1	0	0	0	0	0	0	1
a-ketoglutarate	0	1	1	1	1	1	1	0	0	-1	0	6
alanine	0	0	-1	0	0	0	0	0	0	0	0	1
allantoate	0	0	0	0	0	-1	0	0	0	1	0	2
allantoin	1	-1	-1	-1	-1	0	0	0	0	-1	-1	7
aminoadic acid	0	0	0	0	-1	0	0	0	0	-1	0	2
aminolevulinic acid	0	0	-1	0	-1	0	1	0	0	-1	0	4
anthranilate	0	0	0	0	0	0	0	0	0	0	0	0
arachidoyl carnitine eicosanoyl carnitine C20	0	0	0	0	0	0	1	0	-1	0	0	2
arginine	0	0	0	0	0	0	0	0	0	0	0	0
ascorbic acid	0	0	0	0	0	0	0	0	0	0	0	0
asparagine	0	-1	0	-1	1	0	0	0	0	0	0	3
aspartate	1	0	0	0	1	0	-1	0	0	-1	0	4
BAIBA	1	-1	0	-1	0	0	0	0	0	0	-1	4
benzoic acid	0	0	0	0	0	0	0	0	0	0	1	1
biotin	0	-1	0	0	1	0	0	1	0	-1	0	4
butyrate	-1	1	1	0	0	0	0	-1	0	0	0	4
butyryl carnitine or Isobutyryl carnitine C4	0	1	0	0	0	0	-1	0	1	-1	0	4
C14:0	0	0	0	0	0	0	0	-1	0	0	-1	2
C14:1	-1	0	1	0	0	0	1	0	0	0	0	3
C14:2	-1	1	1	1	1	0	0	0	0	0	0	5
C15:0	-1	0	0	0	0	0	0	0	0	-1	0	2
C15:1	-1	0	0	0	0	0	0	0	0	0	0	1
C16:0	-1	0	0	0	0	0	0	-1	0	0	0	2
C16:1	-1	0	0	0	0	0	0	-1	0	0	0	2
C16:2	-1	0	0	0	0	0	0	0	0	0	0	1
C17:0	0	0	0	0	0	0	0	-1	0	0	0	1
C17:1	-1	0	0	0	0	0	0	-1	0	0	0	2
C17:2	-1	0	1	0	0	1	0	0	0	0	0	3
C18:0	0	0	0	0	0	0	0	-1	0	0	0	1
C18:1	-1	0	0	0	0	0	0	-1	0	0	0	2
C18:2	-1	0	0	0	0	0	0	-1	0	0	0	2
C18:3	-1	0	0	0	0	0	0	0	0	0	0	1
C18:4	0	0	0	0	0	0	0	0	0	0	0	0
C19:0	0	0	0	0	0	0	0	-1	0	1	0	2

C19:1	0	0	0	0	0	0	0	0	-1	0	0	0	1
C19:2	0	0	0	0	0	0	1	0	-1	0	0	0	0
C19:3	-1	0	0	0	0	0	0	0	0	0	0	0	0
C20:0	0	0	0	0	0	0	0	0	0	0	0	0	0
C20:1	-1	0	0	0	0	0	0	0	-1	0	0	0	0
C20:2	-1	0	0	0	0	0	0	0	-1	0	0	0	0
C20:3	-1	0	0	0	0	0	0	0	0	0	0	0	0
C20:4	0	1	1	0	1	0	1	0	1	0	0	0	0
C22:0	0	0	0	0	0	0	-1	-1	0	1	0	0	0
C22:1	-1	0	0	1	1	0	0	0	-1	0	0	0	0
C22:2	-1	0	0	0	1	0	0	0	0	0	0	0	0
C22:3	-1	1	0	0	1	0	0	0	0	0	0	0	0
C22:4	-1	1	0	0	1	0	0	0	-1	0	0	0	0
C22:5	-1	1	0	0	1	0	1	0	1	0	0	0	0
C22:6	-1	1	0	1	1	0	0	0	0	0	0	0	0
C23:0	0	0	0	0	0	0	0	0	0	0	0	0	0
C23:1	0	0	0	0	0	0	0	0	0	0	0	0	0
C24:0	0	0	-1	0	0	-1	-1	-1	1	0	0	0	0
C24:1	0	0	0	0	1	0	0	-1	0	0	0	0	0
C24:2	0	0	0	0	1	0	0	0	0	0	0	0	0
C24:3	0	0	0	0	1	0	0	0	0	0	0	0	0
C24:4	0	1	0	0	1	0	0	0	0	0	0	0	0
C24:5	-1	1	0	0	1	1	0	0	0	0	0	0	0
capryloyl glycine	1	0	0	1	0	0	0	0	0	0	-1	0	0
carbamoyl phosphate	0	0	0	0	0	0	0	0	0	0	0	0	0
carnitine	0	-1	-1	0	-1	0	0	0	0	0	0	0	0
carnosine	1	0	0	0	0	0	0	0	0	-1	-1	0	0
catechol sulfate	0	0	0	0	0	0	0	0	0	0	0	0	0
cholesteryl sulfate	-1	1	0	1	0	0	0	0	0	0	0	0	0
cinnamoylglycine	0	0	1	0	0	0	1	0	0	0	0	1	0
citramalic acid	-1	0	1	1	0	1	1	0	0	-1	0	0	0
citrate	0	0	0	1	0	1	1	0	0	-1	0	0	0
citrulline	0	1	0	0	-1	0	-1	0	0	-1	0	0	0
creatine	1	-1	0	0	0	0	-1	1	0	0	0	0	0
creatinine	1	-1	-1	0	0	0	1	0	0	-1	0	0	0
cresol	0	0	1	0	0	0	0	0	0	0	0	0	0
cresol sulfate	0	0	0	0	0	0	0	0	0	0	0	0	0
cystine	0	0	0	0	0	0	1	1	-1	1	0	0	0
cytidine	1	0	0	0	1	0	0	0	0	0	-1	0	0
D-2-Aminobutyric acid	0	-1	-1	0	0	0	0	0	0	0	0	0	0
decanoyl carnitine C10	0	0	0	0	0	0	1	0	0	-1	0	0	0
decenoyl carnitine C10:1	0	0	1	1	0	0	0	0	0	-1	0	0	0
dehydroascorbic acid	0	0	0	0	1	0	0	0	-1	0	0	0	0
dehydrocarnitine	0	0	0	0	-1	0	0	0	0	0	0	0	0
deoxycholic acid	-1	1	0	0	0	0	0	0	0	0	0	0	0
deoxycytidine	0	0	1	0	1	0	0	0	0	-1	0	0	0
deoxyinosine	0	0	0	0	0	0	0	0	0	0	-1	0	0
deoxyuridine	-1	1	1	1	1	0	1	0	0	-1	0	0	0
D-Galactonic acid	0	0	1	1	1	0	0	0	0	0	0	0	0
D-gluconate	0	0	1	1	1	1	-1	0	0	0	0	0	0
diaminopimelic Acid	0	0	0	0	0	0	0	0	0	0	0	0	0
dihydrouracil	0	0	0	0	0	0	0	-1	0	0	0	0	0
dihydroxybenzoic acid	0	0	0	0	-1	0	0	0	0	-1	-1	0	0
dimethylglycine	1	-1	-1	0	-1	0	0	0	0	0	0	0	0
DL -3-4-Dihydroxymandelic acid	0	1	1	0	-1	-1	0	0	0	-1	0	0	0
dodecenoyl carnitine C12:1	0	0	0	1	0	0	1	-1	0	-1	0	0	0
D-Phenyllactic acid	0	0	0	0	0	0	0	0	0	0	0	0	0
equol sulfate	0	0	0	0	0	0	0	0	0	0	-1	0	0
formate	0	0	0	0	0	0	0	0	0	0	0	0	1
fumarate	-1	1	1	1	1	0	1	0	0	-1	1	0	0
galacturonic acid	0	0	0	0	1	0	0	0	0	0	-1	0	0
gamma-butyrobetaine	0	-1	-1	0	0	0	0	0	0	0	0	0	0
gluconolactone	0	0	0	0	0	1	0	0	0	0	0	0	0
glucosamine	0	-1	-1	0	-1	0	0	0	0	0	0	0	0
glucose	1	-1	-1	-1	-1	-1	-1	-1	0	0	1	0	0
glutamate	1	-1	0	-1	0	-1	-1	1	0	-1	0	0	0
glutamine	0	-1	0	-1	0	0	1	0	1	-1	0	0	0
glycerate	1	0	0	0	0	0	0	0	-1	-1	0	0	0
glycerol-3-phosphate	1	0	0	1	1	0	-1	0	0	-1	0	0	0
glycine	0	0	0	0	-1	0	0	0	0	0	0	0	0
glycocholic acid	-1	1	0	1	0	0	0	0	0	0	0	0	0
glycodeoxycholic acid	0	1	0	1	0	0	0	0	0	0	0	0	0
glycyl-L-proline	0	0	0	0	0	0	1	0	0	0	0	0	0
glycocyanine	0	0	0	0	0	0	0	0	0	0	1	0	0
guanine	0	0	0	0	1	0	1	0	0	0	0	1	0
guanosine	0	0	0	0	1	0	0	0	0	0	0	0	0
hexadecenoyl carnitine C16:1	0	0	0	0	0	0	1	0	0	-1	0	0	0
hexanoyl carnitine C6	0	-1	0	0	0	0	0	0	0	-1	0	0	0
hippuric acid	0	0	0	0	0	0	0	0	0	0	0	0	0
homoarginine	0	-1	0	0	0	0	0	0	0	0	0	0	0
homocarnosine	0	0	0	0	0	0	0	0	0	0	-1	0	0
homocitrulline	0	0	0	0	0	0	0	0	0	0	0	0	0
homocysteic acid	0	0	0	0	0	0	0	0	0	-1	0	0	0
homocysteine	1	-1	-1	0	0	0	0	0	0	0	0	0	0
homogentisic acid	1	0	0	0	0	0	1	0	0	0	0	0	0
hydroquinone	0	0	0	-1	-1	0	0	0	0	-1	-1	0	0
hydroxyindoleacetic acid	0	0	1	0	0	0	0	-1	0	-1	0	0	0
hydroxyphenyllactic acid	0	0	0	0	0	1	0	0	0	0	0	0	0
hydroxyphenylpyruvate	0	0	0	0	0	0	0	0	0	-1	0	0	0
hydroxyproline	0	-1	0	0	0	0	0	0	0	-1	0	0	0

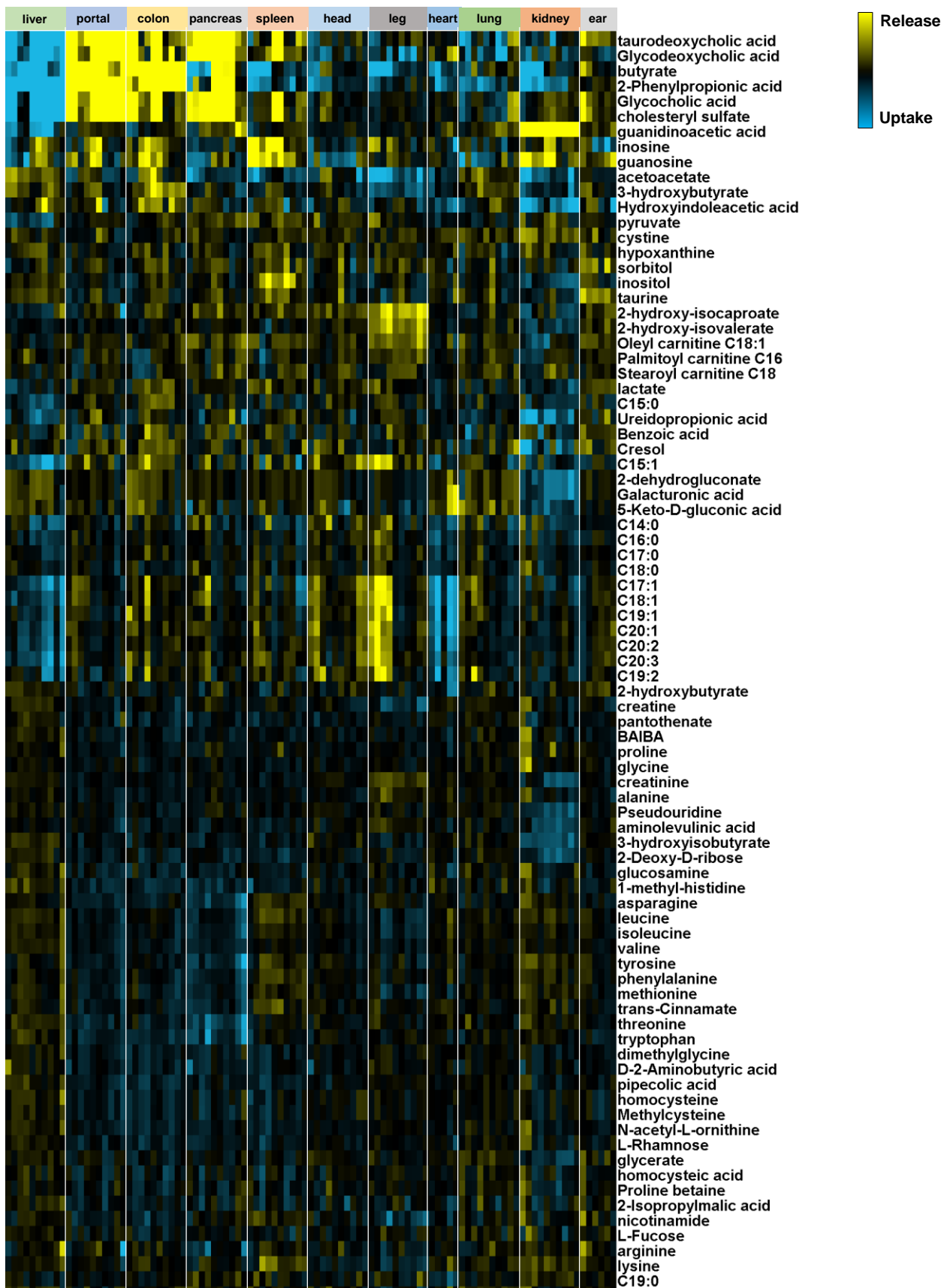
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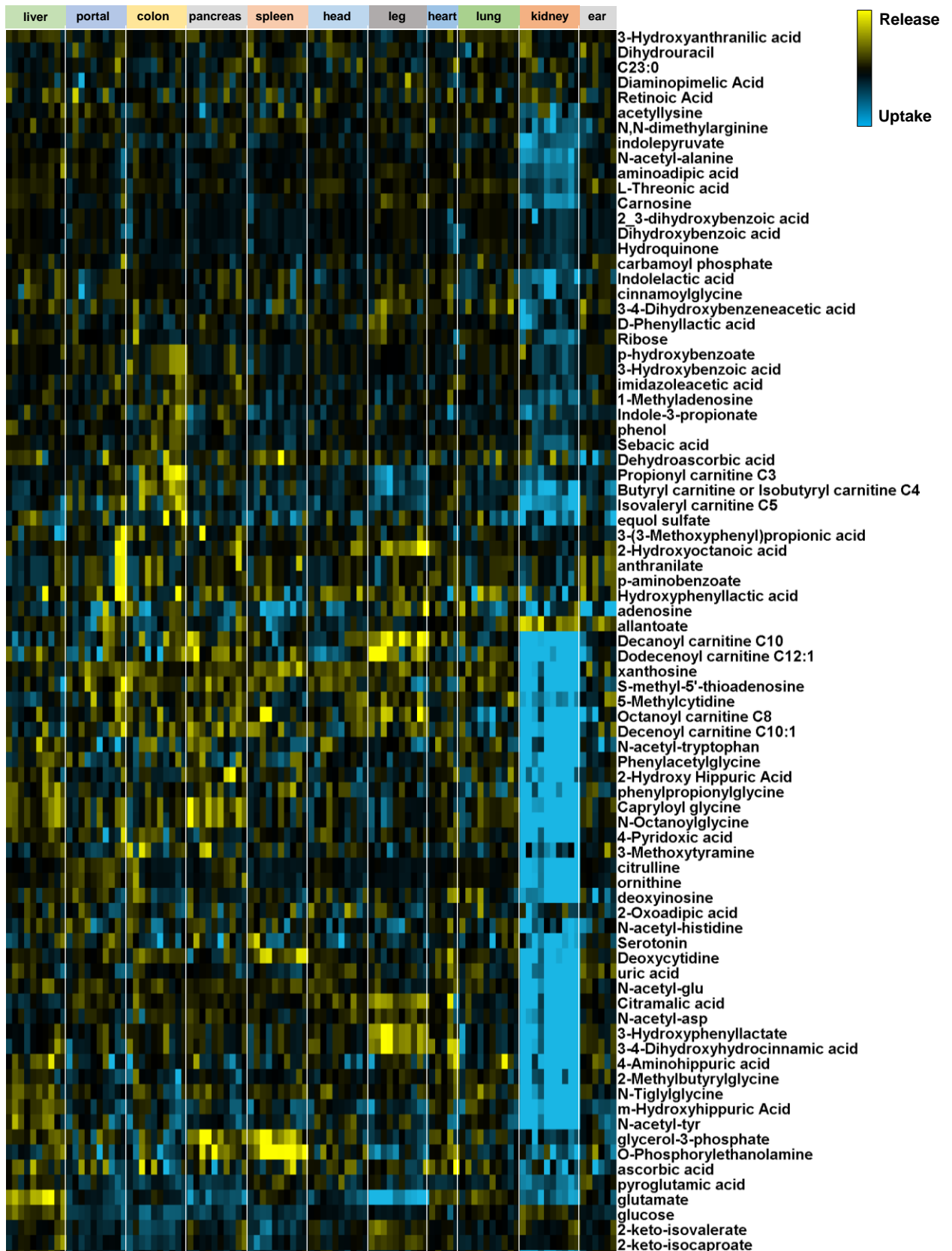
tetradecadienoyl carnitine C14:2	-1	1	1	1	1	0	1	-1	0	-1	0	8
tetradecenoyl carnitine C14:1	0	1	1	1	0	1	1	-1	0	-1	0	7
threonine	1	-1	0	-1	0	0	0	0	0	0	0	3
thymidine	-1	1	1	1	1	0	0	0	0	-1	0	6
thymine	-1	1	1	1	1	1	0	0	0	-1	0	7
tiglyl carnitine or methylcrotonyl carnitine C5:1	0	0	0	0	0	0	-1	0	0	0	0	1
trans-Cinnamate	0	0	0	-1	0	0	0	1	0	0	0	2
trans-Hydroxycinnamic acid	0	0	0	0	0	0	0	0	0	0	0	0
triethanolamine	1	0	0	0	0	0	-1	0	0	-1	0	3
tryptophan	1	-1	-1	-1	0	0	0	0	0	0	0	4
tyramine	0	0	-1	0	0	0	0	0	0	0	0	1
tyrosine	0	-1	0	0	0	0	0	0	0	1	0	2
uracil	0	0	0	0	0	0	1	0	0	-1	0	2
ureidopropionic acid	-1	0	0	0	0	0	0	0	0	-1	0	2
uric acid	0	0	0	0	-1	1	0	0	0	-1	1	4
uridine	0	0	0	1	1	0	1	0	0	-1	0	4
valine	1	-1	-1	-1	0	0	-1	0	0	0	0	5
xanthine	-1	1	0	1	0	0	0	0	0	0	0	3
xanthosine	0	1	0	1	1	1	1	1	-1	-1	0	8
	liver	portal	colon	pancreas	spleen	head	leg	heart	lung	kidney	ear	

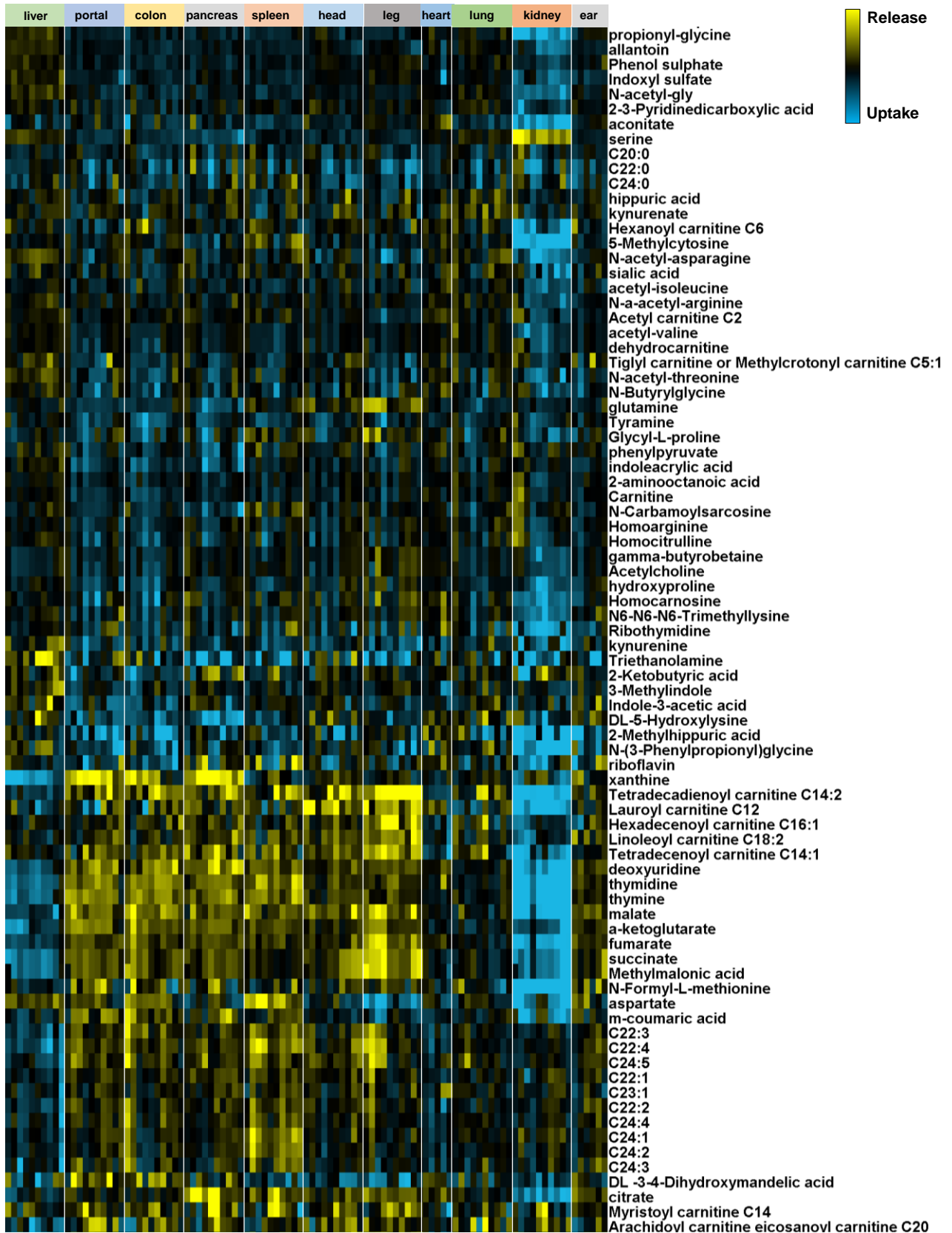
Total cases of organ-specific uptake or release

739

Data File 2. Heat map from Fig.1G with metabolite names. Related to Figure 1.







creatine	1.081116	1.093078	1.058754	1.061046	1.062318	1.038726	1.028028	1.093973	1.050844	0.946559	0.910757	0.951146	0.872645	0.965422	0.997813	0.99935	0.924632	0.943356	0.965191	0.981424
creatine	0.991165	1.438627	0.939546	1.131053	0.916892	0.969009	0.991897	1.027092	1.218482	0.933355	0.771553	0.758107	1.217896	1.184317	1.025489	1.187286	1.295787	1.009396	1.13969	1.336263
creol	1.036315	1.107536	0.970739	1.138517	1.074916	0.986929	0.891572	0.890828	1.229085	0.880128	0.910828	1.025112	1.123968	1.001725	1.031425	1.076777	1.046665	0.966912	1.045668	0.974568
cresol sulfat	1.036955	1.309202	1.133908	1.117064	1.02634	0.921836	1.204248	1.071125	1.048418	0.880932	0.96802	0.980815	0.959031	0.972398	0.931975	1.076006	1.201047	1.003052	0.802342	0.824521
cytine	1.055378	1.159842	1.220081	1.09829	1.123922	1.280873	1.246678	1.210126	1.038311	1.424223	0.779122	0.838305	1.083815	1.053054	0.939685	1.147616	1.050691	0.808645	0.666282	0.651485
cytidine	1.523603	1.074713	1.070616	1.085862	0.928036	1.100252	0.966451	1.09252	1.0144	0.98364	0.748022	0.926253	0.858474	0.866146	0.920545	1.005591	0.992661	0.919835	0.945736	0.847237
D-2-Aminobutyric acid	0.921411	0.599404	0.878399	0.741161	1.003688	0.788335	1.037142	0.68737	1.062532	1.138933	0.979498	0.779188	1.170223	0.790379	0.850044	1.007707	1.443105	1.331506	1.111754	0.773749
decanoyl carnitine C10	1.104282	0.743705	1.003102	0.826158	0.873575	0.940806	0.516388	0.799132	0.807228	0.561149	1.115822	0.984782	1.272633	1.047567	1.074291	0.867694	0.751437	1.356772	1.230204	1.846354
decanoyl carnitine C10:1	1.169838	1.12734	1.153752	1.191842	1.126015	1.499747	0.666213	0.956158	1.045722	0.958166	0.931046	0.935606	0.950156	0.828747	1.059254	0.768893	1.673857	1.081154	1.033711	0.992872
dehydroascorbic acid	1.060554	0.919108	1.015811	0.995301	0.922226	1.067239	1.040321	0.992168	1.048501	1.029023	1.085185	0.792056	0.897862	0.743721	0.913514	0.729592	0.959949	1.012324	1.059877	0.986269
deoxyribose	0.232702	0.171778	0.845995	0.878159	0.088443	0.066849	0.040781	0.040421	0.05051	0.038941	1.416328	0.7440284	1.287052	1.581013	1.301354	1.477366	1.288008	1.218777	38.28188	33.13968
deoxyribose	1.010263	1.114712	1.070719	1.051191	1.124813	1.061229	0.851363	0.920754	0.86961	1.017488	0.930019	1.069981	1.00093	1.006732	0.993621	1.026255	1.35512	1.027087	1.11471	0.951604
deoxyvitidine	1.047045	1.088529	0.825967	1.230278	1.058988	0.970698	1.121862	1.056433	1.149122	1.06986	1.342108	1.146765	0.948216	1.104714	1.137146	1.224889	1.028999	0.972885	0.965359	
deoxyyosidine	0.68414	0.660791	0.802295	0.781925	0.681422	0.633754	0.775389	0.782505	1.030011	0.982911	1.223491	1.428746	1.083599	1.31776	1.526619	1.690346	1.293272	1.30213	1.660099	1.005257
deoxyvitidine	0.92679	1.292882	1.184519	1.146521	1.149013	0.995675	0.978152	0.986086	0.85386	0.931974	1.159343	1.641122	1.149735	1.022126	0.915888	1.020382	1.26771	1.191565	1.122495	1.041866
D-Galactonic acid	0.92679	1.292882	1.184519	0.993485	1.363704	0.95675	0.978152	0.986086	0.659947	0.903509	1.159343	1.641122	1.149735	1.022126	0.9613	1.020382	1.26771	1.191565	1.122495	1.041866
D-glucamate	1.189086	1.13985	0.973233	1.06757	0.973148	0.940259	0.961955	1.066534	0.727131	1.103339	0.987826	0.820623	0.506523	0.98257	0.912482	1.01779	1.046603	0.942325	1.121257	0.889698
di-aminopropionic Acid	0.874296	0.924063	0.917384	1.019124	0.850062	0.928657	1.06477	0.931508	1.142137	0.98419	0.849525	1.253032	0.808842	1.127214	1.018148	1.041727	0.961382	0.952183	1.215012	1.25384
dihydroxalac	0.983063	1.073763	1.017051	1.063945	1.010894	1.015016	0.966585	0.944706	1.004416	1.005309	0.770282	1.090456	1.054855	0.960481	1.050254	0.96975	1.051053	1.016629	0.888112	0.867696
dihydroxybenzoic acid	1.015986	1.074713	1.070616	1.085862	0.928036	1.100252	1.022805	1.09252	0.989257	1.283946	0.983181	0.922653	0.858474	0.866146	0.920545	1.005591	0.950854	0.919835	0.811258	1.001504
dimethylglycine	1.459666	0.766367	0.623491	1.045531	0.960907	0.934864	0.760355	0.72633	1.371583	1.284594	0.81711	2.231203	1.415393	1.042371	1.399521	1.221561	1.22692	3.209149	0.980284	1.019159
DL-3,4-Dihydroxymandelic acid	0.829484	1.099347	0.823045	1.088501	1.01696	1.398025	1.320073	1.130985	1.133163	0.849501	0.682777	0.777062	0.544866	0.777311	1.203704	0.698099	0.773111	0.907424	0.666053	0.672858
dodecanoyl carnitine C12:1	1.344845	0.749472	0.610861	1.176607	1.104795	1.568822	1.185281	0.959122	1.227052	1.155389	0.692929	0.657597	1.178064	0.667717	0.948396	0.941122	1.432274	1.226493	1.043436	0.960889
D-Phenyllactic acid	1.024026	1.057082	0.916035	0.918553	0.967215	1.024285	0.974771	0.962563	0.8839	0.898968	1.031179	1.128687	0.779803	0.917055	1.021353	0.842498	0.973354	0.811331	0.955628	0.970454
equol sulfat	0.810098	1.004045	1.179639	1.246585	1.486398	1.216352	0.739829	0.786717	0.736739	0.631667	1.118548	0.866686	1.062541	1.077413	0.899306	0.867154	1.379909	0.752501	1.016509	0.838951
formate	0.999223	1.228587	1.469169	0.657471	1.453973	1.098854	1.163927	not measu	0.356753	0.836246	0.719467	0.824162	1.456999	1.091760	0.742262	not measu	0.756204	0.762105	0.708629	
galactaric acid	0.770605	0.703891	0.762104	0.769032	0.902909	0.7376	0.839819	0.798804	0.882095	0.980046	1.112013	1.301501	1.224103	1.258704	1.267617	1.072401	1.086569	1.073055	1.203932	1.189392
galactaric acid	1.240141	1.168601	1.094393	1.09248	1.259082	1.316626	1.241241	1.02558	0.77112	1.005283	1.008149	1.05444	1.126258	1.00444	1.060688	1.072973	0.958844	1.112837	1.269274	1.269274
gamma-butyrolactone	0.96315	0.789379	0.832646	0.835876	0.885374	0.910845	0.914857	0.862377	1.04882	1.169169	1.109426	0.782756	1.104097	0.810862	0.86929	0.900424	0.856787	1.016211	1.07142	0.762214
gluconolactone	0.94344	1.161285	0.813998	1.264456	1.063997	1.214509	0.98447	0.745747	0.827838	0.702644	1.54599	1.004729	0.565148	0.83376	0.336126	0.98223	1.099798	1.5018	1.081744	0.980874
glucosamine	0.943052	1.065156	1.157331	1.177334	1.052965	1.008992	1.044666	1.118937	0.978555	1.406991	0.863054	1.030191	0.835481	1.010628	1.04412	0.875256	0.831194	0.915023	0.822558	0.833332
glucose	1.242634	1.047865	1.216406	1.139124	1.100794	1.094179	1.044666	1.118937	1.406991	0.791564	0.79552	0.821694	0.841648	0.909839	0.887281	0.793354	0.780454	0.811331	0.655628	0.626467
glutamate	1.468929	1.67011	1.418307	1.294762	1.629978	1.680085	1.934547	2.135593	1.143978	1.507503	0.746428	0.926438	1.021533	0.931089	0.920902	0.932141	0.821818	0.801603	0.706217	0.682609
glutamine	0.854018	0.908035	0.572066	0.942938	1.015411	0.918814	0.860867	0.890039	0.896328	1.206208	0.858989	0.899114	0.775961	0.829701	0.872167	0.805684	0.821591	0.868158	0.706267	
glycerat	1.063163	0.964981	1.094414	1.065943	1.081102	1.084116	1.028495	1.136515	0.99986	1.106335	0.865457	0.903144	1.033971	1.098481	1.047574	1.010406	0.827051	0.805665	1.063161	1.067161
glycerol-3-phosphate	1.145502	1.094486	1.093	1.038083	1.324684	1.017666	1.068262	1.290211	1.334393	1.225933	1.131578	0.734352	1.238897	1.022613	0.680048	1.040816	1.117604	1.185331	0.973735	0.953327
glycine	0.95945	1.00502	1.069177	1.035407	1.069314	1.038844	0.956722	1.054841	0.990172	0.999832	0.925866	0.983983	0.96225	0.901781	0.941468	0.932168	0.971608	1.058163	1.030377	1.039377
glycolcholic acid	0.287934	0.289418	0.868689	0.994236	1.371625	0.991832	0.961503	0.963021	0.065737	0.062387	0.451025	0.200354	1.408422	1.407327	26.64495	36.5248	14.22206	12.11387	19.49059	19.09827
glycodeoxycholic acid	0.217357	0.751285	0.845995	0.711874	0.088443	0.036124	0.008972	0.010354	0.584136	0.479043	1.230934	1.280929	1.287052	1.179563	1.301354	35.06563	75.71422	89.59333	2.1093	2.81439
glycyl-L-proline	0.818975	0.559142	0.869898	0.789437	0.842993	1.124213	1.034091	0.900463	1.076512	0.837995	0.802329	0.897554	0.608189	0.792974	1.071765	0.967954	1.028248	1.20849	1.24968	1.296668
glycyamine	0.593144	0.559142	0.878798	1.013337	0.848168	0.931017	0.301252	0.112708	0.83398	1.129411	0.813337	0.797091	1.152164	1.219227	1.10885	1.114492	1.083838	1.04857	1.083189	1.04857
guanidine	0.801756	0.97099	0.831396	0.935975	0.932134	0.766361	0.934018	0.661236	1.09138	1.42447	0.909096	1.07755	1.086963	1.04447	1.197185	1.433055	1.02885	0.958783	0.813902	1.34548
guanosine	0.609812	0.715447	0.902237	0.509015	1.273567	1.635367	1.53936	1.152649	0.780299	0.872969	1.395761	1.675159	0.893365	1.249967	0.291737	1.87007	0.845126	0.959048	0.695332	1.27888
hexadecanoyl carnitine C16:1	0.945067	1.00789	0.933617	0.788277	1.246337	1.044588	0.939058	0.920255	0.984391	0.894693	1.106111	0.928638	0.889132	1.132723	0.970967	1.043498	0.97017	1.22565	1.061885	1.348702
hexanoyl carnitine C6	1.396449	1.085022	0.875432	1.032005	0.832168	1.059959	1.042702	1.171883	0.995604	0.912177	0.805219	1.01802	0.731118	0.562493	0.664923	0.725522	0.927118	0.98688	0.714686	
hippuric acid	1.063429	0.898645	0.941341	1.053662	0.8169	1.13605	1.09965													

phenylacetylglutamine	0.798631	0.856007	1.118517	0.953367	0.94912	1.199361	1.300507	1.336351	1.517993	1.092491	1.367389	0.983452	1.308847	0.642233	0.790198	0.853321	0.770538	0.973667	1.319063	1.126822
phenylalanine	0.925201	0.939498	1.131187	1.124226	1.087084	1.001249	0.968484	1.010705	0.986131	1.248853	0.929794	1.062182	0.888216	0.876299	0.952635	0.943753	0.974651	0.927032	0.974250	0.751158
phenylpropionylglycine	1.321796	1.331190	1.079772	1.040122	1.002905	1.032621	1.502954	1.225694	1.160718	1.206889	0.927844	0.882384	1.164569	1.13928	0.943138	0.864573	0.876261	1.005833	0.913802	1.02167
phenylpyruvate	0.840668	0.838475	1.235155	1.09544	0.94304	1.201083	0.97337	0.920277	1.26251	1.234812	1.162871	0.782816	0.950113	0.64345	0.805791	0.804254	0.905678	1.082357	1.078821	0.736389
p-hydroxybenzoate	0.962779	1.118470	0.976024	1.0293	1.047612	1.016341	1.001033	0.968242	0.967615	1.260804	0.960813	1.132402	1.171192	0.925242	1.106027	0.988216	1.095184	1.177248	0.934766	0.848969
pipicolic acid	1.137815	1.119757	1.106942	1.226954	1.028883	1.029511	0.958945	1.05552	0.984748	1.221661	0.932828	0.930518	0.907792	0.886813	0.942121	0.966557	0.953399	0.866957	0.840879	0.741381
proline	1.044688	1.067662	1.008777	1.080826	1.0242	1.030885	1.066262	0.990322	0.995015	1.024628	0.924631	0.992954	0.919397	0.918839	1.002718	0.996574	0.936235	0.939239	0.938012	0.766127
proline betaine	1.045202	0.915719	1.086513	1.185602	0.932449	1.020034	1.061986	1.016181	0.987541	1.00444	0.904611	0.818155	1.005362	1.011222	1.034984	0.780614	0.944738	1.168688	1.02897	1.142083
propionate	1.024091	1.071586	1.001379	0.052556	0.028439	0.103953	0.223756	0.297302	not measu	not measu	75.32203	15.68159	14.50019	0.044886	1.012258	52.30396	0.947331	0.773719	not measu	7.495372
propionyl carnitin C3	1.00102	0.896767	0.968496	0.9806	0.9294	0.901971	1.038931	0.940131	0.971366	0.972945	1.060294	0.848207	1.068506	0.880233	0.90226	0.946343	1.006395	1.167639	1.28244	1.057295
propionyl carnitin C4	1.074655	1.064133	1.121224	1.070746	1.168384	1.111827	1.11772	1.289137	1.101208	1.000163	0.7888	0.968364	0.876991	0.930777	0.879272	0.921313	0.892991	1.080834	0.890876	0.877738
psuedouridine	1.048173	1.102477	1.007586	1.026694	1.083569	0.986316	1.052973	1.092893	0.950465	1.095032	0.91902	0.983387	1.048553	0.941523	1.040941	0.951237	0.954552	1.01445	0.855497	0.825476
pyroglutamic acid	1.016999	1.15991	0.830367	1.01901	1.266156	1.062046	1.09703	1.102515	0.901726	1.096854	0.851006	1.010699	0.778702	0.79123	1.108761	0.915135	0.886755	0.8178	0.673791	0.747409
pyruvate	0.754709	0.667473	0.853104	0.920528	0.762352	0.81223	0.666684	0.628203	1.103738	1.017457	0.876932	0.971788	0.923742	1.007845	1.018195	0.974187	1.082182	1.044785	1.090216	1.040848
retinoic Acid	1.373457	0.915879	1.007233	0.873515	0.958783	0.938535	1.35937	1.146683	0.917392	1.103093	0.688787	1.775172	0.8231	0.948903	0.999416	0.816892	1.408844	0.775916	0.995876	1.021224
riboflavin	1.303676	1.08068	1.088425	0.903271	0.921616	0.96505	0.815363	1.05019	0.762625	0.789285	0.840623	0.861414	0.977811	0.490725	0.745559	1.091585	0.826111	0.819511	0.757449	1.650792
ribose	1.096792	1.178058	0.921716	1.073907	1.044249	1.069831	1.101967	1.12646	0.980907	0.977688	0.911225	1.244441	0.98811	1.000245	0.9998	0.999897	0.92364	1.094778	1.021596	1.128
ribosylmidine	0.963254	0.841389	0.934692	0.855053	0.989442	0.9929	1.020437	1.021121	0.912919	0.937583	1.081221	0.916267	1.022025	0.738832	0.895965	0.717141	1.149615	1.304705	1.342722	0.762284
serbacic acid	1.04066	1.037517	1.039876	1.073737	0.933253	0.893996	0.965987	1.026643	0.977865	1.053768	0.955946	1.009984	0.996422	1.131078	1.143139	1.006141	0.792972	0.877625	0.968168	1.080168
serine	1.138955	1.155105	1.26089	1.23386	1.139984	0.959591	1.041772	1.093029	1.066621	1.130462	0.916286	0.946916	0.80461	0.857519	0.960876	0.796019	0.797852	0.786993	0.863185	0.931693
serotonin	0.709529	0.770301	0.955614	0.76538	1.076223	0.914074	0.980274	0.877936	1.239124	1.386943	0.975376	1.128973	1.188468	0.861131	0.857419	0.944134	1.205251	1.42832	1.186576	0.930227
silicic acid	1.236303	0.857098	0.976746	0.923893	1.192232	1.35021	0.954635	0.985511	1.067479	0.93658	0.896611	0.979413	1.106153	0.657744	0.937073	0.994194	1.16731	0.975828	0.83384	1.129458
S-methyl-S-thioadenosine	1.050084	0.881566	0.984851	1.200619	1.009891	0.910162	0.965235	1.226059	0.803822	0.339841	1.274386	1.006919	1.06063	1.698513	1.268086	1.053985	0.995301	1.002055	1.323721	2.58514
sorbitol	0.742298	0.686089	0.969359	0.891689	0.999428	1.128657	1.286424	0.898275	1.090203	1.132912	0.788741	1.036723	0.923065	1.095853	1.185303	1.026207	1.07069	0.686096	1.000699	0.98036
stearoyl carnitin C18	1.135432	0.945264	1.033652	1.077497	0.897192	0.810403	1.081391	0.92542	1.087031	1.153839	1.018391	0.772435	0.83108	1.108838	1.480402	1.015909	1.02834	1.065474	1.091841	1.068689
succinate	0.534746	0.591366	0.738981	0.639073	0.679196	0.691573	0.851812	0.624793	0.740196	1.032742	1.287933	1.329223	1.232262	1.378845	1.258229	1.110987	1.142946	1.304936	1.096741	1.046074
taurine	0.855558	0.941114	0.982159	0.730037	0.742269	0.969681	0.822709	1.112044	0.733594	0.760531	0.841163	1.088576	0.968638	0.966039	0.699259	0.823252	1.084742	0.699306	0.669201	1.242393
taurodeoxycholic acid	1.039949	1.139368	1.18106	1.124443	1.184949	1.245561	1.277348	1.088068	1.157577	1.085239	1.070246	0.936535	0.8377	0.966315	1.210776	1.283257	0.913117	0.818129	1.019324	1.026653
tetraedecanoyl carnitin C14:2	1.070949	0.896763	0.633708	0.932745	0.035666	0.036539	0.014088	0.211135	0.058496	0.055485	0.621909	0.485504	1.516977	2.758442	1.774842	0.994319	63.21455	42.96244	27.5091	27.19849
tetradecenoyl carnitin C14:1	0.888844	0.750615	1.069484	0.755857	0.816806	0.896933	0.871598	0.692112	0.910945	0.864043	1.479667	1.045863	1.330674	1.044109	0.999022	1.633048	1.238938	1.097662	1.148749	1.319944
threonolactone	1.296526	1.005737	1.085818	1.121454	1.044391	0.895976	1.062731	1.003008	0.91342	0.866391	1.337535	0.708128	1.008766	1.745072	1.074752	1.444796	1.340765	1.153921	1.232681	1.250616
threonine	0.941794	1.21284	1.08601	1.067584	1.103304	1.124876	1.094142	1.070528	1.21893	0.860657	0.926622	0.862994	0.784185	0.879588	0.888839	0.9374	0.808033	1.101387	0.807371	1.050711
thymine	0.662022	0.592318	0.750361	0.714442	0.656985	0.969694	0.700839	0.693945	0.740624	1.125005	1.389623	1.411219	1.15546	1.341322	1.360046	1.36097	1.397876	1.469658	1.213176	0.850719
thymine	0.635104	0.555309	0.877887	0.758445	0.635606	0.616774	0.607973	0.671668	1.035798	1.0845	1.648706	1.580117	1.352521	1.573795	1.422023	1.646943	1.380617	1.469027	1.360519	0.892319
tyglyl carnitin or methylcrotonyl carnitin C5:1	1.058189	1.028445	0.88623	1.250233	1.183192	1.063369	1.123108	1.534195	1.111533	0.927135	1.064066	0.819896	0.807336	0.824552	0.906026	0.704849	0.639129	1.78123	0.985139	0.98349
trans-Cinnamate	0.971264	1.029879	1.135773	1.129184	1.070341	1.032563	0.959292	0.974892	0.935665	1.027312	0.824583	0.951049	1.073212	0.824583	0.963219	0.930519	0.963927	0.964027	1.074721	0.755171
trans-Hydroxycinnamic acid	1.82834	0.893171	0.719938	0.746089	0.832924	0.798708	0.793665	0.806179	0.941623	1.139305	1.018998	1.40892	1.462259	1.520927	1.295027	1.437924	1.55387	1.490869	1.358045	1.023939
triethanolamine	1.235808	1.226246	0.974871	1.393556	0.937632	1.962771	0.617905	1.330889	1.126715	0.63842	0.824504	1.06875	0.682450	1.06875	0.53403	0.931599	0.892394	1.026308	0.912938	1.373247
tryptophan	0.950008	0.989567	1.228878	1.180234	1.13225	1.010483	0.820496	0.981942	1.006683	1.237427	0.821453	1.002422	0.798015	0.841653	0.87672	0.943765	0.942971	0.937219	0.901302	0.826201
tyramine	1.205847	1.038623	0.930863	0.950889	1.123262	0.843332	0.880336	1.045642	1.047393	0.990986	0.922107	0.876534	0.744663	0.610974	0.87621	0.932165	0.826599	0.800751	1.064841	1.042635
tyrosine	0.900834	0.936667	1.146189	1.121637	0.99251	0.993117	0.995544	0.928654	0.928654	1.046624	0.980881	0.975796	1.016151	0.806363	0.920881	0.877888	0.948156	0.968838	0.850109	0.788839
uracil	0.691338	0.655126	1.168541	1.031326	0.732902	0.712713	1.194456	0.783878	0.923019	1.695372	1.104628	1.082511	1.073545	1.401808	1.441261	1.400654	0.743129	0.503675	0.986575	0.610514
ureidopropionic acid	0.719218	1.034159	0.955504	0.834144	0.678672	0.588065	0.760126	0.790326	0.764878	1.167452	0.864888	0.815923	1.084334	1.00858	1.367841	1.084964	1.002205	1.029996	0.905002	0.848087
uric acid	0.944009	1.285454	1.179884	1.047181	1.158998	0.983677	1.047132	0.967723	0.813312	0.662642	0.894725	0.959386	1.11956	0.900463	1.011737	1.115489	1.04677	0.980417	0.696878	0.677814
uridine	0.891424	0.946717	1.296452	1.266793	1.076907	1.073082	1.047518	1.253249	1.029829	1.111474	0.989602	0.900412	0.951215	1.125006	1.099863	0.870763	1.047879	0.804577	0.852702	0.852702
valine	1.059116	1.122696	1.079588	1.06314	1.076891	1.085728</														

C14:1	1.061457	1.094677	1.461532	1.598978	1.620511	1.544483	1.442435	1.334039	1.485348	1.266817	1.139649	1.356675	1.353665	1.641059	1.352277	1.298166	1.181804	1.0713	1.291894	
C14:2	1.023798	0.927072	1.172594	1.248096	1.38583	1.305668	1.260426	1.341656	0.976598	1.038819	0.939774	0.884461	0.869799	1.294318	0.943401	0.87115	1.035287	1.210556	0.905868	0.907671
C15	1.164185	1.120277	1.359045	1.876273	1.24132	1.202653	1.174798	0.886217	1.084202	0.993666	0.852843	1.16318	1.591904	0.975985	0.826666	1.156614	1.209717	1.091319	0.970611	1.114291
C15:1	0.964869	1.04607	0.936198	1.48067	1.01826	0.957287	0.999784	0.955129	0.894094	0.873399	0.994382	0.989722	0.999936	1.167454	0.903475	0.853282	1.019422	1.020757	0.814791	0.829219
C15:2	0.952696	1.111429	1.017529	1.276317	1.1293	1.133789	1.220479	1.091524	0.852076	0.790768	0.952207	1.014089	1.383198	2.069195	0.923318	0.862262	1.062415	1.00549	0.800619	0.791909
C16:1	1.467041	0.974768	1.132959	1.324548	1.439547	1.263297	1.407928	1.355718	0.819157	0.713534	1.144779	0.870678	1.560687	2.727085	1.146597	0.945951	1.552992	1.579418	1.746518	0.87637
C16:2	0.987404	1.019529	1.021519	1.350567	1.040338	0.961396	1.166912	0.991164	0.893341	0.929498	1.023672	1.020059	0.964767	1.126992	0.886958	0.901538	1.073496	1.041884	1.043587	0.866267
C17	1.045865	1.162941	1.016218	1.792939	1.004821	1.030629	1.124465	1.060921	1.076153	0.971748	1.021087	0.969273	1.118128	1.819501	0.875296	0.853899	1.06411	1.070762	1.079616	1.180558
C17:1	0.592155	1.063355	1.193486	1.152465	1.197407	0.968437	0.980291	1.153511	1.005515	1.190146	0.957344	1.014999	1.482358	2.40596	1.004378	0.87037	1.124233	1.055488	1.054804	1.175210
C17:2	1.082153	1.186934	0.825285	0.976087	0.912834	0.912788	0.965214	0.938852	0.848483	0.890967	1.07604	1.349094	1.014182	1.006426	0.826498	0.884197	1.044669	1.063061	0.933936	0.922074
C18	1.008212	1.167159	1.024582	1.720722	1.01345	0.969432	1.1003	0.999798	0.976486	0.948457	1.022821	1.169068	1.282687	1.577113	0.880545	0.907376	1.041626	1.03686	0.970895	0.854187
C18:1	1.469678	1.025081	1.018209	1.317829	1.03712	1.011989	1.165382	1.06538	0.920942	0.801649	1.003932	1.049428	1.365497	1.973213	0.992376	0.911197	1.146916	1.054244	0.942593	0.859347
C18:2	1.432375	1.027594	1.004877	1.171734	1.062632	1.009622	1.191939	1.07274	0.719645	0.579963	0.707201	0.906493	1.409562	2.256895	0.996666	0.891613	1.062693	1.054244	0.998437	0.886156
C18:3	0.783841	0.623694	0.988987	1.288657	1.061518	1.138422	0.949386	1.162358	0.649874	0.644614	0.912537	0.698558	1.828925	3.418362	0.879917	0.722995	1.582594	1.082496	0.724898	0.806739
C19	1.071942	1.018488	0.893249	0.948999	0.905078	1.02695	0.959826	0.994872	1.021036	1.003912	1.069652	1.273827	1.002813	1.149644	0.979669	0.985131	1.097656	1.014727	1.236539	0.940744
C19:1	1.474734	1.115791	0.998482	1.534145	0.960127	0.966922	1.053872	1.005327	0.664412	1.047574	1.083364	0.983822	0.972772	1.3049	0.987306	0.885146	1.06313	0.998714	0.971364	0.998189
C19:2	1.466044	0.954512	0.914915	1.752313	1.040765	1.07465	1.104844	0.98338	0.961124	1.08769	1.064128	0.983822	1.116513	1.339478	0.982003	0.973448	1.046418	1.095291	0.879802	0.924575
C19:3	1.687346	1.427831	1.769265	1.900663	1.276141	1.320452	1.027805	1.132527	0.978778	0.811717	1.506483	1.203849	0.920136	1.320775	1.015774	1.79393	0.8983	0.924027	1.031739	1.205437
C20	1.031742	1.110377	0.796498	0.688723	0.77946	0.832852	0.894354	0.823175	0.947582	0.830336	1.004798	1.272232	1.008822	0.845716	0.682645	0.864417	1.117087	0.873708	1.174625	0.848543
C20:1	1.220767	1.304668	0.977461	1.147287	0.959437	0.959522	1.225233	1.007848	1.08741	1.120474	1.302511	1.155451	1.116837	0.892429	0.893958	1.024215	1.05082	1.014396	0.891803	0.981203
C20:2	1.030617	1.085731	1.005711	1.184934	0.927421	0.951263	1.07098	0.90159	1.185862	0.986573	0.999369	1.034485	1.003358	1.192394	0.862381	0.952109	0.985916	1.007456	1.029646	1.024622
C20:3	1.471953	1.148252	0.961008	1.435693	0.907853	0.955186	1.102119	1.07128	1.063369	0.919466	1.082699	1.0375	1.157899	1.361409	0.959772	0.894927	0.993825	1.048817	0.995307	1.165235
C20:4	1.496408	1.145965	0.915426	1.986465	1.245934	1.116213	1.505959	1.139003	1.113387	0.8394	1.142469	1.084365	1.729375	1.558946	1.381847	1.193832	1.20431	1.045938	1.041174	1.043994
C20:5	1.00589	1.073194	0.83406	0.950729	0.568002	0.712233	0.830742	0.632359	1.018262	0.719042	0.948359	1.621025	0.86073	0.740709	0.942726	0.756672	1.050087	0.72124	1.32164	1.074126
C21	1.108157	1.211727	0.892112	1.003092	0.946691	1.018539	1.280239	1.065247	1.131671	0.964734	1.07817	1.28904	1.061877	1.088013	1.01957	1.18228	1.225322	1.20345	1.25587	1.031104
C22	1.69907	1.28462	0.901608	1.001227	0.904433	0.927754	1.337774	1.143162	1.078239	0.981092	1.090614	1.022554	0.991098	0.882483	0.977695	1.34293	0.97233	1.205377	1.094826	1.05953
C22:1	1.951411	1.295106	1.242748	1.500352	0.924368	1.058032	1.456237	1.097328	1.03703	1.03433	1.107739	1.10385	0.913237	1.20529	0.982102	0.925629	1.308331	1.181272	1.055371	1.042843
C22:2	1.681948	1.191896	1.042987	1.176432	0.989575	1.058403	1.346623	1.182776	1.19334	0.888674	1.115772	1.117432	1.245729	1.408629	0.973331	1.082617	1.210084	1.162307	1.152177	1.06729
C22:3	1.436441	0.997253	0.951108	1.080143	1.0851	0.997417	1.293986	1.166927	1.020034	0.806907	1.22087	1.027914	1.478336	1.933612	1.073971	1.045596	1.256879	1.24642	1.039849	1.101393
C22:4	1.495837	1.045113	0.935979	2.090559	1.066758	1.117558	1.565746	1.195145	0.95364	0.820603	1.201601	1.122624	1.315331	1.654379	1.161505	1.032026	1.276527	1.23837	1.154113	1.13433
C22:5	0.934759	0.885384	0.841671	0.842387	0.760099	1.138159	1.0052	0.906324	1.160718	0.925957	0.951134	0.90414	1.108936	0.908951	0.874477	0.999844	1.142723	1.165785	1.27081	1.018196
C23	0.85268	1.233698	0.844111	0.924513	0.844459	1.109397	1.009194	1.060489	1.009825	1.081053	0.943522	1.038314	0.875472	1.037104	1.007475	1.199411	1.194372	1.052498	1.272946	1.129488
C23:1	0.921239	1.027191	0.895562	0.784266	0.674921	0.826927	0.860553	0.745951	1.15573	0.766102	0.847264	0.974372	0.857525	0.867823	0.563075	0.785083	1.054681	0.982023	1.453361	0.806122
C24	1.568121	1.189695	0.780094	0.826943	0.833603	1.019615	1.109753	1.104749	1.145059	0.997855	0.99591	1.005446	0.967008	0.900692	0.884001	0.750758	1.128653	1.095422	1.188443	1.120327
C24:1	1.569444	1.226186	0.891309	0.878649	0.832357	0.867878	1.252957	0.981221	1.167271	1.067421	1.027647	1.031628	0.964783	0.81593	0.921359	1.109067	1.1622	1.091468	0.809166	1.13187
C24:2	1.738593	1.374569	0.735051	0.796483	0.796429	1.000527	1.247919	1.297092	0.998933	0.924018	0.904898	1.001746	0.8418	0.87074	0.793657	1.290833	1.185815	1.135304	1.053763	0.876304
C24:3	1.814007	1.268438	0.821063	1.040255	0.89406	0.947673	1.428309	1.117041	1.142995	1.070573	0.968348	1.026027	0.907951	0.8907	1.025473	0.956729	1.226417	1.137088	1.069368	0.977088
C24:4	2.061179	1.356627	0.897323	1.122545	1.150128	1.074971	1.346919	1.157639	0.997447	0.817326	0.950969	1.050277	1.169151	1.669018	0.967462	1.067625	1.153504	1.182861	1.164076	1.001187
C25	0.725805	0.875111	0.950567	1.200292	1.052091	1.411606	0.933364	1.032238	1.151724	1.097514	1.383557	1.144768	1.676463	1.336163	1.591297	1.085529	1.237066	1.617144	1.332273	0.981639
carbamoyl glycine	0.843132	1.12982	0.927211	0.724727	0.835423	1.040009	0.948578	0.927745	0.996328	1.113786	0.984716	1.038262	0.952663	0.959039	1.004206	0.985665	0.98273	0.80623	0.991629	0.913929
carboxymethyl phosphate	0.937378	1.017611	0.763421	0.707037	0.813039	0.764515	0.90117	0.948371	0.865331	1.003034	0.988313	0.985877	0.911145	0.841521	0.904448	0.898982	1.018171	0.899212	1.018171	0.899212
carntine	0.819027	1.034535	1.012658	0.907965	0.976098	1.094202	0.97181	0.966445	0.845708	0.941404	0.894292	0.897448	1.020198	0.937647	1.028253	0.97334	0.932807	0.925344	0.965666	0.652573
carnosine	0.690284	0.888177	0.950398	1.048717	0.896322	0.851234	1.145716	1.252329	1.116356	0.925381	0.877442	0.814943	0.945829	0.911998	0.888212	0.948789	0.978408	0.754589	0.927629	1.01928
catechol sulfate	0.436198	0.153448	1.234627	1.243034	2.234405	2.962052	0.940093	0.924959	1.37142	1.24557	4.2445	1.941169	2.928226	2.452498	2.547926	23.4215	12.1917	14.9126	1.168055	1.305242
cholesterol sulfate	1.023543	1.086762	1.020142	0.986237	0.982676	1.107205	1.028263	1.041046	1.01115	1.00488	1.014241	0.922416	0.827244	0.980533	0.962747	1.234791	1.123694	0.937239	1.295191	1.04111
cinnamoyl glycine	0.973455	1.440027	1.137535	1.048829	1.007708	1.02218	1.116411	1.083083	0.95423	1.076524	1.102629	1								

Table with 10 columns: Compound Name, and 20 columns of numerical values. The compounds listed include Isolevaleryl carnitine C5, kynurenic acid, l-tyrosine, lactate, lauroyl carnitine C12, leucine, L-Fucose, linoleoyl carnitine C18:2, lithocholic acid, L-Rhamnose, L-Threonic acid, lysine, malate, m-coumaric acid, methylamine, methylethylamine, methylmalonic acid, m-Hydroxyhippuric acid, myristoyl carnitine C14, N-[3-Phenylpropionyl] carnitine, N-N-dimethylarginine, N-6-NG-Trimethyllysine, N-acetyl-alanine, N-acetyl-arginine, N-acetyl-asparagine, N-acetyl-aspartate, N-acetyl-glutamate, N-acetyl-glycine, N-acetyl-histidine, N-acetyl-L-ornithine, N-acetyl-threonine, N-acetyl-tryptophan, N-acetyl-tyrosine, N-Butyryl-glycine, N-Carbamoylsarcosine, N-Formyl-L-methionine, nicotianamide, N-Octanoylglycine, N-Tyrosyl-glycine, octanoyl carnitine C8, oleoyl carnitine C18:1, O-Phosphorylthalamine, ornithine, palmitoyl carnitine C16, p-aminobenzoate, pantothenate, phenol, phenol sulphate, phenylacetic acid, phenylacetylglycine, phenylalanine, phenylpropionyl-glycine, phenylpyruvate, p-hydroxybenzoate, picopicolic acid, proline, proline betaine, propionate, propionyl carnitine C3, propionyl-glycine, pseudouridine, pyrrolidinic acid, pyruvate, retinoic acid, riboflavin, ribose, ribothymidine, ribosyl carnitine, serine, serotonin, stialic acid, S-methyl-S-thioadenosine, sorbitol, stearyl carnitine C18, succinate, synephrine, taurine, tauoroxyacetic acid, tetradecadienyl carnitine C14:2, tetradecenyl carnitine C14:1, threonine, thymidine, thymine, tigli/ carnitine or methylcrotonyl carnitine C5:1, trans-Cinnamate, trans-Hydroxydicinnamic acid, triethanolamine, tryptophan, tyramine, tyrosine, uracil, ureidopropionic acid, ureic acid, uridine, valine, xanthine, xanthosine, and metabolites.

Table with 10 columns: Metabolite Name, spleen, spleen, spleen, spleen, spleen, spleen, spleen, spleen, spleen, head, head, head, head, head, head, head, head, head, head. The metabolites listed include 1-methyladenosine, 1-methyl-histidine, 3-thiodydroxybenzoic acid, 3-Pyridinedicarboxylic acid, 2-aminothioacetic acid, 2-dehydrogluconate, 2-Oxooxy-D-ribose, 2-hydroxy Hippuric acid, 2-Hydroxybutyrate, 2-hydroxy-isovalerate, 2-Hydroxyoctanoic acid, 2-Hydroxypropionic acid, 2-Ketobutyric acid, 2-Keto-isopropanoate, and 2-Keto-isovalerate.

2-Methylbutyrylglycine	0.910756	0.97975	0.932126	0.980236	0.990158	0.980478	0.918537	0.885273	1.272602	0.970241	0.922579	0.832297	0.996878	1.070266	0.994059	1.066108	1.047688	0.962046	0.904622	0.975144
2-Methylsuccinic acid	1.076356	1.203553	1.132845	0.642472	0.874261	0.858231	0.761973	0.832388	0.606612	0.839746	1.029803	0.876139	1.331874	0.673154	0.948016	0.562634	0.515289	0.972842	0.591626	0.889359
2-Oxoadipic acid	1.150901	0.992570	0.908721	1.078148	1.090917	0.907323	0.993718	0.973752	0.692497	0.869879	1.114849	0.106891	0.457569	0.698974	0.876236	0.71889	0.21821	1.35092	1.260001	0.611338
3-Phenylpropionic acid	0.510323	0.542323	0.65079	0.632965	1.00753	0.809848	0.747071	0.525886	0.981351	0.915526	0.517507	0.603263	0.677795	0.617128	0.951083	0.845575	0.903413	0.873048	0.889332	0.935189
3-(3-Methoxyphenyl)propionic acid	0.843425	1.073622	0.826067	1.106126	1.02418	0.970548	0.939954	0.917969	1.184796	0.853197	0.978235	1.023264	0.907275	1.132731	0.979852	1.046468	0.950921	0.952629	1.262719	1.114119
3-4-Dihydroxybenzoic acid	0.748253	0.873262	0.946939	0.657021	1.270994	1.302843	0.848278	0.898273	1.277418	1.066645	0.895873	1.150431	0.98616	0.865959	0.983563	1.07397	1.025522	1.058687	0.906609	1.004216
3-4-Dihydroxydihydrocinnamic acid	0.767419	1.176234	1.021871	0.756644	1.079645	1.206788	0.846825	0.922662	0.691121	1.04502	1.278846	1.262787	1.001483	0.827366	1.130176	1.133944	1.020269	0.985789	0.898285	0.974656
3-Hydroxyanthranilic acid	1.22153	1.04633	0.902334	1.003366	0.87355	1.131841	0.934201	1.023272	1.017784	1.027311	1.190703	0.947393	1.102717	1.316138	1.020667	1.027957	0.997487	1.094524	0.988838	0.895774
3-Hydroxybenzoic acid	0.697773	1.086131	0.854361	0.92098	0.97238	0.925464	0.836829	0.913776	0.913489	0.917439	0.941553	1.130923	0.94465	0.920302	1.071591	0.993944	0.982412	1.071293	0.942505	1.021448
3-Hydroxybutyrate	0.957119	0.892349	0.856054	1.134153	1.180907	1.178246	0.953855	1.024202	0.849834	0.9298	0.9632	1.025394	1.086194	1.261929	0.959121	0.990954	0.862029	0.958907	0.779913	0.906008
3-Hydroxyisobutyrate	0.9241	0.930101	0.80307	0.974322	1.023408	0.972625	0.866843	0.980086	0.91377	1.011497	1.253838	1.045875	0.947349	1.064423	1.014223	0.989214	0.960458	0.991735	1.026224	0.97267
3-Hydroxyphenyllactate	0.759018	1.152602	0.986931	0.757954	1.079645	1.206788	0.846825	0.922662	0.899161	1.04502	1.098439	1.151459	1.001483	0.827366	1.130176	1.133944	1.020269	0.985789	0.898285	0.974656
3-Methoxytyramine	1.014007	0.908276	1.165394	1.209373	0.836885	1.29674	0.814962	1.000346	1.157432	0.921279	0.959439	0.883738	0.941748	1.201803	1.032218	1.088218	1.096785	1.171123	1.021301	0.976152
3-Methylindole	0.762616	0.948729	0.976527	0.887811	1.145661	1.113497	0.952447	0.730129	0.932318	0.802413	0.954987	0.979548	1.058903	1.185142	0.965837	1.123137	0.918804	0.956559	0.892083	0.996441
3-phenylpropionic acid	0.455937	0.545328	0.653052	0.792457	1.207755	1.159073	0.791895	0.732625	0.926091	1.018016	0.526644	0.545457	0.663603	0.735214	0.922935	0.881555	1.037607	1.212424	1.159664	1.141555
4-Aminohippuric acid	0.763177	1.155432	0.839818	0.698607	0.953812	1.002387	0.258817	0.903317	1.201494	1.045603	1.103495	0.947334	0.925752	1.122039	0.962021	0.610952	0.854479	0.616252	0.682324	
4-Methylvaleric acid	0.894985	1.897322	0.847675	1.017895	1.044117	0.928327	0.761878	0.65727	0.959437	0.959757	1.080135	1.130315	1.329436	1.724877	0.905795	0.922701	0.975284	0.85523	0.923472	0.949451
4-Pyridoxal acid	0.832084	1.182997	1.034233	1.011584	0.981332	1.046561	0.850142	0.92975	0.981164	1.026289	0.759788	1.124751	1.136714	1.252556	1.094529	0.947676	0.7846	1.059	0.853638	0.969611
5-Hydroxylsine	0.840036	1.120726	1.358727	1.063613	1.12168	0.810104	0.97923	1.055224	1.065135	1.115403	0.969542	1.176497	1.44248	1.158637	1.06512	0.976333	0.927859	1.110721	0.991986	0.648008
5-Keto-D-glucionic acid	1.109913	0.838466	1.257618	1.012042	0.788883	0.833255	0.884205	0.984007	0.896969	0.702407	1.109058	0.92035	0.884112	0.867002	0.98982	0.96299	1.22360	1.102734	1.382439	1.442333
5-Methylcystine	1.271329	1.138722	1.456064	1.232624	1.039858	0.689188	0.881278	1.147424	1.500713	1.575384	1.16414	0.826492	0.980299	0.866539	1.01737	0.91887	0.982966	1.082862	0.919841	0.93726
5-Methyltyrosine	0.412939	0.832199	0.48734	0.520872	0.764718	0.815072	0.479965	0.537747	0.36299	0.432568	1.914774	1.50212	2.019503	3.24901	3.60008	6.74867	7.320793	net mass	7.81764	2.381714
acetate	0.61209	0.465726	0.743825	0.887459	1.0036	0.998376	0.710439	0.80231	0.704101	0.752748	0.789753	0.773629	1.400208	1.450728	0.958035	1.029752	0.952503	1.025576	0.509904	0.848838
acetoacetate	1.142084	1.015597	1.186073	0.966443	1.01837	0.863951	1.112171	1.224691	0.938045	0.938428	0.841757	1.057828	0.865068	0.950208	0.830448	0.917035	1.038515	1.026846	1.089339	1.088337
acetyl carnitine C2	1.062587	0.85947	1.047322	1.056888	0.947024	0.949479	1.021188	1.126793	0.912313	0.945153	1.057726	0.727972	0.947187	0.822704	0.972202	0.921719	1.050582	1.051458	1.090319	1.074481
acetylcholine	0.993122	0.833208	0.972987	0.821865	0.820948	0.760683	0.818962	0.942244	1.000142	0.818886	0.939229	0.776345	1.008617	0.868804	0.867622	1.077112	1.223316	0.958036	0.861476	0.828202
acetyl-isoleucine	0.820163	1.057994	0.700111	0.866881	1.011186	1.392399	0.880017	0.894621	1.336616	1.05472	0.900261	1.227536	1.106876	0.999482	0.999778	0.862685	0.954446	1.050971	0.870712	0.943895
acetyl-succinate	1.051027	0.890239	0.887297	0.894027	0.884376	0.765033	0.812321	0.957581	0.971843	0.894487	1.04251	0.902185	1.04708	0.846596	0.920032	0.812664	1.009964	1.000007	0.975151	1.056514
acetylvaline	0.82279	0.887128	0.721386	0.773333	0.738914	0.891799	0.914942	0.876634	0.807402	0.8287	1.255581	0.936277	0.911475	0.91164	0.95112	0.87834	0.883267	0.802367	0.961395	0.900666
adenosine	0.881247	0.884181	0.46636	0.563876	0.528213	0.533396	0.80167	0.519843	0.853593	0.661164	1.198597	1.064275	0.594066	0.678353	0.632906	0.908573	0.803267	0.873695	0.969796	
adenosine	1.07611	1.33534	1.116403	1.155291	1.174183	1.288072	1.276835	1.181057	1.116697	1.1374	1.079334	1.231418	0.93053	1.054282	1.029788	1.203483	0.940718	1.056248	1.090631	1.194275
alpha-ketoglutarate	0.944219	0.969479	0.961286	0.922563	1.014227	0.822666	0.960906	1.035355	0.952482	0.863111	0.975715	1.016309	0.934978	1.080033	1.025481	0.980439	0.970651	0.940686	0.866833	0.81167
alanine	1.063922	0.872529	1.04825	0.537669	0.67309	0.875092	0.828353	0.935872	1.051642	1.11777	1.041061	0.779504	0.949682	0.878825	0.903244	0.750522	0.872516	1.102998	0.86707	0.828202
allantoate	0.89049	0.913893	0.854194	0.941604	0.940413	0.91879	0.874363	0.891684	0.888107	0.890514	0.895392	0.96378	1.005076	1.048664	1.008625	0.901718	1.019759	0.957935	0.75735	0.775817
allantoin	0.869641	1.016104	0.967885	0.917858	0.988521	0.981343	0.962809	1.006056	0.909789	0.952917	0.941026	1.03129	1.033366	1.077484	0.981374	1.063513	0.974779	0.947649	0.940422	0.882521
amino adipic acid	0.896254	0.950083	0.872261	0.828518	0.950318	0.904524	0.921891	1.03147	0.883935	0.939531	1.139238	0.864071	0.947183	1.031727	1.06312	0.984964	0.916609	1.066929	0.979561	
aminolevulinic acid	0.757341	0.89478	1.108165	1.33436	1.054943	1.058089	0.972996	0.899498	1.713733	0.848073	0.880568	0.896495	0.812461	0.886286	0.996032	1.10631	1.157384	1.028276	1.107373	0.996878
anthranilate	1.634405	1.03076	0.721765	1.278321	1.04378	1.030092	0.957627	1.141854	0.990822	1.241958	1.392086	0.644425	1.100212	1.485689	0.976945	1.342651	1.152471	1.510918	1.598509	0.941831
arachidoyl carnitine	0.832852	0.954209	1.178668	1.157231	1.043956	1.000714	0.952211	1.023917	1.12312	1.024858	0.907928	0.907679	1.039398	1.075297	1.011662	0.954606	0.915311	0.983394	0.974564	0.887177
arginine	1.037603	0.884003	0.73959	0.707695	0.917056	0.895462	1.432989	1.869583	1.396562	1.396562	0.470787	0.865358	0.986657	1.056603	0.970727	1.355607	1.326294	0.797321	1.05604	0.797321
ascorbic acid	0.982324	1.14321	1.189533	1.195959	0.924849	1.08303	1.030626	1.130997	1.160871	1.108071	0.990427	1.071786	0.893337	0.965677	0.905212	0.988705	0.901388	0.953786	0.851907	0.912175
asparagine	1.702675	1.585514	2.260379	2.068658	1.305505	1.663742	1.784741	2.299416	1.131677	1.210526	0.709614	0.948192	0.91485	1.061274	0.923544	1.274935	0.803635	0.733174	0.833759	0.786693
aspartate	1.017567	0.907276	0.904458	0.974688	0.979741	1.028084	0.947278	0.864098	0.938752	0.906337	1.026313	0.947471	0.923786	1.087828	1.013969	0.881718	0.967347	1.001776	1.007127	0.971607
BAIBA	1.034831	0.98948	0.943925	1.353467	1.159499	1.152556	0.873028	0.777933	1.098941	1.044878	1.088716	0.819164	0.840331	1.147811	0.961056	1.160254	1.151566	0.87401	1.033886	1.07987
BAIBA	1.775888	1.208301	1.96941	1.905331	1.945616	1.800246	1.406729	1.042384	1.080897	1.119166	0.83143	0.987294	1.575632	1.529398	1.093131	1.066284	1.114593	0.917847	1.440336	1.268007
biotin	0.34483	0.292124	0.234098	0.261204	0.98961															

dimethylglycine	0.708643	0.890746	0.833997	0.999955	0.706332	0.830007	0.830223	0.56149	1.115985	0.626897	0.702278	0.962127	0.7158	0.821661	0.980897	1.008831	0.593932	0.611728	0.626313	0.814137
Dl-3-4-dihydroxymandelic acid	0.858882	0.885518	0.643693	0.827901	0.822222	0.672584	0.915387	0.994779	1.062289	0.924028	0.898177	1.45625	0.90783	1.056158	1.61485	1.54266	0.848307	0.87876	1.332279	0.927277
Dihydroxy carnitine C12:1	0.150310	0.107816	0.960034	0.769163	0.946992	0.625947	0.409277	1.482291	1.150991	1.072072	0.618593	0.567531	0.736011	0.616434	1.759426	0.84292	1.044482	0.96108	1.061108	0.916018
D-Phenylacetic acid	0.106327	1.007416	0.925831	1.049911	1.145405	0.972524	0.878465	0.798388	0.909522	0.869489	1.139591	1.043204	1.059477	1.012959	1.009116	1.118072	0.842326	0.815004	1.183144	0.945259
Equol	0.627591	0.931988	0.993354	1.240322	0.617971	0.83277	0.896961	0.550449	0.677155	1.30419	0.811619	0.865663	0.944904	1.37378	1.101032	0.84824	1.034312	0.666002	0.665544	0.917495
formate	0.989657	1.227	0.850274	1.109569	1.286989	1.190996	1.217566	1.01607	0.81619	0.930333	1.054822	0.736113	1.404445	1.30044	1.147902	1.217566	0.625031	0.941248	0.937571	0.688687
fumarate	1.103708	1.274289	0.999188	1.191555	1.085808	1.21096	0.973222	1.06281	1.08123	1.162334	1.080979	1.191064	0.99947	1.09332	1.062980	1.136935	0.967364	1.041248	1.067536	1.164554
galacturonic acid	1.039129	1.120726	0.987321	1.063613	1.12168	1.105326	1.027845	1.112763	1.044887	1.115403	0.9999	1.176497	1.151272	1.158637	1.106512	1.031092	0.877999	1.00777	0.887702	0.964808
gamma-butyrobetaine	1.062584	0.85947	0.941546	0.732586	0.91033	0.955659	0.991139	1.120737	0.913304	0.945044	1.057759	0.929156	0.94644	0.828534	0.972202	0.808645	1.039999	1.050469	1.089718	1.073883
glucosylactone	1.655581	1.681379	1.248028	1.190307	1.017475	0.927567	1.340801	1.545152	1.879664	2.771992	2.454848	2.930408	0.929784	1.261737	0.725069	1.635294	3.895118	8.516462	1.587479	2.337744
glucosamine	0.972919	1.022091	0.919869	0.919111	0.891719	0.870976	0.882884	0.882884	0.942374	0.877789	1.047653	1.067246	0.904592	1.014843	0.950568	0.878083	0.971501	0.988314	0.942683	0.931301
glucose	0.85591	0.770464	0.748515	0.753692	0.95069	0.879389	0.823631	0.843064	0.760151	0.793212	0.909652	1.008924	0.965304	0.949573	0.951939	0.9246	0.860117	0.914283	0.866179	0.851192
glutamate	0.85036	0.959365	1.201892	1.094584	1.028911	1.029904	1.005657	1.040434	0.832213	0.881876	0.696403	0.875616	0.983965	0.921513	0.901294	0.921992	0.74115	0.7722	0.675726	0.699649
glutamine	1.112211	1.253505	1.002851	1.071038	0.900811	0.865338	0.89102	1.037159	1.141358	1.242784	1.257242	1.405334	0.955569	0.924699	1.075328	1.198228	0.95519	0.95891	1.257783	1.158463
glycerate	0.987546	0.916381	0.820559	1.077094	1.121232	0.999955	0.881077	0.859001	1.027968	1.019484	1.163249	0.827335	0.861886	1.084738	1.027032	1.027794	1.009451	0.989957	0.948908	0.927143
glycerol-3-phosphate	1.190798	1.63829	2.910552	1.986438	1.912232	1.457336	1.664316	1.783533	1.325378	1.018234	1.081559	0.914427	0.932628	1.265586	1.027778	0.87318	1.194917	1.230175	0.908158	0.725653
glycine	0.952429	0.993422	0.973419	0.873171	0.950762	0.928543	0.905057	0.992815	0.878356	1.021629	0.971649	1.069644	0.897678	0.992249	0.88979	1.020411	0.902603	0.959947	0.965174	1.005914
glycolcholic acid	0.819611	1.123406	1.119635	1.099591	2.317427	2.249626	1.025247	0.975483	1.351127	1.021692	0.78095	0.963892	1.263506	1.362049	1.018739	0.990759	0.896371	0.91731	1.06369	1.02738
glycodeoxycholic acid	1.003571	1.081499	1.12119	1.51294	2.191497	2.21464	1.275603	1.361027	1.048785	0.679332	0.798786	0.597706	0.663912	1.04006	0.802193	0.743883	0.915885	1.147666	0.843809	0.87129
glycyl-L-proline	1.339755	1.23925	1.002394	1.338379	0.976662	1.194539	0.801181	0.915977	1.070934	1.171943	1.233487	1.17087	0.679032	0.635766	0.846009	0.841522	1.029749	1.163207	1.1045918	1.05918
glycyamine	0.725549	0.853312	1.053233	0.926625	1.004689	1.202935	1.103676	1.118567	1.146312	1.188356	0.869414	0.944042	0.972556	0.93835	0.945284	0.979319	1.092319	1.121464	0.939269	0.925136
guanine	1.308817	1.04564	1.20095	1.202022	1.20519	1.245741	1.699028	1.249144	1.370301	1.470693	1.077073	1.142109	1.057676	1.00051	1.053279	1.251549	1.153269	0.950743	1.305681	1.327386
guanosine	2.701224	2.149409	1.760305	2.518968	1.466373	5.85415	1.522914	1.586111	1.089391	1.025145	1.369546	1.340854	0.633723	0.779606	0.665735	1.737409	0.654513	0.959235	1.349249	1.198419
hexadecenoyl carnitine C16:1	1.086217	1.131679	0.759437	1.052999	0.994878	0.849699	1.016016	1.353097	1.17743	0.958571	0.636184	0.92737	0.964441	1.151397	1.107107	1.44009	0.654513	1.010919	1.156899	0.92763
hexanoyl carnitine C6	1.057224	1.376795	1.196927	1.127238	1.109449	0.983887	0.845115	1.05169	0.9177	0.729548	0.760487	0.848404	0.994693	0.956659	1.105021	1.017012	0.966311	1.039966	1.137562	1.06673
hippuric acid	1.143575	0.862516	0.806895	0.719943	1.101871	0.862752	0.89967	1.236672	1.133724	0.915071	1.025627	0.866619	0.798686	0.953124	0.82466	1.075419	1.166765	1.023135	1.08119	1.110072
homoarginine	1.150814	0.906667	1.096073	0.711881	0.847862	0.778448	0.868891	1.114467	1.0408	1.048	1.092594	0.76773	0.920552	0.735767	0.806672	0.761568	1.016931	1.124511	1.030841	1.002118
homocarnosine	1.145998	1.042442	1.24401	0.766778	0.975514	0.976534	1.200341	1.194411	0.906756	1.110182	1.130282	0.894894	1.237169	0.738528	0.889892	0.752483	1.056585	1.152392	1.079338	1.022746
homocitulline	1.097599	0.849123	1.222975	0.568472	0.784928	0.926264	0.950092	1.118082	0.912064	1.053031	1.015968	0.637772	1.011659	0.736955	0.892827	0.726902	1.029598	1.040632	1.065504	1.092743
homocystine	0.911661	0.847463	0.715364	1.065807	1.1012	1.004865	0.977873	0.801993	0.992023	0.952044	1.009976	0.961427	0.816822	1.121553	0.97751	1.04527	1.028948	1.041434	0.973892	1.04774
homocysteine	0.972684	0.94255	0.941009	0.778059	0.942131	1.090108	0.966439	0.998706	0.861082	1.041342	1.020554	0.95906	1.072489	0.952694	1.059942	1.036564	1.02502	0.913475	1.153698	1.116619
homogentisic acid	0.943163	1.322446	1.549483	1.493341	1.338395	1.586841	0.901559	0.69573	0.861148	0.94187	1.013306	0.933085	1.531425	1.856227	0.946777	1.350050	1.059936	1.058435	0.877368	1.146451
hydroquinone	0.697607	0.972219	0.9651	0.930528	0.919443	0.992291	0.871926	0.900904	0.898324	0.916698	1.0001	0.926716	0.974103	1.004319	1.070851	1.073592	0.956057	0.98962	0.934122	0.699374
hydroxyindoleacetic acid	0.730053	1.132909	1.11592	1.234412	1.166324	1.291932	0.562621	1.072111	0.895681	0.701774	0.649836	1.103832	0.914946	1.066675	0.960164	1.217444	1.211048	0.887908	0.981179	0.853752
hydroxyphenyllactic acid	0.786259	1.360905	0.702234	1.436119	1.105413	1.11687	0.562621	0.922662	0.59925	0.874816	1.1294	0.921003	1.369479	1.459663	1.248601	1.21801	1.211048	0.965789	1.642853	1.100072
hydroxyphenylpyruvate	1.099531	0.825782	1.833003	1.710854	1.655156	2.432237	1.23966	0.909491	0.817661	0.976753	0.891255	0.923725	2.201449	2.396814	1.003975	1.675271	1.117469	1.066762	0.999676	1.104456
hydroxyproline	1.078331	0.94632	0.783068	0.716121	0.674938	0.869898	0.902635	1.051057	0.95393	0.935302	1.186997	0.829629	0.921436	0.850399	0.835665	0.775439	1.128299	1.028205	1.162871	0.925605
hypotaurine	1.007086	1.242331	1.651354	1.876521	1.192782	1.247729	1.736837	1.956898	1.958198	1.960027	1.136841	1.514211	0.773503	0.665926	1.18004	1.707079	1.269919	1.066496	2.030594	1.95399
hypoxanthine	1.005688	1.229899	1.220223	1.349723	1.148965	1.17076	1.467196	0.98237	0.921337	0.951281	0.899103	1.177971	1.11229	1.089725	1.037158	1.340115	0.995655	0.821781	1.05195	1.064756
imazolelactic acid	1.12706	0.993927	1.065654	0.941779	0.97155	0.99481	0.936708	0.819767	0.887226	1.040983	0.872546	1.1182	0.885142	0.910289	0.91458	1.019293	0.941588	1.089788	1.03849	1.03849
indole-3-acetic acid	0.850862	1.070261	0.875105	0.97105	1.085494	1.048087	1.071793	1.012799	0.943783	0.867274	0.885437	1.145149	1.023476	0.989828	1.163886	1.104583	0.622889	1.051047	0.730717	1.007317
indole-3-propionate	0.660568	0.761317	0.920926	0.728927	0.935792	0.885229	0.980716	0.825185	0.9323	0.872627	0.864106	0.963638	0.768748	0.95264	0.934714	1.081039	0.983819	0.928407	1.150435	1.00877
indoleacrylic acid	0.941565	0.827327	1.0813	0.848762	0.888894	0.816942	0.957906	1.063097	1.035431	0.949927	1.054959	0.827647	1.008564	0.886854	0.944145	0.767071	0.939	1.045119	0.874622	0.933846
indoleacetic acid	1.03847	1.44453	0.941059	0.980761	1.034914	1.243966	1.118217	0.650166	1.182658	1.059887	0.979485	0.68183	0.780049	0.921337	1.007791	0.971878	0.822245	0.975568	0.90309	0.898733
indolepyruvate	0.762463	0.806356	0.958482	0.896289	0.884564	0.948904	0.978645	0.966536	0.986163	1.069908	0.990296	1.006893	0.87455	1.0299	1.02932	0.82846	1.030957	0.939394	0.840306	1.050646
indoxyl sulfate	0.800066	0.598292	0.893383	1.02078	0.867456	0.883665	0.884931	0.809672	0.893124	0.83511	0.912149									

serotonin	1.438499	1.815351	1.050308	0.673482	0.684485	0.641184	1.046921	0.844257	0.8827	1.131054	1.006569	1.178122	0.93393	0.749666	0.72932	0.418309	0.825136	1.053584	0.857677	1.151937
siatic acid	1.188478	0.94514	1.133093	0.851503	1.025126	1.097611	1.048882	0.85722	0.934252	1.043821	1.211275	0.860646	0.984404	0.804891	0.878245	1.058424	1.231138	1.096316	1.04718	0.913381
S-methyl-5'-thioadenosine	1.352101	1.188435	1.055616	1.452851	1.039613	1.321326	0.933115	0.785587	0.903689	0.977213	1.263531	1.351194	1.382655	1.180123	1.052943	1.110935	1.296280	0.877468	0.877468	0.811738
sorbitol	0.8989	1.14772	1.066693	1.305884	1.144317	1.142252	1.652007	0.915609	1.348567	1.145087	0.978219	1.082035	0.983228	0.99866	1.051033	1.561746	0.988878	1.067668	1.118123	1.093308
stearoil carnitine C18	1.013133	1.034757	0.752526	0.932099	0.935044	1.25783	1.18306	1.210622	1.25382	0.994718	0.864961	1.015667	1.064302	1.066625	1.266451	1.291168	1.146725	1.156215	0.959016	
succinate	1.010065	1.176514	1.02187	1.109493	1.038294	0.958427	1.007887	0.957166	1.065948	1.093664	1.208695	1.130651	0.955025	1.055148	1.156783	1.115968	1.453593	1.478778	1.591042	1.62183
synephrine	0.886795	1.017485	1.241371	1.537091	1.053446	1.433443	0.927312	1.328105	1.056058	1.623366	1.598057	1.823547	1.54027	24.87687	16.37474	4.847959	5.444876	2.283122	2.794008	
taurine	0.894715	1.019192	1.162768	1.543519	1.196706	1.328443	1.36911	1.037423	1.053462	1.06623	0.910784	1.027511	1.000984	1.028999	1.036367	1.588415	0.925793	0.792801	1.013028	0.988463
tetraoerxocholic acid	0.620346	1.286414	0.942777	0.963021	2.673326	2.434153	1.026387	0.935869	1.795311	1.443172	1.643558	0.716815	1.131596	1.152395	0.846392	1.129678	0.895208	1.098202	1.18345	0.928424
tetraoerxocarnitine C14:2	1.140904	1.165112	0.943608	1.000045	0.916471	2.349825	1.210443	1.867447	1.646866	1.413819	1.243878	1.020831	0.959862	1.052395	2.051999	1.257049	2.098743	1.859984	1.18345	1.451202
tetraoerxocarnitine C18:1	1.300977	1.202502	0.84741	1.429888	1.272178	1.727748	1.052253	1.183755	1.083501	0.693588	1.155561	1.27525	1.044142	1.204589	1.166471	1.576493	1.207934	1.345113	1.134664	1.114118
threonine	0.847685	0.92373	1.090728	0.91249	1.048766	1.038979	1.024598	1.056164	0.959906	1.100493	0.893348	1.129724	0.981029	0.984195	1.021338	1.017735	0.930431	0.912798	0.913348	1.117707
thymidine	1.166446	1.213341	1.759975	1.690854	1.200414	1.444078	1.228979	1.188633	1.918055	1.729377	1.103689	1.136678	0.940028	0.965733	1.214093	1.357688	1.080191	0.926624	1.096722	0.980877
thymine	1.278807	1.396874	1.449895	1.516387	1.192133	1.359295	1.072223	1.226302	1.813658	1.610746	1.234932	0.957166	1.055812	0.890889	1.203526	1.251577	1.149444	1.175404	1.185887	1.16837
tylgly carnitine or methylcrotonyl carnitine C5:1	1.008223	0.979449	0.846665	0.893788	0.707897	0.799624	0.788193	1.044847	0.886367	0.99325	1.081592	0.918907	0.967874	0.861743	0.740206	1.030722	0.926894	1.325556	1.143341	1.183916
trans-Cinnamate	0.897858	1.191781	1.182553	1.165882	1.299014	1.315052	0.965911	1.074942	0.971766	1.12596	1.048805	1.08818	1.066455	1.001519	0.984749	0.886341	0.985201	1.050249	0.993794	0.979557
trans-Hydroxycinnamic acid	0.911138	0.979796	0.913029	0.847337	1.116277	1.160021	1.18926	1.234455	1.182586	1.30015	0.961585	1.037222	0.953622	0.970887	0.992462	1.03971	0.914323	0.92537	0.748072	0.896473
triethanolamine	0.715244	0.819794	0.260311	1.060401	0.85842	0.689589	0.258494	0.413996	1.19312	0.932954	0.536992	0.867619	1.279681	1.215602	0.77065	1.398079	0.791553	0.646939	1.277098	0.926564
tryptophan	0.57596	0.944895	1.07845	0.984934	1.034135	1.087809	1.020576	0.958855	0.945694	0.96352	0.84013	1.066277	1.088246	1.078461	1.07728	0.94466	0.939723	1.00525	0.95392	0.91707
tyrosine	0.976272	0.890445	0.666178	0.684972	0.811957	0.781261	0.863771	0.784694	0.938458	1.03366	1.01301	0.852798	0.714776	0.655282	1.073106	0.944048	0.931634	1.010243	0.914672	1.180103
tyrosine	0.853001	0.955109	1.256796	1.235014	1.124948	1.103931	0.99901	1.042432	1.110282	1.127788	0.900384	0.995346	1.088517	1.120643	1.038614	1.04851	0.946563	0.968382	0.847289	0.912782
uracil	1.012125	0.981429	1.397272	1.963123	1.133822	1.271857	0.876703	0.566066	0.718643	0.665366	1.046722	1.291646	1.124122	1.353536	1.036955	1.03575	0.89929	0.963594	2.229653	1.908494
ureidopropionic acid	0.863772	1.813788	0.924441	1.075652	1.010811	1.029677	1.169893	1.271095	1.013499	1.160871	0.935378	1.09862	0.971822	0.950151	1.039742	1.191084	0.904283	0.684517	0.967264	0.912275
uric acid	0.848468	0.994488	1.064177	0.91051	0.881986	0.829636	0.88348	0.766235	0.735938	0.948972	0.980881	1.262858	1.134715	1.103045	1.056629	1.11029	1.245845	1.261421	0.972905	1.095169
uridine	1.33296	1.118519	1.400949	1.597743	1.399238	1.57042	1.463933	1.440274	1.155069	1.123523	0.883078	0.939578	1.2894	1.150266	1.103422	1.565386	1.097483	1.262087	1.254045	1.951639
valine	0.941751	0.989975	1.029791	0.946009	1.072707	1.015439	1.062349	1.039664	0.960222	1.039223	0.954167	0.974368	1.01734	0.999992	0.99922	0.969922	0.93015	0.988382	0.879247	0.915952
xanthine	0.641451	0.763445	0.881687	0.992649	1.303005	1.390599	0.999669	0.997689	0.748259	0.807317	0.834541	0.894329	1.116181	1.050928	1.234477	1.097671	1.186267	1.029139	1.10069	
xanthosine	1.068941	1.584363	1.305043	1.205246	1.210524	1.645511	1.505633	1.235964	1.776932	1.25042	1.04089	1.238219	1.226186	1.290353	1.153632	1.390475	1.385049	1.165863	1.911252	1.310698
metabolites		spleen	spleen	spleen	spleen	spleen	spleen	spleen	spleen	spleen	head	head	head	head	head	head	head	head	head	head

metabolite	leg	leg	leg	leg	leg	leg	leg	leg	leg	leg	heart	heart	heart	heart	heart	heart	heart	heart	heart	heart
1-methyladenosine	0.974122	0.726276	0.977609	0.755373	1.025661	1.017612	1.11455	0.978717	1.049244	1.132171	0.973704	1.02545	0.984306	1.357595	0.983569					
1-methyl-histidine	0.924131	1.038675	1.056255	0.871528	0.96201	1.06206	0.995706	0.866088	1.0065	0.959823	1.310487	1.022837	1.124737	0.947597	0.924241					
3-dihydroxybenzoic acid	0.959609	1.126239	1.009444	0.978277	1.042424	1.069604	1.050175	1.066319	0.964623	0.977586	0.938451	0.960556	0.947128	0.659281	1.012635					
3-Pyridinedicarboxylic acid	0.931302	1.08264	0.943575	0.950068	1.089574	1.005741	0.864645	1.071399	0.983302	1.003367	1.063383	1.03102	0.904258	0.864488	0.798927					
2-amino-3-hydroxybutyrate	1.091251	0.974663	1.066766	0.7214	0.983174	1.016507	1.054065	1.051506	0.940578	0.851761	0.951358	0.977133	0.992067	0.983302	1.000311					
2-dehydrogluconate	0.873304	1.127711	1.042617	1.042911	0.963021	0.957494	0.888599	0.935058	0.871386	0.878476	1.096507	1.04136	1.071104	1.252438	1.104272					
2-Deoxy-D-ribose	1.03521	1.027771	0.938131	1.131783	0.915214	0.903636	0.867774	0.89806	0.920729	1.056757	1.088547	0.983874	1.024759	0.980095	0.829385					
2-hydroxy Hippuric acid	0.819389	1.084805	1.060521	0.85727	0.926512	1.032927	0.819909	1.015686	1.09751	0.863609	1.007232	1.034592	1.048322	1.077252	1.399086					
2-hydroxybutyrate	1.029704	0.969449	0.909579	1.045889	0.939931	1.12673	0.842627	0.935512	1.025343	0.940234	0.921718	0.985284	0.952988	0.601533	0.968829					
2-hydroxy-isocaproate	1.354877	1.356762	1.829171	2.208976	1.396044	1.679485	1.712675	1.558175	1.971335	1.813064	0.668058	0.993608	0.994413	0.81808	0.96343					
2-hydroxy-isovalerate	1.363753	1.37246	1.608397	1.919405	1.305453	1.418477	1.268642	1.365449	1.839014	1.474329	1.035266	0.954381	1.002165	0.854483	0.909456					
2-Hydroxyoctanoic acid	1.08082	1.005225	1.497884	1.634115	1.275544	1.440624	1.396521	1.523395	1.209966	1.217162	1.267984	1.167775	0.91911	1.05422	1.125712					
2-Isopropylmalic acid	0.992001	0.875024	0.896301	0.977687	1.178469	1.081231	0.752423	0.982393	1.019586	1.009511	0.990901	1.032355	0.936586	0.752558	0.799588					
2-Ketobutyric acid	1.232176	1.092084	0.996163	1.078284	0.965542	1.212335	0.834363	0.928523	0.929047	0.848002	0.896298	1.047385	0.952629	1.007228	1.137286					
2-Keto-isovalerate	1.275823	1.157944	1.192678	1.150992	1.102582	1.071586	1.214001	1.248214	1.179251	1.06532	0.980399	0.991782	1.047401	1.190307	0.901295					
2-Keto-succinate	1.315008	1.444748	1.34823	1.166039	1.132031	1.076018	0.924932	1.116002	1.071388	1.099317	0.974301	0.979396	1.029121	1.03368	0.982798					
2-Methylbutyrylglycine	0.888049	0.951424	1.017489	1.118448	0.997319	1.151281	1.090872	1.041666	0.957922	1.033267	0.900625	1.255497	1.004742	1.104098	1.354976					
2-methylpyruvic acid	0.996522	1.046911	0.95012	1.147713	0.934003	0.91968	1.174702	0.928151	0.958899	0.863302	1.54045	0.95373	1.302164	1.026954	1.102434					
2-Oxoadipic acid	0.897349	1.262566	1.25491	1.075354	0.888433	0.999003	0.84201	0.764384	0.679852	0.897531	1.143905	1.066749	0.871113	0.903861	0.966215					
2-Phenylpropionic acid	0.623906	0.706981	0.926073	0.810448	0.955889	1.025														

C20:1	1.528608	2.186591	1.473103	1.459308	0.984097	0.916988	1.012383	0.9997	1.160501	1.111852	0.785707	0.513594	1.010581	0.564436	0.613377
C20:2	1.539914	2.214466	1.580603	1.52251	0.990456	1.014143	1.146214	1.021323	1.023641	1.107772	0.813841	0.608222	1.081386	0.662511	0.743461
C20:3	1.257225	2.159403	1.464028	1.687935	1.566839	1.429213	1.2031	1.20471	1.124527	1.301744	1.025497	0.783961	1.753111	1.566679	1.781788
C20:4	1.033361	1.025067	0.907909	0.606034	0.564364	0.734624	0.87083	0.537571	0.566752	0.687699	0.916708	0.850297	0.794114	1.041702	1.086272
C22:0	1.293189	1.688789	1.007318	1.065154	0.848543	0.931206	0.79021	1.045427	1.253803	0.911066	0.971579	0.923852	0.912468	0.758627	0.873997
C22:1	1.292261	1.518341	1.074577	0.914292	0.970628	0.931225	1.132545	0.969674	1.012302	1.146125	0.853138	0.690366	1.011697	0.566267	0.908802
C22:2	1.401439	1.781768	1.399485	1.262117	0.930676	1.014364	1.187127	0.972693	0.842709	0.938519	0.815334	0.696666	1.081423	0.738409	0.825288
C22:3	1.735758	1.886273	1.611248	1.684662	1.021115	0.984108	1.150694	1.169813	0.963419	1.05699	0.86448	0.650967	0.979414	0.775563	0.84281
C22:4	1.567401	2.159552	2.190776	2.147598	1.170275	1.216421	1.357823	1.254714	1.019343	1.093757	1.102162	0.793241	1.171041	0.9599	0.969201
C22:5	1.640737	2.210421	2.259009	2.405211	1.343365	1.272767	1.298837	1.351699	1.024704	0.99887	1.072673	0.904865	1.210588	1.044616	1.205774
C22:6	0.906966	1.138427	1.16293	0.956249	0.993145	0.871688	0.982327	0.76114	0.826759	0.905803	1.088376	0.991252	0.938613	1.088509	1.492541
C23:0	1.004172	1.447611	0.998993	0.967989	0.847852	0.813722	1.0801	0.941861	1.41184	1.003136	0.870219	0.825756	1.017396	1.508824	1.53815
C23:1	0.908945	0.934939	0.992884	0.76731	0.747814	0.72192	0.993945	0.556678	0.833656	0.648927	0.958687	0.932094	0.847826	0.893665	0.971152
C24:0	1.01613	1.29574	0.994525	0.942896	0.85255	1.009867	1.061016	0.852316	1.278735	1.014756	0.89639	0.775088	0.903969	0.828478	1.007557
C24:1	0.985207	1.255277	0.858926	0.858259	0.868815	0.957841	1.10614	0.875132	0.77836	1.040018	0.880372	0.825688	0.978374	0.71428	1.007571
C24:2	1.07417	1.209449	0.688754	1.000778	0.904713	1.068783	1.033949	1.039471	0.886773	0.994206	0.916588	0.704933	1.044031	0.71426	0.950885
C24:3	1.132029	1.460461	1.014488	1.04873	0.932094	0.927429	1.004899	1.009398	0.995789	0.8605	0.890024	0.72879	0.916403	0.82766	0.99989
C24:4	1.297993	1.965624	1.652242	1.606549	0.839745	0.91267	1.136753	1.076107	0.853188	0.978374	0.936432	0.775993	0.971943	1.152155	1.248116
C24:5	0.697188	0.955538	0.632788	0.764458	1.066245	1.075736	0.937832	0.944945	0.950924	0.96919	0.958812	1.083557	1.124471	0.978622	0.780704
caprylic glycolic	1.029621	0.844237	0.935086	1.112091	0.98631	1.065341	0.928571	0.973075	0.953567	1.127725	0.972573	1.002258	1.02011	1.141713	1.036076
carbamoyl phosphate	0.947703	0.844171	0.970209	0.656665	0.890278	0.871315	1.061796	1.059274	0.891824	0.934567	1.143375	1.025907	1.030655	0.831796	0.99517
carnitine	0.939923	1.046446	1.300936	1.204418	1.075667	1.12041	1.049248	0.99448	1.192228	1.225944	1.065207	0.995655	1.008216	1.137143	1.01153
carnosine	0.903788	0.885968	0.982934	1.017145	1.08967	1.064786	1.073744	1.05963	0.845343	0.90859	0.93642	1.093837	0.933277	0.633014	1.209159
catchol sulfate	0.930897	0.858354	1.04717	0.978608	1.0188	1.09942	1.010046	0.935217	0.905861	0.867117	1.000343	1.120354	0.940817	0.954167	1.01773
cholesterol sulfate	0.941516	1.032618	1.127686	1.187597	1.044951	1.270752	1.068854	1.086909	1.13281	1.093133	0.990671	1.004438	1.128076	1.380584	0.874713
cinamoylglycine	1.396287	1.589053	1.526619	1.484583	1.154242	1.220339	1.251516	1.387118	1.54812	1.542452	1.02502	0.989408	0.971969	1.906352	0.6041
citrilmalic acid	1.570562	1.272852	1.145997	1.35349	1.213002	1.163514	1.303818	1.308429	1.333454	1.055356	1.221322	1.016112	1.099173	1.431421	1.103592
citrate	0.991332	1.014166	0.970296	0.949228	0.960511	0.925266	0.913873	0.952166	0.942267	0.940158	0.964831	1.020333	0.974772	0.981967	1.03106
citrulline	0.983935	0.961675	0.685223	0.726983	0.854851	0.88533	0.835549	0.941601	0.661081	0.675597	1.041317	1.017085	1.03986	1.126719	1.025444
creatine	1.141278	1.211122	1.252188	1.272616	1.172296	1.278705	1.072003	1.022443	1.223225	1.227963	0.975875	1.026487	0.987538	1.091669	1.042494
creatinine	0.913037	0.926126	0.944659	0.818803	1.00095	1.255991	1.016976	1.044305	0.820183	1.064292	1.04472	1.197171	1.047058	0.713715	1.159216
crocol	0.919129	0.873882	0.939495	0.978819	0.994325	0.949936	1.046908	1.095893	0.920782	0.941421	0.972903	1.002412	0.962074	0.692514	1.139154
crocol sulfate	1.138805	0.94834	1.16227	0.925957	1.051789	1.193267	1.132298	1.189785	1.027712	1.037596	1.007648	0.075172	1.182822	1.179805	1.201036
cytidine	0.845928	0.906174	0.891655	1.072658	1.091094	1.10249	1.022728	0.965997	1.018315	1.146521	1.001326	1.31958	1.006974	0.784885	1.305154
cytidine	1.160602	1.02869	1.092096	1.106525	0.934312	0.997298	0.971661	0.96556	0.960321	1.009856	1.042262	0.959565	0.998256	1.082273	0.861537
D-2-Aminobutyric acid	1.384958	1.410785	1.852734	2.344851	1.292633	0.821628	1.638812	1.177814	2.838505	1.892234	1.147053	1.002252	1.434899	1.102266	0.717426
decanoyl carnitine C10	1.353855	0.886929	1.522921	0.986592	0.864734	0.96349	1.224246	1.386647	1.162253	1.344798	0.800852	1.091165	1.187944	1.278848	0.847372
decanoyl carnitine C10:1	0.986499	1.284842	1.093599	0.955192	1.110271	0.84559	1.196603	1.001025	0.793852	0.917122	1.298504	1.166076	0.761213	0.977355	0.758776
dehydroascorbic acid	1.178476	0.822492	0.974872	0.825937	0.906101	0.924216	0.993795	1.050771	0.939989	0.989769	0.931881	1.015358	1.007493	1.141505	1.168683
dehydrocarnitine	0.676699	0.797165	1.059415	1.033944	1.104158	1.015697	1.170869	0.953781	1.142158	1.027226	1.038773	1.087699	0.901285	1.652328	1.309693
deoxycholic acid	1.121303	0.93806	0.795813	0.987477	1.10015	0.99712	0.835156	0.97123	0.83121	0.990823	0.91144	1.256103	0.909621	0.671312	1.600771
deoxyinosine	0.946499	1.212238	0.949021	1.049603	0.986126	0.877608	1.12758	0.928688	0.828485	0.925789	1.0604	1.035149	0.91178	1.470711	1.543775
deoxynadine	1.105619	1.202169	1.200837	1.258704	1.191869	1.298438	1.135912	1.263035	1.283132	1.15782	1.02403	1.017414	1.025296	1.313723	1.202638
deoxyuridine	0.971753	1.385002	0.957042	0.959544	0.804403	0.73647	0.711373	0.809625	0.623633	0.650444	0.995506	1.146216	1.044023	0.534132	0.56144
D-Galactonic acid	0.971753	0.81425	0.957042	0.959544	0.804403	0.73647	0.711373	0.809625	0.623633	0.650444	0.995506	1.146216	1.044023	0.534132	0.56144
D-glucanate	0.938906	0.978259	0.927777	1.163476	1.03858	1.034222	1.640785	1.069834	1.164882	0.92323	1.119592	1.060192	0.941944	0.81586	0.705349
diaminopimelic acid	1.083066	0.885692	0.868393	1.11058	1.114818	1.019408	0.875281	0.954071	0.862911	1.016021	1.101108	0.884999	0.89261	0.891532	0.93261
dihydroauracil	0.92341	1.001791	1.009444	0.978277	1.042424	1.069604	1.050175	1.066319	0.964623	0.977586	0.938451	0.960556	0.947128	0.780614	0.656079
dihydroxybenzoic acid	1.00027	1.038853	1.092096	1.106525	0.934312	0.997298	0.934052	0.96556	1.07307	1.113343	1.042262	0.959565	0.998256	1.000518	0.994426
dimethylglycine	0.79663	0.557776	0.612208	0.621324	0.937389	1.076405	0.521676	0.362125	1.025112	0.777221	1.268649	1.21441	1.121662	1.105184	0.74698
DL-3,4-Dihydroxymandelic acid	1.118685	0.948743	0.946947	0.93691	0.549112	0.893555	0.838723	0.817277	0.883797	0.801956	1.118542	1.304513	0.961301	1.159293	0.979973
dodecanoyl carnitine C12:1	2.020544	2.033189	2.213625	1.387051	1.433548	0.704605	0.941266	1.436665	1.701203	1.354071	0.975249	0.825716	0.959517	0.748848	0.792183
D-Phenylacetic acid	1.338531	1.205224	1.450389	0.951506	1.075688	1.065084	0.941616	0.687801	1.102283	1.099588	1.061013	0.988733	0.928217	1.045375	1.017872
epinephrine sulfate	0.863643	0.905885	0.976393	1.125768	0.776479	1.299983	1.12895	0.989832	1.113857	0.718738	0.949212	1.123744	1.224872	0.869879	0.93189
not measu	0.802181	0.743807	1.155887	0.746907	1.453973	1.194163	0.693515	0.917004	not measu	2.05908	0.45376	0.552865	not measu	1.034068	
fumarate	1.506894	1.801983	1.965329	1.926792	1.198374	1.185246	1.31807	1.158607	1.671749	1.306414	1.055642	1.046414	1.077114	1.240819	1.060592
galacturonic acid	0.873304	1.128711	1.042617	1.042911	0.963021	0.957494	0.888593	0.935098	0.871386	0.878476	1.096507	1.04136	1.071104	1.742434	1.955321
gamma-butyrolactone	1.1101	1.000097	1.461146	1.016836	1.032789	0.951407	1.176666	1.142692	1.207455	1.107693	1.028678	1.024385	1.032422	0.930532	0.962225
glucuronolactone	1.019551	0.887672	0.3965	0.235394	0.314887	0.213289	0.937928	0.892398	0.75888	0.25932	1.109364	0.877256	1.12895	0.642342	0.543877
glucosamine	1.123774	0.996275	1.089922	0.937304	0.978371	0.860729	0.989262	1.							

N,N-dimethylarginine	1.061136	1.048758	1.156738	1.005061	1.118631	0.897324	0.854832	1.054594	1.008285	0.951924	1.361751	0.918248	1.088329	1.059658	1.057779
N6-N6-Trimethyllysine	1.077483	0.80723	1.061648	0.887733	0.944613	0.893953	1.171821	1.158126	1.190257	1.083515	1.050454	0.993162	0.989782	1.426874	1.047127
N-acetyl-alanine	0.997416	0.893049	1.129509	0.869777	1.002144	1.024816	1.033313	0.902463	0.888399	0.879486	0.995949	1.144523	1.027864	1.038718	0.977251
N-acetyl-arginine	0.943016	1.030758	0.966221	1.028169	0.993567	0.957565	0.867009	1.023361	0.910411	0.954652	1.022521	0.988331	0.991616	1.071345	0.892683
N-acetyl-asparagine	1.022269	1.265172	1.111185	1.196158	1.145954	1.002535	1.149462	1.272536	1.029314	1.092461	1.017931	1.058816	1.010535	1.28797	1.074322
N-acetyl-aspartate	1.043702	0.78193	0.905476	0.679415	0.584421	0.758267	0.938593	1.036955	0.724945	0.667589	0.957799	1.092299	0.942461	1.112183	0.987836
N-acetyl-glutamate	1.083601	1.261715	0.947645	1.022416	1.00771	0.918401	0.826022	0.927981	0.914298	0.897314	0.976116	1.072536	1.061618	1.10949	1.302944
N-acetyl-glycine	0.956111	1.052103	0.89747	0.898657	0.915113	0.941268	0.863238	0.882879	0.939669	1.065444	1.015252	1.010925	0.997256	0.957793	0.990995
N-acetyl-histidine	1.000005	0.761354	0.908909	0.671111	0.643667	0.568006	1.135528	0.950308	0.991576	0.905023	1.077027	1.052895	1.025005	1.445878	0.976981
N-acetyl-L-ornithine	0.967147	0.979726	1.056946	1.039278	1.004942	0.99637	1.026337	0.995307	1.030649	0.943763	0.949044	0.99615	0.996711	0.863419	1.029183
N-acetyl-threonine	0.89411	0.668623	0.873694	0.658304	0.800339	0.67014	0.935393	0.981708	0.605666	0.903378	0.980269	1.136544	1.042106	1.091176	0.982133
N-acetyl-tryptophan	0.931132	0.89175	1.020512	0.99995	1.004612	1.126202	1.010533	0.684428	0.588859	0.71437	0.984132	1.493753	1.078472	0.825982	0.918745
N-acetyl-tyrosine	0.796634	0.954232	0.971916	1.119427	0.936968	1.186789	1.24922	0.877448	0.857918	0.76248	0.940111	1.026299	1.029878	0.648996	0.618696
N-Butyrylglycine	0.982256	0.775717	0.930312	0.643572	0.785294	0.643395	1.212622	1.069456	1.084389	0.891968	1.185973	0.930352	1.020825	1.368636	1.229742
N-Carbamoylsarcosine	1.154286	0.959548	1.045827	0.700925	0.960257	1.047952	0.968345	0.997986	0.95584	0.926368	0.991923	0.971991	1.031786	1.060921	0.757568
N-Formyl-L-methionine	1.117568	0.908039	1.08549	1.430929	1.143230	1.158692	1.123068	0.750649	1.269299	1.068303	0.943818	1.144465	0.979069	0.951027	0.78615
nicotinamide	1.003466	0.900374	0.849256	0.598346	0.921619	0.837225	0.945458	0.801013	0.507551	0.66565	0.902823	0.996354	1.000144	0.772946	0.96321
N-Octanoylglycine	0.697188	0.981592	0.632788	0.764458	0.664458	0.664458	0.978117	0.944945	0.950924	0.877815	0.958812	1.021608	1.124471	0.978622	1.348925
N-Tyglycine	0.967819	1.042126	1.0097	1.14079	1.012858	1.07282	0.977397	0.762185	1.21528	1.165423	0.986273	1.083557	1.016146	1.086479	1.307118
octanoyl carnitine C8	1.318087	1.168541	1.755704	1.682912	0.9524	1.19223	1.408233	0.978007	2.370728	1.431614	0.956596	0.958974	0.863437	1.130782	0.841054
oleyl carnitine C18:1	1.3581	1.126361	1.294163	1.438811	1.269682	1.233235	1.219214	1.338732	1.776977	1.361619	0.935614	0.900856	0.988886	1.308035	0.758693
O-Phosphorylthalamine	0.652726	0.549611	0.75762	0.678153	0.587081	0.918207	1.071391	0.878722	0.755697	0.614445	1.021178	1.015961	1.146172	1.340748	1.513829
ornithine	0.991677	0.949117	0.946039	0.944425	0.95929	0.917423	0.916419	0.985418	0.940408	0.863334	0.968535	1.011354	0.99093	1.065238	1.125112
palmitoyl carnitine C16	1.127856	1.138214	1.075504	1.109733	1.228078	1.190621	1.224249	1.128921	1.401998	1.173211	0.895286	1.001232	0.967726	1.060574	0.878797
p-aminobenzoate	0.934711	0.616494	0.879915	1.047849	1.292433	0.99283	1.051757	1.040854	1.223038	1.022492	1.234106	1.271108	0.957429	1.143241	1.268864
pantothenate	1.013075	1.079062	0.959267	0.965519	0.91381	0.913631	0.902702	1.040007	0.861297	0.957943	1.070718	1.055941	1.054568	0.888663	0.960802
phenol	1.183734	0.910863	0.893094	1.017282	1.006344	1.033116	0.955642	0.994532	0.949905	1.060842	0.807774	1.006866	0.937694	0.915582	1.008336
phenol sulphate	0.95626	1.030282	0.986292	1.041579	1.02616	1.001207	1.077158	1.124784	1.061124	1.091298	0.881337	0.998768	0.970241	1.073082	1.003056
phenylacetic acid	0.835162	0.867372	0.732215	0.959133	1.10279	1.018017	0.855487	1.406275	1.06728	1.406003	1.031167	1.155489	0.92788	1.103488	0.615108
phenylalanyl-glycine	0.965546	0.895336	1.003948	0.698218	1.034522	0.926785	0.898075	0.932859	1.03082	0.864254	0.875423	1.117686	1.05002	1.274143	0.79334
phenylalanine	1.05556	1.04004	0.861796	0.940472	1.06952	1.069669	0.938465	1.008178	0.957249	0.993237	1.040027	0.966485	0.982939	1.207037	1.030008
phenylpropionyl-glycine	0.941689	1.04077	0.789559	0.818607	1.011987	1.214802	1.000687	1.010396	0.711588	0.820026	1.057329	0.977529	1.263526	0.99715	0.916504
phenylpyruvate	1.172785	0.975187	0.702482	0.604307	0.860547	0.895621	1.150851	1.124088	0.829055	0.840305	1.003496	1.047891	1.138748	1.247927	0.892779
p-hydroxybenzoate	0.93927	1.094402	1.007123	0.993531	0.993359	0.995241	0.922255	1.078337	0.927896	1.072276	1.009517	0.905158	0.947032	0.904874	1.126101
picolinic acid	1.054808	1.019394	0.974563	1.021831	1.045205	1.030352	0.955121	1.025053	1.059908	1.067555	0.994342	0.930361	0.98003	0.968415	1.026294
proline	0.985392	1.030164	0.984596	0.984433	1.003883	1.037626	0.901561	0.979472	0.910024	0.91382	0.966874	0.964555	0.997519	0.809934	0.956411
proline betaine	1.107869	0.95984	0.977455	1.089212	1.042097	0.942854	1.036274	0.945551	1.021879	1.013635	0.928368	1.118837	1.000143	0.955308	1.041414
propionate	0.452817	0.443191	0.774856	0.417833	0.547526	0.73255	0.63728	0.494143	0.495171	not measu	not measu	1.118837	1.198929	0.949654	0.466548
propionyl carnitine C3	0.803926	1.061774	0.581525	0.450974	0.83931	0.828499	0.930466	0.775165	0.671791	0.6518	1.002077	1.004774	1.050888	1.030201	1.099308
propionyl-glycine	0.865543	0.865489	0.785297	0.86536	0.89531	0.966294	0.875035	0.921026	0.900283	0.927144	0.990882	1.107744	0.940198	0.834647	0.813778
pseudothionine	1.041909	1.143579	0.985813	0.948274	1.065337	1.088015	0.920864	0.986791	0.897728	1.103614	0.955421	0.982927	1.006783	1.008162	0.66642
pyroglutamic acid	1.051748	1.081115	0.934669	0.742056	0.875179	1.088426	0.85926	0.807865	0.785555	0.911034	0.877685	0.818132	0.82352	0.863191	0.90593
pyruvate	1.500719	1.410109	1.011691	1.112329	0.95029	0.829393	0.95836	1.017374	0.971718	0.919663	0.942799	0.792177	0.976093	0.950783	0.965914
retinoic acid	0.929536	1.1576	0.840341	0.9254	1.061082	0.86769	1.251747	0.880777	1.215312	1.085632	1.049216	0.826637	1.205203	1.08877	0.996401
riboflavin	1.143077	0.745262	0.588784	1.12824	0.731518	0.613035	1.044183	0.799343	1.015825	1.249761	1.054405	1.069476	1.037551	1.463966	1.065417
ribose	1.148383	1.170153	1.31831	1.038426	0.991122	1.098484	0.994689	0.917115	1.091949	1.02191	1.075666	0.952141	1.052656	0.961839	0.615166
ribothymidine	1.160023	0.683647	1.110554	0.617185	0.873518	0.876325	1.33251	0.731758	1.224383	0.774286	0.978881	1.007263	0.961826	1.600606	1.218197
sebacin acid	0.955621	0.862236	0.982807	0.906563	1.042936	1.035594	0.877326	0.957968	0.973519	1.034377	1.001715	1.09174	1.037903	1.095951	1.133727
serine	0.884474	1.020292	0.967121	0.937478	0.911819	0.870216	0.804476	0.979469	0.867035	0.911795	0.991229	1.022169	1.048749	0.94323	1.025038
serotonin	0.78133	0.988294	1.084099	0.814206	0.74097	0.875118	0.928214	1.122485	0.957912	0.690019	0.910321	0.92988	0.96194	1.087274	0.887211
sialic acid	1.063576	0.785373	1.137522	0.798356	1.011986	0.827471	1.236665	1.006811	0.815251	0.916687	0.942057	0.98613	0.840371	1.18168	1.249553
S-methyl-5'-thioadenosine	1.159552	1.082685	0.903102	1.179406	1.118345	1.199602	0.982016	0.644322	0.564473	0.66495	1.091696	1.246122	0.90982	0.672646	0.671444
Sorbitol	0.800033	1.270666	1.082785	1.184799	1.029515	1.326677	1.175988	0.954411	1.076149	1.228845	1.175921	1.039359	1.045917	0.695551	1.064205
stearyl carnitine C18	0.962766	0.929176	0.927637	1.204338	1.208791	1.240194	1.244083	1.270105	0.980857	0.913165	0.911472	0.956372	0.986241	0.991781	1.046456
succinate	1.641139	1.750201	1.774631	1.246595	1.299314	1.335397	1.218011	1.223271	1.774412	1.924098	1.100391	0.89849	0.999857	0.885749	0.807322
syringine	0.80046	0.928245	0.617453	0.919242	0.692977	0.731972	0.947929	0.870908	0.657812	0.722476	0.896902	0.965429	0.736803	2.472227	2.80149
taurine	0.919041	1.047484	0.69464	0.846434	1.126026	1.3305	1.038894	0.833097	0.825431	0.839644	1.097076	1.048609	0.97559	1.074227	1.488243
tetrahydroxychoylic acid	0.634685	0.701889	0.973179	1.028941	0.995015	1.193003	0.996344	1.258128	1.224368	0.988283	0.967021	1.077839	0.976111	0.94331	1.029044
tetradecanoyl carnitine C14:2	1.407335	1.385873	0.964131	2.352229	2.37938	3.006143	2.231265	2.058225	2.121065	2.56334	0.89272	0.810109	0.765952	0.774964	0.727107
tetradecenoyl carnitine C14:1	1.639786	1.43													

5-Methylcytidine	1.130702	0.922078	0.997396	0.830656	1.055874	0.744943	0.947631	0.953181	1.0949	0.96855	0.278483	0.241315	0.469852	0.556606	0.419407	0.147057	0.207112	0.383133	0.244178	0.291803
5-Methylcytosine	0.75891	0.652025	1.281648	0.903753	1.181812	0.759962	0.738669	not measu	not measu	not measu	1.1235	0.399426	0.596668	0.475	0.488016	0.280875	not measu	not measu	not measu	0.339778
acetate	1.280169	1.045203	1.329993	1.557428	1.209534	1.0617	1.067192	1.116323	1.067013	0.513444	0.452467	0.728044	0.663448	0.752529	0.910295	0.817467	0.848435	0.470991	0.866745	
acetoacetate	1.216599	0.968468	1.030828	0.824202	0.955117	0.859062	1.018785	1.085572	0.946301	0.831719	1.353975	1.368462	1.023707	0.697157	0.74909	0.736316	0.887552	1.001299	0.473034	0.752314
acetyl carnitine C2	1.08714	0.869818	0.885133	0.76632	0.922308	0.833835	1.037651	1.025532	0.85	0.918231	1.077393	1.112788	0.895467	0.759692	0.805971	0.738518	0.746508	0.767916	0.687454	0.787524
acetylcholine	1.164425	0.917346	0.977796	0.890385	0.969335	0.811859	1.007102	1.089407	1.106801	0.975783	0.889545	1.01067	0.701912	0.742032	0.670245	0.576098	0.817196	1.089557	0.71362	0.747539
acetyl-isolectine	1.023276	1.194436	0.983901	1.018251	1.030488	1.061253	1.000802	0.978544	1.189181	1.042395	0.68974	0.75443	0.702897	1.25689	1.25073	0.570738	0.708231	0.780122	0.72165	0.650773
acetyllysine	1.404981	0.981126	1.014034	0.892931	0.989998	0.843465	1.157193	1.050309	0.965304	0.946244	0.824848	0.708213	0.517625	0.736074	0.723285	0.60582	0.783831	0.897611	0.853686	0.874897
acetyl-valine	0.763839	0.907709	0.956966	0.811945	0.878412	0.695526	0.912286	0.767848	0.836177	0.507645	0.674419	0.435414	0.636707	0.433366	0.572792	0.640142	0.50171	0.427833	0.487992	
aconitate	1.656784	1.032552	1.314568	0.807421	0.833477	0.680715	0.574973	0.661015	1.063614	1.00506	0.619946	0.532844	0.382731	0.947886	0.280287	0.818248	0.890996	0.887714	1.126763	0.471655
adenosine	0.848318	1.077284	0.767111	0.777729	0.954041	1.067025	0.856268	0.911231	0.976038	1.095603	0.690664	0.766731	0.754453	0.981414	0.828027	0.805729	0.710255	0.159543	0.44748	0.679611
α-ketoglutarate	0.917084	1.056074	1.017003	0.960605	1.082492	1.015912	1.05616	1.04448	1.024705	0.972535	1.22506	1.341092	0.897533	0.912516	1.020845	0.887039	0.972941	0.839254	0.902763	
alanine	1.13022	0.930796	1.055966	1.023682	1.047547	0.770723	0.825247	1.204168	1.284176	1.02827	1.171767	1.854408	1.748131	1.296705	1.825294	1.100973	1.05459	1.051071	1.565315	
allantoin	0.856785	1.098704	1.022562	1.118094	1.044752	0.973668	0.992534	1.004677	0.928699	0.962826	0.797001	1.062285	0.868913	0.805363	0.58863	0.66844	0.595667	0.624056	0.649737	0.732181
amino acid	1.013952	1.141396	1.007452	1.004803	1.076514	1.023855	0.954591	0.967173	0.652116	0.920968	0.648154	0.766838	0.745796	0.771707	0.611711	0.655	0.657593	0.625372	0.592955	0.780017
aminoisopropionic acid	0.961697	1.155138	0.953842	0.898951	1.086532	1.003561	0.980888	0.893183	0.914444	1.030309	0.921979	1.018505	0.94777	0.7944	0.674509	0.76054	0.682444	0.782325	0.787248	0.855605
aminolevulinic acid	1.071008	0.717504	0.824893	1.065417	0.94588	1.13026	1.134037	1.154166	1.177017	0.914402	0.707114	0.819397	1.207503	0.972284	0.942194	0.967101	0.708673	0.931669	0.822436	1.150102
anthranilate	1.401714	0.976948	0.928765	1.816473	0.615529	2.578111	1.020545	2.09581	1.72892	1.10475	0.755516	0.94064	0.949872	1.301746	1.723936	1.062382	1.925629	1.227712	0.944756	
arachidoyl carnitine eicosanoyl carnitine C20	0.866751	0.873032	0.915813	0.991248	1.083266	1.299997	1.026022	1.022001	1.075599	1.011425	1.048749	1.171246	1.122025	0.948852	1.106735	1.074117	0.985104	1.04471	1.01054	0.981519
arginine	0.983212	1.402397	0.898612	1.115538	1.17379	1.02261	1.091408	0.973426	0.836489	0.948035	0.577405	0.723053	1.08993	1.041419	0.463512	0.982376	0.64115	0.237877	0.964518	0.748088
asparagine	0.834155	1.106197	0.886364	0.926821	1.097061	0.937622	1.005419	0.948766	0.950341	0.990303	1.305211	1.277525	1.096833	1.020564	1.098201	1.053569	0.978764	1.081022	0.959369	1.054832
ascorbic acid	0.75101	1.007818	1.220492	1.087864	1.09464	1.143256	1.097418	0.849796	0.865609	0.666707	0.4339	0.468007	0.640276	0.689822	1.131594	0.908253	0.594253	0.578444	0.419569	0.466833
aspartate	1.02258	1.056214	0.890761	1.162198	1.007212	1.118355	1.002513	0.980248	0.981921	0.972046	1.501872	1.543257	0.903799	1.000521	1.083742	1.074006	0.837018	0.941139	0.995337	0.841059
BAIBA	1.022626	0.561679	0.801265	1.162118	0.916458	1.214425	0.879636	0.957732	1.137268	0.960186	1.302091	1.202509	1.156172	0.590265	1.143319	0.76207	0.75007	0.87447	0.80477	1.035026
benzoic acid	0.918751	0.973778	1.920268	1.341128	0.917659	1.273734	0.925036	1.030512	1.201166	1.039997	0.266985	0.867799	0.692011	0.751503	0.889445	0.618713	0.647063	0.576389	0.426974	0.380213
biotin	0.796377	0.661521	1.449847	0.834155	1.116666	1.254547	0.991346	1.242039	0.887092	0.398277	0.385605	0.402003	0.166468	0.993276	1.161243	0.811435	0.81437	0.846787	0.995629	
butyrate	1.18305	0.855555	0.969237	0.800229	0.940448	0.848785	0.849107	0.914419	0.815748	0.610734	0.521568	0.703428	0.506556	0.433919	0.405766	0.71191	0.821198	0.329243	0.32338	
butyryl carnitine or isobutyryl carnitine C4	1.272513	0.934248	1.115407	1.396757	0.788349	0.951808	1.091792	0.928926	0.962291	0.771927	1.141591	0.838927	1.313614	1.18224	0.84644	0.737424	0.808794	0.848902	0.866274	1.044111
C14:0	1.084243	0.987674	1.037031	0.995786	0.764153	1.174901	0.980674	0.887996	0.684211	0.812813	1.598249	1.284599	1.101177	1.012203	0.838783	0.984339	1.215967	1.24338	0.878955	0.858663
C14:1	0.979162	0.985464	0.842284	0.702633	0.980693	0.953018	0.944819	1.101698	0.939361	1.123483	1.468004	1.189167	1.080497	0.950335	1.116074	1.029313	1.198779	1.204226	0.919931	0.933913
C14:2	1.037429	0.834435	0.927596	1.275837	0.883597	0.994885	0.925064	0.915278	0.924048	0.972472	1.254307	1.715984	1.05237	0.951872	0.826255	0.812891	0.851546	0.854566	0.819943	0.818456
C15:0	1.110136	1.188788	1.247006	1.226594	0.925564	0.991747	0.99571	1.077469	0.661875	0.776233	1.326944	0.740408	0.867709	1.252395	0.674791	0.815897	1.001717	0.960268	0.970242	0.754566
C15:1	1.145424	0.945528	1.038553	1.121978	0.953296	0.880521	0.94013	0.962803	0.764416	0.83065	1.204148	0.793981	1.219175	0.80998	0.880095	0.80273	1.0513	0.921058	0.838167	0.742259
C16:0	1.159958	1.232773	1.511211	1.406249	1.007177	0.945522	0.983029	1.084376	0.627538	0.642943	0.990928	0.612327	1.032146	1.273737	0.755798	0.817235	0.973586	0.978093	0.736172	0.550342
C16:1	1.1271	1.17548	1.750303	1.618722	0.930685	0.923772	1.17878	1.289922	0.528733	0.536662	0.658602	0.650223	1.638799	1.514683	0.768207	0.74054	0.893267	0.988427	0.654277	1.054403
C16:2	1.158211	0.962464	1.052679	1.314017	0.882452	0.995959	0.965775	0.91391	0.883825	0.996974	1.973399	1.044374	1.127609	0.830888	0.869023	0.80963	1.010192	0.998799	0.921151	0.666317
C17:0	1.180622	1.225319	1.515653	1.180961	0.994451	1.047107	0.951701	0.922786	0.77165	0.8331	1.24667	0.762664	1.00672	1.141243	0.781644	0.747433	0.947874	1.01232	0.800737	0.665443
C17:1	1.154219	1.254219	1.219012	1.556792	1.004219	1.196633	1.163059	0.973939	0.637187	0.80911	1.444567	1.495051	1.32189	0.837895	0.918975	1.152864	0.909096	0.904472	0.922198	
C17:2	1.183317	0.869977	1.10736	1.156942	0.967745	0.882366	0.979981	1.001624	0.879718	0.830308	1.265684	1.449838	1.059057	0.732729	0.890322	1.16028	0.798858	0.908198	0.857738	
C18:0	1.27002	1.035899	1.432961	1.299819	1.006571	0.895156	0.992599	0.946766	0.821418	0.845968	1.062897	0.942626	1.029472	0.825282	0.909498	1.05862	0.957638	0.8247	0.739383	
C18:1	1.176082	1.180664	1.658363	1.170915	0.964651	1.046461	0.942439	0.971947	0.756011	1.02846	0.972766	1.735986	1.21076	0.840168	0.810397	0.99365	1.032023	0.775887	0.648118	
C18:2	1.118099	1.027058	1.668951	1.289777	1.026675	0.926222	1.028004	1.049184	0.858507	0.612886	1.03243	0.673243	1.494885	1.306984	0.818504	0.789734	0.995749	1.075586	0.670613	0.553999
C18:3	1.159139	1.086509	2.573311	1.786582	0.94878	0.820986	1.778852	0.588282	0.541183	0.511307	0.769366	0.469523	0.837924	1.897159	1.741146	0.70628	1.294838	0.966561	0.605398	0.491871
C18:4	1.10012	0.946635	0.881854	1.050182	1.085088	0.97243	1.072002	0.946874	0.956613	0.983219	1.15883	1.118807	1.258966	1.034007	1.064172	1.02567	1.02914	1.125885	1.199936	0.595934
C19:0	1.231696	1.007143	1.147866	1.293759	1.093152	0.965262	0.99465	0.889721	0.875146	0.950487	1.056864	0.87569	1.191717	0.950355	0.868882	0.808983	1.002185	0.998292	0.963069	0.853267
C19:1	1.228311	1.007143	1.963655	1.186469	0.978899	0.884021	0.878614	0.916209	1.034721	0.824537	1.05226	0.87569	1.087384	0.803685	0.804895	0.941624	0.917669	1.086651	0.791911	0.77166
C19:2	1																			

glycycolamine	0.891084	0.964712	1.111376	1.034979	1.103805	1.16287	1.435634	1.366582	1.123219	1.253557	0.848659	4.744689	3.488866	2.132836	4.180505	4.13425	4.150864	3.241978	3.346162	3.812397
guanine	0.952677	1.202676	0.922823	0.93898	1.043395	0.99961	0.827419	1.088741	0.983711	1.193375	1.93864	1.374797	1.479026	0.961259	1.207326	1.145247	1.068122	0.932714	0.905916	0.948515
guanosine	0.421267	1.065425	0.583257	0.713176	0.702811	0.787591	0.978999	1.44761	0.85211	1.227552	2.207122	2.343764	1.475612	1.570552	2.584414	3.946644	1.096814	0.873987	1.303876	1.042700
hexadecyl carnitine C16:1	1.354334	1.166312	0.825531	1.112934	1.250337	1.90265	0.871336	0.672061	1.56442	0.818634	0.621102	0.604992	0.687991	0.856826	1.053749	0.857308	0.914265	0.888443	0.899808	0.716729
hexanoyl carnitine C6	1.292467	1.026534	0.874172	0.775134	0.953871	1.358287	1.118999	1.022994	0.861755	0.866476	0.4313	0.514693	0.660617	0.404092	0.814888	0.928708	0.688262	0.708533	0.376103	0.361320
hippuric acid	1.171977	0.984401	0.94038	1.346634	1.13737	0.914851	1.080402	1.435215	1.189991	0.9133	1.146266	0.938597	0.979985	0.745957	1.095371	0.833334	0.927071	1.063468	0.974663	0.898979
homocarnitine	1.138156	0.962025	0.968491	0.709641	0.919562	0.847666	0.969391	1.236668	1.096598	1.05216	1.173399	1.373505	0.885411	0.704724	0.745723	0.761613	0.911286	0.968681	1.056221	1.017835
homocarnitine	1.23612	0.966871	0.952672	0.63012	0.902515	0.75113	1.168785	1.027078	0.934649	1.123821	0.652602	0.678806	0.62089	0.696881	0.542534	0.445824	0.702625	0.676716	0.620678	0.720806
homocitrusine	1.227393	0.890243	1.045649	0.825253	0.964037	0.703173	1.149758	0.919911	1.177312	1.593646	1.355061	1.120287	0.71823	0.691592	0.742149	0.820282	1.026431	0.9298	0.928727	0.958634
homocystecic acid	1.187851	0.93032	0.919757	1.241656	0.978891	1.115813	0.987585	1.018309	1.035873	1.009761	1.301221	1.075111	0.804717	0.864881	1.060045	1.126092	0.788488	0.938894	0.956719	1.011981
homocysteine	0.95593	1.021634	0.99773	0.98301	1.102811	0.986395	1.056664	1.034844	0.543308	1.108655	1.005255	1.028585	0.875797	0.837261	0.941656	1.116072	0.888166	1.058654	1.037127	1.077448
homogentisic acid	1.182781	1.246205	1.351072	1.988484	1.118844	1.614303	1.051726	0.993188	1.010163	1.219991	0.313389	0.260251	0.366833	0.894424	0.898312	1.165148	0.74501	0.682261	0.652383	0.919563
hydroquinone	0.945795	0.933216	0.910181	1.066012	1.110644	1.049126	1.032726	1.122206	0.941583	1.039931	0.823551	1.067165	0.940008	0.888938	0.891939	0.873104	0.772778	0.821741	0.865702	1.059834
hydroxyindoleacetic acid	0.721482	0.89116	0.881528	1.034143	0.989579	1.341899	1.414113	1.094202	1.045991	0.923213	0.210197	0.387899	0.563754	0.758723	1.013686	0.600334	0.704043	0.533764	0.234706	0.384955
hydroxyphenyllactic acid	1.195858	0.956306	0.439761	1.713643	1.221128	1.533639	1.441113	0.919428	1.019448	1.235212	0.202197	0.267666	1.416182	0.803518	1.446524	0.678541	0.962941	0.272747	0.943158	0.931545
hydroxyphenylpyruvate	0.907857	0.979729	1.609444	1.025655	0.880434	1.61811	1.234949	0.979513	1.05451	1.098731	0.200998	0.208003	0.548364	1.04335	0.653891	0.984344	0.424971	0.514821	0.313621	0.833366
hydroxyproline	1.04432	0.915256	0.938562	0.846225	0.809717	0.741277	0.945771	0.95916	0.95547	0.960926	0.898727	0.950542	0.813403	0.666165	0.482864	0.520607	0.689559	0.778798	0.794077	0.60939
hypotaurine	0.928074	1.145355	0.623114	0.625373	0.866735	1.315663	0.762088	0.790887	0.670378	1.113519	0.843443	0.954143	1.010118	1.019051	1.221236	0.912104	0.95324	0.754343	1.274706	1.125014
hypoxanthine	0.740393	1.170534	1.07507	1.161291	1.074751	1.219169	0.934033	0.700214	0.908153	0.936744	1.177758	1.4551	1.39157	1.047941	1.312998	1.034662	0.908138	0.94104	0.874773	0.853917
imidazoleacetic acid	1.18271	0.959191	0.966617	1.004411	1.022055	0.84087	1.097687	1.000288	0.948064	1.06982	1.027216	1.080741	1.011531	0.816843	0.863767	0.919632	0.924882	0.803943	0.752024	0.892338
indole-3-acetic acid	0.774045	0.868031	0.909855	1.203418	0.985065	1.069848	1.109787	1.432523	0.966736	0.802508	0.729109	0.163598	0.874485	0.837835	1.000457	0.956562	1.270585	0.719609	1.030416	0.715711
indole-3-proprionate	0.928396	0.826203	0.907983	0.940057	0.953496	1.03418	0.80634	0.958273	1.083108	0.978686	0.645378	0.547628	0.776618	0.688236	0.899277	1.269686	0.781003	0.861336	0.863585	0.818387
indoleacrylic acid	1.164385	0.843957	0.905591	0.691012	0.924297	0.729003	1.12661	1.126215	0.938952	0.9928	0.997654	0.948082	1.155996	0.947371	0.848622	0.83188	1.026975	1.054563	0.934565	0.929038
indoleoleic acid	0.807266	0.753316	0.821573	0.950603	1.068918	0.986388	0.834735	1.108577	1.247339	0.726431	0.171078	0.729138	0.620177	0.644517	1.039009	0.830135	0.756582	0.809784	0.761866	0.26027
indolepyruvate	0.845643	0.78165	0.869732	0.904722	0.984365	0.892858	0.988915	1.094718	0.960205	1.188395	0.616351	0.367433	0.570622	0.756673	0.878881	0.71291	0.68531	0.685237	0.664393	0.618165
indoxyl sulfate	0.956228	0.925316	0.972449	1.005106	1.019587	0.974258	0.900246	1.040946	0.94427	1.431634	1.289966	0.166739	0.719765	1.083922	0.712149	0.989026	0.623602	0.672017	0.711294	0.756263
inosine	1.148274	1.195485	0.757711	1.088683	0.777978	1.099087	0.912399	0.658736	0.993258	0.979184	1.268787	0.897875	1.08181	1.042937	1.793189	1.706268	0.941444	1.206428	1.230931	1.076809
inositol	0.864068	1.05405	0.959764	0.991642	1.051517	1.376917	1.023386	0.940618	0.875365	0.938475	0.785713	0.691449	0.977568	0.927195	0.87249	0.737721	0.682205	0.651635	0.671524	0.716809
isoleucine	0.94563	1.056563	1.031738	0.990471	1.10106	1.052112	1.03485	0.978712	1.001004	1.047267	1.085257	1.067409	1.051302	0.942486	1.084897	1.130962	0.994623	1.017972	0.918366	0.988016
isovaleryl carnitine C5	0.920815	0.78527	0.960144	0.856766	0.886735	0.860713	0.938785	1.009883	1.151466	1.06095	0.422295	0.323443	0.597192	0.580157	0.596891	0.630969	0.680932	0.546155	0.263663	0.329265
kyurenae	1.23574	0.988887	1.196846	1.298816	0.964701	1.544117	0.944016	1.373081	1.158216	1.117187	1.3782	1.1041	0.714383	0.790269	0.945027	0.133159	0.78824	0.902956	1.121771	0.83983
kyurenae	1.053642	0.943096	0.819159	0.773204	0.942105	1.069893	1.441639	0.877552	0.879514	0.850297	1.166484	0.421523	1.027989	0.877449	0.636735	0.573443	1.074292	1.07151	0.28304	0.521441
lactate	0.827766	1.161175	0.850799	0.829563	1.02118	1.149466	0.832513	0.891627	1.060609	1.14047	0.809762	0.963079	0.857286	0.872464	1.0073	0.92483	0.822736	0.89475	0.651977	0.747924
lauroyl carnitine C12	0.675567	0.729981	1.053903	0.624801	0.731626	1.235944	0.839978	1.021630	1.123634	1.289966	0.166739	0.719765	1.083922	0.712149	0.989026	0.623602	0.234064	0.54057	0.517485	0.618379
leucine	0.96687	1.048613	1.020573	1.037466	1.147485	0.960447	0.602627	0.997277	0.972718	1.119228	1.125517	1.120137	1.153776	1.027458	1.169719	1.207953	1.042449	1.105682	0.902739	1.054703
L-Fucose	1.236811	0.989459	1.189855	0.982744	1.103132	1.028466	1.065147	0.821689	1.196004	1.027408	0.802524	1.459326	1.174989	0.866704	0.967825	1.209690	1.001486	0.798424	0.942524	1.03136
limoleyl carnitine C18:2	1.359409	1.001404	0.755312	0.849468	1.219275	1.264903	0.923951	0.895387	1.165199	0.967375	0.759348	0.639495	0.546089	0.638466	1.021407	0.300281	0.913613	0.863131	0.918227	0.748461
lithocholic acid	0.906956	0.749053	0.501507	0.416578	0.977709	0.964209	0.664399	0.417193	0.539646	1.273378	0.735169	0.679465	0.674945	0.333752	0.328778	0.555145	0.401251	0.195525	0.461505	0.624288
L-Rhamnose	0.983668	1.09811	0.969981	0.986241	1.130616	1.042981	0.967692	1.053357	1.006076	1.014882	1.336249	1.285994	0.930336	0.826563	1.023499	0.935313	0.915538	0.882424	1.104147	0.941048
L-Threonine acid	0.941048	1.067532	1.02544	0.608339	1.225927	1.144888	0.927968	1.03737	1.137028	1.138296	0.550914	0.862544	0.854823	0.812021	0.639005	0.805804	0.807804	0.677671	0.800878	0.908878
lysine	0.911164	0.999099	1.064638	1.119155	1.112147	0.975791	0.949456	0.982634	1.131367	1.178644	1.163792	1.048684	0.737545	1.284685	1.182524	1.313169	1.185801	1.074302	1.094906	1.054906
malate	0.812361	1.393416	1.026298	0.928887	0.936842	0.717181	0.734482	0.949812	1.190659	1.068969	0.154736	0.334758	0.444596	0.821313	0.509977	0.445414	0.34561	0.841478	1.143233	0.344049
m-coumaric acid	0.807593	0.980576	1.064641	0.95274	0.784396	0.870875	0.68544	0.985058	1.050794	1.17698	1.137091	0.962244	0.724729	0.611959	1.1196	1.224726	0.639338	0.534323	0.671407	0.628969
methionine	0.980203	1.085936	1.008322	0.946006	1.114955	0.972946	0.926889	1.036513	0.988869	1.099022	1.214841	1.179588	1.101383	0.957862	1.1313	1.041137	1.054135	1.150776	1.031678	1.128739
methylcysteine	0.95593	1.021634	0.966126	0.98301	1.102811	0.986395	1.056664	1.034844	0.543308	1.108655	1.005255	1.028585	0.875797	0.837261	0.941656	1.116072	0.888166	1.058654	1.037127	1.077448
methylmalonic acid	0.947853	1.006671	1.051672	1.18488	1.01696															

tyrosine	0.837083	1.045402	0.999898	1.005522	1.042921	1.041517	0.982021	0.961947	0.991482	1.09781	1.21909	1.293495	1.286927	1.069041	1.155085	1.195905	1.038519	1.126487	1.014457	1.093014
uracil	0.932788	1.063141	1.235747	1.604209	0.901518	1.107907	0.752917	0.796671	0.675761	0.622768	0.738791	0.683031	0.875174	1.091517	0.624819	0.739929	0.57966	0.425921	0.537023	0.549889
ureidopropionic acid	0.812242	0.870073	0.744441	0.865347	0.927597	1.012399	0.849382	1.069766	0.997611	0.993030	0.531734	0.283923	0.494434	0.816833	0.550581	0.540588	0.815842	0.774886	0.568764	1.054832
uric acid	0.895661	1.147406	1.26019	1.296764	0.937732	0.827786	0.875876	0.970969	0.912844	1.134756	0.296559	0.429839	0.668532	0.694365	0.208013	0.205523	0.232516	0.221295	0.222365	0.307175
uridine	0.771262	0.872242	1.447124	1.611981	0.929261	1.236827	0.987716	1.290343	0.968778	0.83277	0.553754	0.586374	0.757095	0.817783	0.982458	0.903737	0.638544	0.676989	0.576103	0.555383
valine	0.973983	1.087481	0.977659	0.986634	1.060983	0.947486	1.026943	1.035011	0.943949	1.061554	1.149322	1.024862	1.041496	0.931638	1.062101	1.056579	0.974866	1.026639	0.920289	1.035262
xanthine	0.819855	0.953782	0.999704	1.084092	0.939899	1.169853	1.046182	1.165796	0.910273	1.095219	0.599723	0.650908	1.197401	1.065139	1.279718	1.32799	0.881647	0.728327	0.570749	0.626523
xanthosine	0.975229	1.366783	1.053126	1.140396	1.102385	1.403298	1.093405	1.051767	1.209818	1.001838	0.837159	0.27154	0.520111	0.735428	0.318721	0.36661	0.281059	0.411437	0.367837	0.306733
metabolites	lung	lung	lung	lung	lung	lung	lung	lung	lung	lung	kidney	kidney	kidney	kidney	kidney	kidney	kidney	kidney	kidney	kidney

metabolite	ear	ear	ear	ear	ear	ear	urine	urine	urine	urine	urine	urine	urine	urine	urine	urine	urine	urine	urine	urine									
1-methyladenosine	0.917813	0.862269	1.270718	1.085146	1.033596	0.994844	86.01737	67.58253	68.92451	68.77423	108.3987	49.13235	228.7766	181.4589	0.90599	0.878636	0.873216	0.972797	0.953727	1.149581	1.303537	9.44597	8.443991	6.578206	10.78724	11.0816	8.511369	2.974365	
1-methyl-histidine	0.820267	0.998285	0.867374	0.943711	0.917183	0.93843	18.01383	15.14617	7.636948	8.583148	14.62315	13.2633	22.18375	12.18375	1.129598	0.983146	0.958919	0.952534	0.933271	1.006841	102.2432	46.18033	20.2066	17.9932	40.67163	33.84639	53.91814	65.03108	
2,3-dihydroxybenzoic acid	0.863212	0.87338	1.108121	0.974829	0.999409	0.931038	17.79707	9.100447	15.53624	13.07578	10.53944	5.681768	5.410036	7.875279	1.04274	1.136966	1.087227	1.080181	1.032562	32.15208	29.93338	24.42739	24.3434	58.73705	82.06275	32.2266			
2-aminoacetic acid	0.939638	1.065062	1.022443	1.011453	0.902961	0.966726	53.67896	56.1393	27.66376	20.78983	48.33302	32.87473	183.7455	148.6807	0.84668	1.069127	0.902389	0.849402	1.059633	1.123613	184.6264	122.8391	271.1377	198.3973	246.6854	256.7725	703.8868	87.54116	
2-hydroxybutyrate	1.074937	1.190432	1.090177	1.194752	1.257041	0.992889	5.27043	0.202837	4.551361	5.798775	4.279535	2.351448	0.386668	1.699413	1.101103	1.254084	1.052099	1.067191	1.272753	1.272374	0.266479	0.198775	0.300243	0.315654	0.218821	0.031597	0.127622	0.067667	
2-hydroxyisovalerate	1.096317	1.198032	1.001066	1.075611	1.36648	1.076636	4.927718	3.265193	2.09607	1.748879	1.808849	1.736506	1.387187	1.438764	1.147092	0.944837	0.970665	0.979683	1.313008	1.232765	2.990463	1.897006	1.363485	1.369574	10.45786	8.16219	1.084319	0.702288	
2-Hydroxyoctanoic acid	1.182136	0.901155	0.998934	1.028973	1.153408	0.972157	34.46985	25.00036	23.58009	28.41893	14.70704	1.349653	1.502683	1.081135	1.147077	1.254671	0.898475	0.970911	0.894336	0.894739	0.935009	0.659348	0.735199	0.921344	0.743339	0.700778	0.631072	0.373622	
2-Ketobutyric acid	0.936754	0.958197	0.891721	0.959862	1.037168	1.155261	0.08725	0.055331	0.088332	0.063	0.064468	0.051898	0.056821	0.053268	0.96206	0.877373	0.962682	1.007265	0.974678	1.23806	0.143353	0.083348	0.164054	0.139113	0.24717	0.10364	0.183181	0.155355	
2-Keto-isovalerate	1.034891	1.017716	1.169793	0.920754	1.285173	0.948869	382.3825	326.9739	218.9207	250.349	353.9463	190.2116	167.3754	178.5746	0.479495	0.373658	0.929493	0.820517	0.577343	0.843658	273.8929	53.44057	7.765075	14.03466	267.1664	379.8607	113.5188	181.73	
2-Oxoaliphatic acid	1.053847	0.839511	0.946293	1.123052	0.720619	0.818475	2.058723	4.511973	24.37275	5.813477	14.96815	80.92173	34.34348	21.78225	1.006641	0.940292	1.149727	1.097189	1.021958	1.146924	0.682216	0.24315	0	0.157136	0.861686	0.763049	0.851098	0.790686	
2-Phenylpropionic acid	0.910454	0.947282	1.20257	0.938869	0.840219	0.833038	0.083159	0.116539	0.102472	0.704294	0.126035	0.259495	0.609316	0.798641	1.567897	1.095793	0.928057	1.181302	1.163358	0.943776	46.00449	37.23372	19.12677	21.26595	24.18649	26.69673	102.8043	18.95333	
3-4-Dihydroxybenzoic acid	1.172194	1.113867	1.014927	1.223181	0.910889	1.208731	28.64145	30.58277	10.9239	15.10883	21.8518	22.1552	51.84715	19.12645	0.126997	0.138671	0.143502	0.143502	0.143502	0.143502	0.143502	0.143502	0.143502	0.143502	0.143502	0.143502	0.143502	0.143502	0.143502
3-Hydroxyanthranilic acid	1.026697	1.060217	1.001248	1.089434	1.04408	1.00878	26.79905	18.81633	19.74591	18.08636	19.95486	19.14106	26.84636	14.80927	0.95118	1.088787	0.787894	1.082024	0.912681	0.965807	3.793238	3.146366	2.36418	2.060512	2.686854	21.76766	19.07912	24.83204	
3-Hydroxybutyrate	1.29633	1.367583	0.984276	1.073511	0.897426	0.942064	0.901275	0.28191	0.652343	0.569709	0.429141	0.051004	0.480196	0.145091	1.08638	1.001734	0.998855	1.021134	1.02338	1.061392	3.712635	4.958445	2.346522	1.663233	2.817006	2.308722	4.189588	2.226406	
3-Hydroxyphenyllactate	1.172194	1.113867	1.014927	0.972483	1.019889	1.208731	15.10209	19.25218	10.9239	15.10883	21.8518	22.1552	51.84715	14.71815	1.017722	0.899577	0.924959	1.034411	1.046103	0.991635	5.772328	4.920322	5.281836	5.895726	7.91818	12.25322	173.1731	13.17701	
3-Methoxytyramine	0.875031	1.221796	0.875031	0.925716	1.09111	0.999994	4.226669	2.801733	1.83089	1.849616	15.09129	8.366506	12.75307	15.72894	1.145622	1.286999	1.289326	1.180556	1.623442	1.742377	0.248174	0.146811	0.112742	0.113419	0.402656	0.513889	0.490242	0.808276	
3-phenylpropionic acid	0.988014	1.025181	1.348046	1.152168	0.750132	1.151192	93.5696	100.4617	38.59135	58.18519	67.31443	101.5028	231.5031	93.57599	0.988014	1.025181	1.348046	1.152168	0.750132	1.151192	93.5696	100.4617	38.59135	58.18519	67.31443	101.5028	231.5031	93.57599	
4-Methylvaleric acid	1.313034	0.870953	1.44106	0.860363	1.365749	0.856563	0.805023	0.570602	0.743672	0.663031	0.768236	0.631804	0.730921	0.30818	0.899313	1.029407	0.892175	1.017466	0.928209	0.927221	136.7145	73.03488	54.18608	64.94624	82.24853	74.45244	109.1637	93.88119	
4-Pyridoxic acid	1.042474	0.910018	0.979317	1.078127	0.943036	1.032562	20.14808	29.93338	24.42739	20.72566	29.91356	17.21874	39.34869	55.75441	0.966614	0.859988	0.864301	0.99145	1.475354	1.421035	45.07122	24.70797	6.437232	9.223331	24.26249	18.60317	74.85401	4.616194	
5-Hydroxylsine	1.117121	0.777666	0.965698	0.957495	0.899764	0.807761	10.13728	8.316299	6.53645	9.530705	2.65962	5.340023	7.408163	2.943555	1.067325	1.347234	1.054822	0.955283	0.875391	not measu	0.233906	0.25052	0.25349	0.360982	0.288172	not measu	not measu	0.149789	
5-Methyltyrosine	1.03611	1.087499	0.895908	0.916626	0.895593	0.899196	0.704646	0.190852	0.667635	0.738406	0.209756	1.772528	0.791485	0.535249	0.957615	1.080968	0.924326	0.97823	0.893287	0.955692	1.131416	1.298174	2.796983	2.561306	1.615304	1.337427	0.581092	1.268312	
acetoacetate	0.951607	0.77092	0.966479	1.042499	0.901834	1.005083	1.447909	1.160303	1.304133	0.912901	0.448023	0.445283	0.350237	0.473195	0.946689	0.735397	0.969605	1.048429	0.876646	0.737748	1.280037	11.78817	26.23904	24.52884	19.55298	32.42285	12.82307	22.47903	
acetyl carnitine C2	1.05657	1.035731	0.979366	0.952976	1.139123	0.99192	36.80538	51.02	61.55419	68.54207	4.521202	50.93696	3.645776	2.541306	0.968416	0.811552	1.030276	0.996315	0.917722	0.936927	23.4622	13.76386	15.91393	14.539	18.46699	19.76733	7.773172	27.69318	
acetyllysine	0.823422	0.895289	0.938585	1.046562	1.030033	1.11225	16.12039	33.94574	18.1516	16.8679	55.75337	45.60275	93.2001	83.06126	0.250742	0.159826	0.903685	0.940262	0.094527	0.305757	1.922345	1.083417	0.3746	1.05442	1.085332	0.687394	1.240488		
acetic acid	1.180238	1.14626	1.033366	1.018845	1.165023	1.199214	1.739732	1.067429	2.71359	2.22532	0.739855	0.717878	0.691273	1.202943	1.050631	1.019154	0.940226	0.984986	0.947744	0.798981	0.173965	0.079845	0.069006	0.135099	0.119753	0.169821	0.144108		
alpha-ketoglutarate	1.085628	0.840808	1.286713	1.573438	1.273107	1.165866	0.057371	0.04041	0.035688	0.021329	0.03379	0.00161	0.055597	0.011193	0.926266	0.													

carbamoyl phosphate	0.850866	0.778708	0.997141	0.988979	0.992018	0.976711	0.489642	0.532229	0.430795	0.58545	0.382276	0.377177	0.105331	0.209678
carnitine	0.886206	1.048926	0.894809	0.990461	0.953578	0.89466	0.918436	0.305381	0.534992	0.409237	0.610291	0.232626	0.295439	0.188564
carnosine	0.901266	0.916845	0.914092	1.011949	0.949417	0.813441	43.53391	34.65634	18.45641	15.18758	38.48067	28.96621	33.82537	53.34048
catechol sulfate	2.256298	1.545299	1.142204	1.043758	1.134294	1.049272	0	0.02784	0	0.02993	0	0.014766	0.022203	0.027803
cholesterol sulfate	0.961864	1.168779	1.011029	1.090425	1.104402	1.053181	13.83875	21.58948	129.0271	143.475	66.95084	13.48476	14.91772	9.008516
cinnamoylglycine	1.020597	1.029317	0.990223	1.08204	0.912475	1.053121	12.7568	6.614035	7.051315	5.73683	4.95072	3.379765	3.84139	4.606307
citramalic acid	1.472924	1.216726	1.1625	1.167575	1.082327	1.278089	48.64074	35.88501	46.11074	50.804	8.559878	157.168	155.6375	409.467
citrate	1.011764	1.00404	1.029146	0.963801	0.925598	0.867568	0.04245	0.030749	0.042515	0.033437	0.045451	0.038885	0.046503	0.048633
citrulline	1.072036	1.046529	0.98132	1.026662	0.849597	0.812791	0.414595	0.295432	0.134919	0.104789	0.140467	0.121365	0.18592	0.137625
creatine	0.997694	1.013948	1.003567	0.968016	0.886693	1.0188	66.14179	63.98335	34.95281	29.1077	42.80995	36.4575	55.632	68.84508
creatinine	1.341149	1.505607	0.91498	0.921349	1.141478	1.274631	14.14715	10.28886	15.59324	21.07448	28.44213	14.98624	15.57183	8.287016
croscin	0.877916	0.944486	0.91372	1.002324	0.875855	0.833758	5.971226	7.390852	10.43123	9.13189	21.31484	15.81094	11.17204	12.76929
croscin sulfate	1.146328	1.036719	1.52392	0.998186	0.921926	1.155636	0.046687	0.069477	0.09438	0.045741	0.026157	0.096745	0.213482	0.152522
cystine	1.182182	1.116877	1.06255	0.926443	1.069357	0.897069	0.449025	0.289357	0.057777	0.05902	0.980623	0.586322	1.085152	0.467033
cytidine	1.002055	0.944626	1.001476	0.973185	0.951009	0.911707	0.450999	0.091227	0.191633	0.162394	0.033454	1.289617	0.240925	1.097963
D-2-Aminobutyric acid	0.643491	0.904735	0.918073	0.988475	0.948332	0.980721	0.551745	0.240098	0.331144	0.092261	0	0	0.033516	0.072008
decanoyl carnitine C10	0.766621	0.951127	0.878496	1.382574	0.894965	1.375206	0.232272	0.222608	0	0.689285	0	0.222608	0.386259	0.345846
decanoyl carnitine C10:1	0.462846	1.024693	0.370466	0.766604	1.140802	0.809793	0.101585	0.138633	0.122242	0.534748	0.012838	0.036502	0.248506	0.821849
dehydroascorbic acid	0.968416	0.808679	1.030276	0.995504	0.916229	0.93605	17.95252	15.83562	15.02768	14.00888	16.05315	19.95698	7.834799	18.68348
dehydrocortic acid	2.158838	1.211275	1.270061	1.118243	1.07898	0.954239	0	0.040417	0	0	0	0	0.01787	0.010874
deoxycholic acid	1.224237	1.086559	1.078136	0.889574	0.913961	1.13298	0.30818	0	0.164382	0.149303	1.230596	1.057653	1.098807	1.230972
deoxyglycine	1.218874	0.906612	0.40662	0.93076	0.624473	0.863239	81.00647	152.477	35.2042	21.26992	39.39661	92.06023	74.7954	157.6276
deoxyinosine	1.126438	1.326182	1.051864	1.105046	1.266776	1.233847	0.499944	0.246328	0.152891	0	0.654874	0	0.573581	0.348509
deoxyuridine	0.940185	1.12999	1.19272	1.111888	1.173087	1.680805	51.07622	22.5702	58.09719	62.63836	135.4643	141.5218	177.9224	144.1844
D-Galactonic acid	0.940185	1.12999	1.19272	1.111888	1.173087	1.680805	51.07622	22.5702	58.09719	62.63836	135.4643	141.5218	177.9224	144.1844
D-Glucuronate	1.03472	0.974632	1.201222	0.907978	0.923297	1.007257	0.471826	4.923228	4.288048	3.278159	12.27783	5.842334	11.67177	3.947939
diaminopimelic Acid	1.50166	1.041027	1.211912	0.924799	1.118651	0.968093	7.296998	9.171353	8.23395	5.409742	8.146398	9.808868	12.3453	5.85249
diacylglycerol	0.820267	0.998285	0.867374	0.943711	0.917183	0.938443	15.14617	7.636948	8.583148	12.69235	13.2633	13.68371	14.37539	
dihydroxybenzoic acid	1.002055	0.944626	0.985864	0.973185	0.933638	0.932942	0.150999	0.091227	0.175522	0.078077	0.133215	0.250838	0.044305	0.922079
dimethylglycine	1.397847	1.122143	1.04812	0.877185	0.897917	0.707072	29.20896	8.420242	8.534582	11.81482	21.65176	48.07147	37.57157	12.23052
DL-3-4-Dihydroxymandelic acid	1.245823	1.32241	0.84882	1.449612	1.219689	1.031917	15.29186	13.38416	6.784358	7.785747	12.09147	10.24482	7.545793	6.905201
decanoyl carnitine C12:1	0.507776	0.693279	0.929843	1.039652	1.054563	0.874239	0	0.659566	0.303874	0	0.111171	0.030657	0.030847	
D-Phenylallic acid	1.32516	1.011524	0.987146	0.955196	0.96821	1.04509	27.95856	8.01026	3.582252	3.883408	3.377495	4.468986	3.414969	1.905907
equol sulfate	1.245599	1.006118	0.901826	1.013766	0.632169	0.473831	4.651551	7.696225	5.145792	6.072188	7.507106	9.427235	6.886024	42.46353
fumarate	1.375542	1.500039	not measu	1.282537	1.281648	1.151089	4.497116	3.215404	not measu	not measu	6.741175	3.525921	5.151527	5.329499
fumarate	1.335398	1.095409	1.121108	1.066188	1.174807	1.092556	3.449791	2.66019	4.738248	3.809163	1.900375	1.834085	0.982025	1.124652
galacturonic acid	1.042474	1.163966	0.953856	1.067227	1.080181	1.032562	32.15208	29.93338	24.42739	24.33434	62.15301	55.83705	82.06275	55.75441
gamma-Butyrobetaine	0.951607	0.784649	0.975276	1.013568	0.903184	1.005085	2.582396	0.918271	0.508642	1.099181	0.625209	0.462243	0.354862	0.629601
glycolactone	0.941051	0.860075	1.022541	1.161642	1.290509	1.717964	22.30708	69.8624	59.42066	77.55433	195.3611	121.6651	39.07729	
glucosamine	1.032891	0.838235	0.982168	0.996344	0.910293	0.898146	0.428096	0.268238	0.563827	0.483743	0.336893	0.952122	0.148419	0.610623
glucose	0.970717	0.953881	0.872434	0.899342	0.820668	0.84375	0.167105	0.111844	0.141599	0.10194	0.083762	0.118058	0.316163	0.220683
glutamate	1.151632	1.003981	1.02961	0.842766	0.999638	0.70563	0.741582	0.449019	0.159777	0.196366	0.193639	0.170554	0.112541	0.227665
glutamine	0.814459	0.883466	0.927823	0.967351	0.851024	1.222027	0.141582	0.087039	0.07836	0.061478	0.094042	0.075172	0.110067	0.124046
glycerate	1.317354	1.009318	1.142108	0.895498	1.231902	1.005277	4.131258	4.332591	5.312497	5.577793	3.661079	2.866816	2.584296	2.441243
glycerol-3-phosphate	0.94295	0.993107	1.152751	1.090749	0.707998	0.69064	4.671388	6.235501	2.597769	1.165821	8.612764	7.444732	9.209408	10.82368
glycine	1.018289	1.090928	1.035196	0.981869	0.866347	0.973786	0.358997	0.260292	0.219663	0.184288	0.314367	0.262486	0.247809	0.258408
glycolcholic acid	2.172114	1.338547	1.167973	1.020537	1.188019	0.81756	0.109415	0.066812	0.061762	0.036032	0	0	0.024492	0.01908
glycodeloxycholic acid	1.150689	1.122783	0.925996	0.784495	0.688829	0.804152	0	0.02129	0	0	0	0	0.029337	0.071358
glycyl-L-proline	0.656656	1.058595	0.809944	1.084755	1.175271	0.892152	6.69446	4.00418	1.292496	2.38108	18.48045	16.16703	0.699944	12.51865
glycylsarcosine	1.104237	1.050087	1.208231	1.029686	1.091888	1.399589	2.756399	2.190227	1.366273	1.196132	2.896865	2.783739	4.31665	2.077199
guanine	1.897797	1.746418	1.561098	1.215498	2.646293	1.795948	2.726426	1.99491	26.39354	22.64262	13.7677	9.102207	6.878765	9.66606
guanosine	1.327119	1.052766	1.130126	1.199369	1.444344	1.886311	0.545118	0.474002	0.16862	0.336621	0.115115	0.064866	0.235313	0.181571
hexadecenyl carnitine C16:1	0.718918	0.575288	1.023198	1.390696	1.173014	1.031641	0.078369	0.006139	0.014556	0.012561	0	0.02543	0	0.023559
hexanoyl carnitine C6	1.578677	0.945261	0.811104	0.988338	0.934958	0.872698	0.185353	0.395646	0.217956	0.419841	0.194554	0.239685	0.76095	0.847548
hippuric acid	0.87473	0.820158	1.031765	1.124104	1.081278	0.75287	10.46496	5.123831	21.9461	13.25308	35.67563	28.92359	18.11921	128.6214
homocysteine	0.767388	0.808065	1.00351	0.941473	1.017866	1.025929	0.329718	0.287596	0.176677	0.168849	0.141207	0.144653	0.164196	0.274842
homocarnosine	0.705281	0.71324	0.928312	1.06348	0.912445	1.0554	0.793413	0.813357	0.56159	0.665556	0.29002	0.441738	0.390333	0.124862
homocitulline	0.87553	0.734902	0.903612	0.960927	0.963723	1.086785	2.183568	3.114712	3.136123	2.63401	2.294574	2.407985	3.190255	2.252105
homocysteric acid	1.276821	0.924155	0.951967	0.983243	0.806631	0.977017	0.944305	0.72736	0.783091	0.667671	0.83088	0.725819	0.296904	0.430043
homocysteine	0.989759	1.105124	0.874623	0.809506	0.904077	1.051103	0.10577	0.048804	0.054761	0.045282	0.088174	0.018273	0.105683	0.084759
homogentisic acid	1.01834	1.31982	0.924668	1.040857	0.883902	1.09012	9.852099	11.92869	6.958963	5.103657	1.740733	3.527466	5.666792	3.917936
hydroquinone	0.843619	1.027814	0.930212	0.886095	0.898867	0.946368	19.08473	16.10589	7.852523	9.088395	13.77029	13.49367	13.40885	14.25087
hydroxyindoleacetic acid	0.985655	1.337028	1.297465	0.794771	0.966517	0.508195	110.5031	87.8774	67.30644	52.5395	85.92003	74.50721	79.43449	58.38252
hydroxyphenyllactic acid	1.670171	1.024137	1.297465	0.927483	0.953932	1.27095	42.03248	15.6594	10.15322	5.830435	6.830764	7.122862	21.73863	13.47979
hydroxyphenylpyruvate	1.35263	1.957391	0.94882	0.955473										

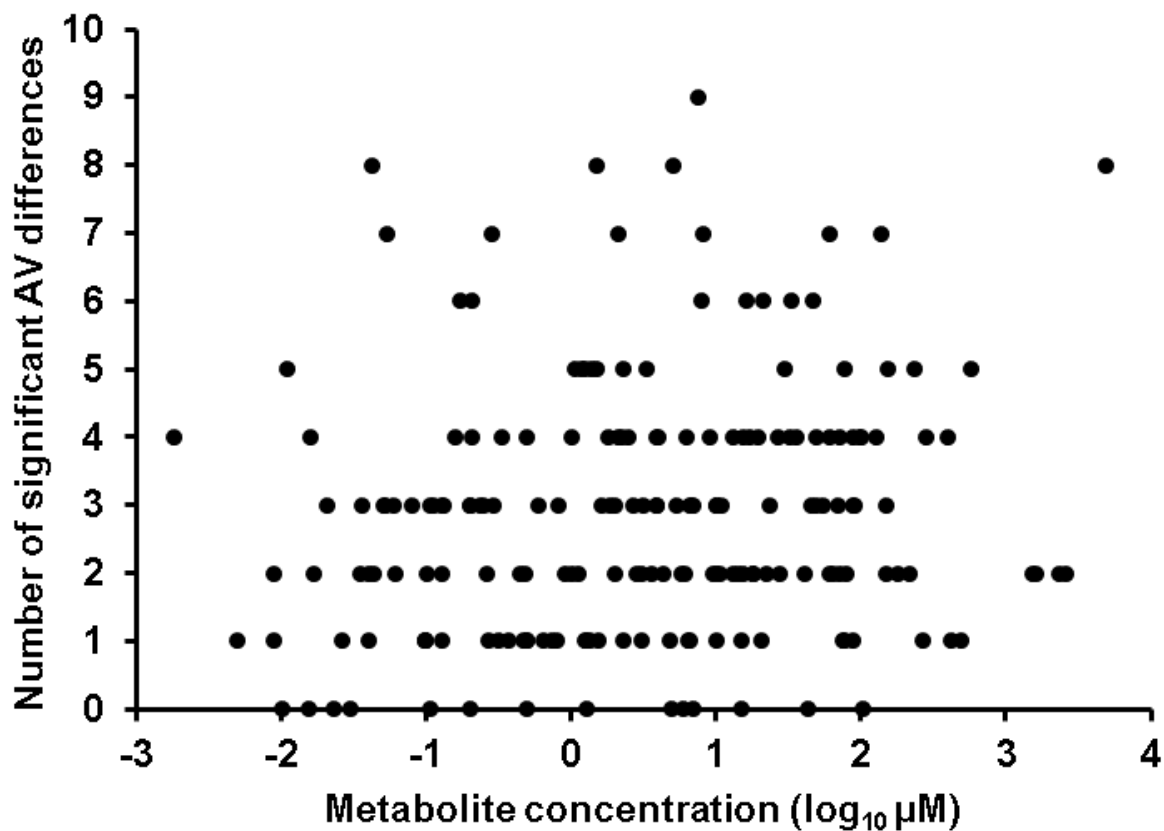


Figure S1. The correlation between the number of significant AV differences detected per metabolite and the metabolite's absolute concentration. Related to Fig.1.

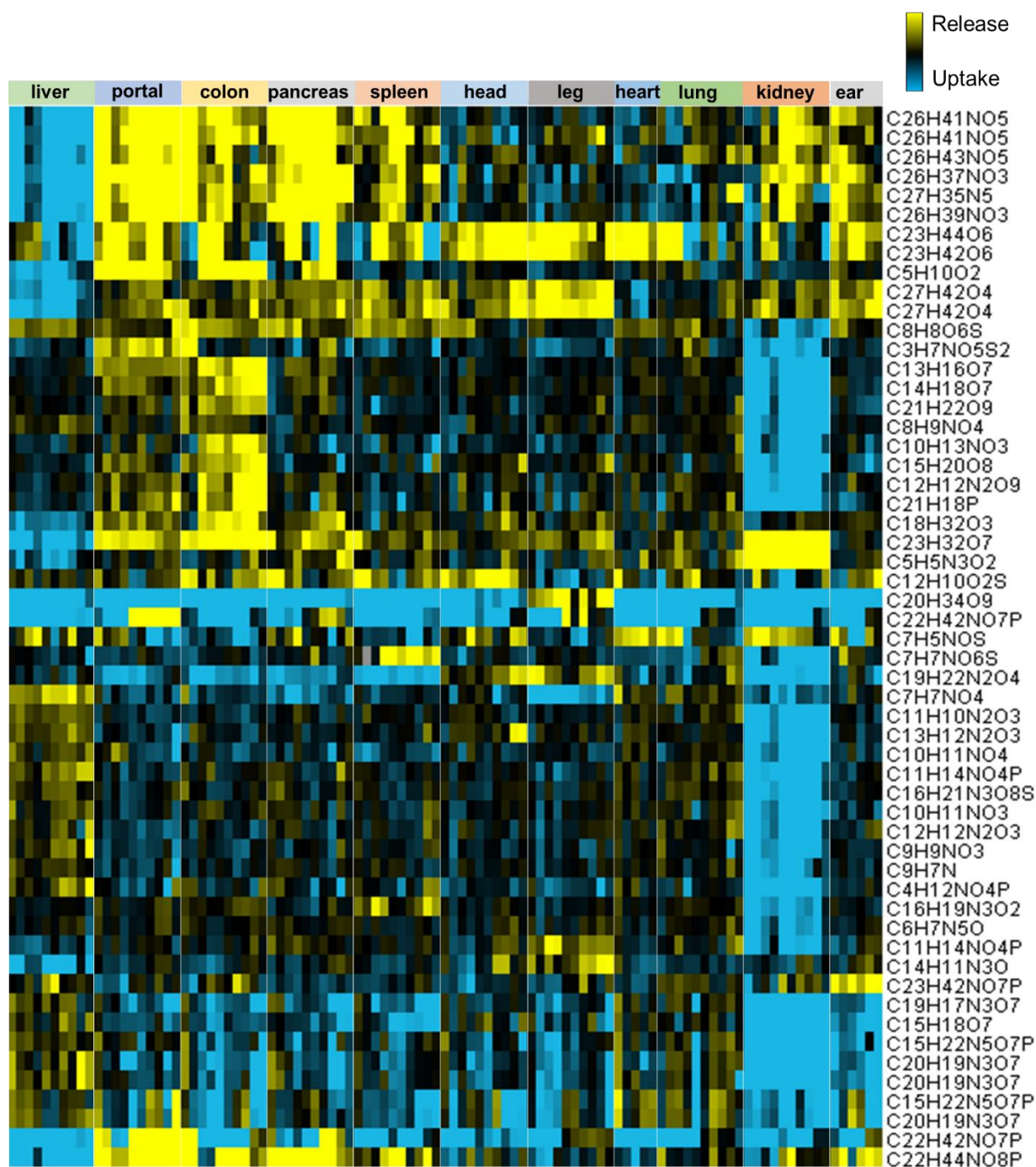


Figure S2. Unknown metabolites showing significant inter-organ exchange. Related to Fig.1.

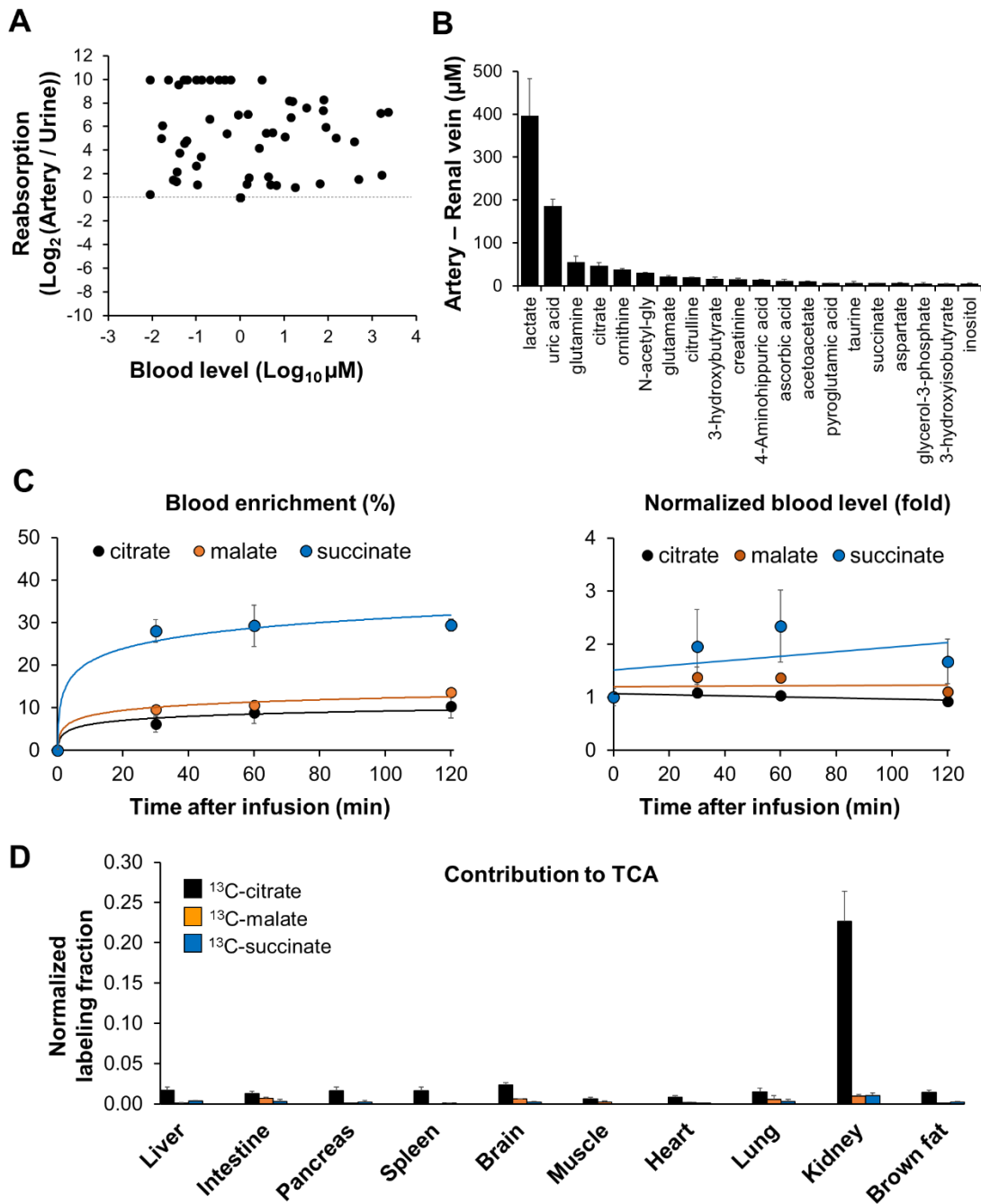


Figure S3. Renal metabolite uptake in pigs (A and B) and steady-state infusion of ^{13}C -labeled TCA intermediate tracers in mice (C and D). The reporter metabolite (measured to determine TCA labeling) was selected to be distinct from the tracer metabolite, to avoid misinterpreting extracellular tracer as TCA labeling (in practice, we observe an additional 1% to 8% TCA contribution, depending on the tissue, when the reporter metabolite and tracer are the same). Specifically, for ^{13}C -citrate and ^{13}C -malate infusions, tissue succinate labeling was used to determine their TCA contribution. For ^{13}C -succinate infusion, tissue malate labeling was used. Data are means and error bars are standard errors. N = 4 for citrate, and N = 3 for malate and succinate. Related to Fig.2.

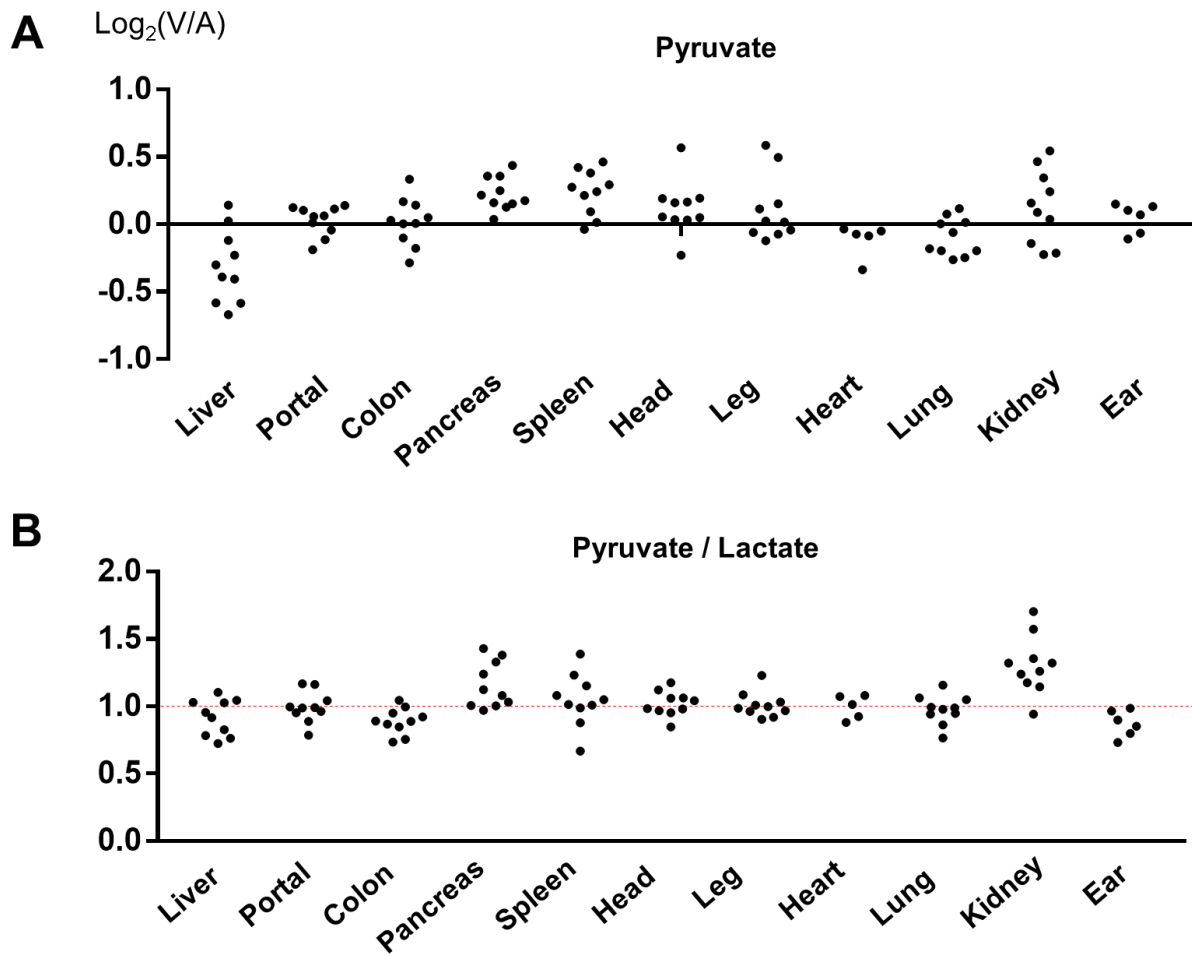


Figure S4. Kidneys oxidize circulating lactate into circulating pyruvate in pigs. Related to Fig. 3.

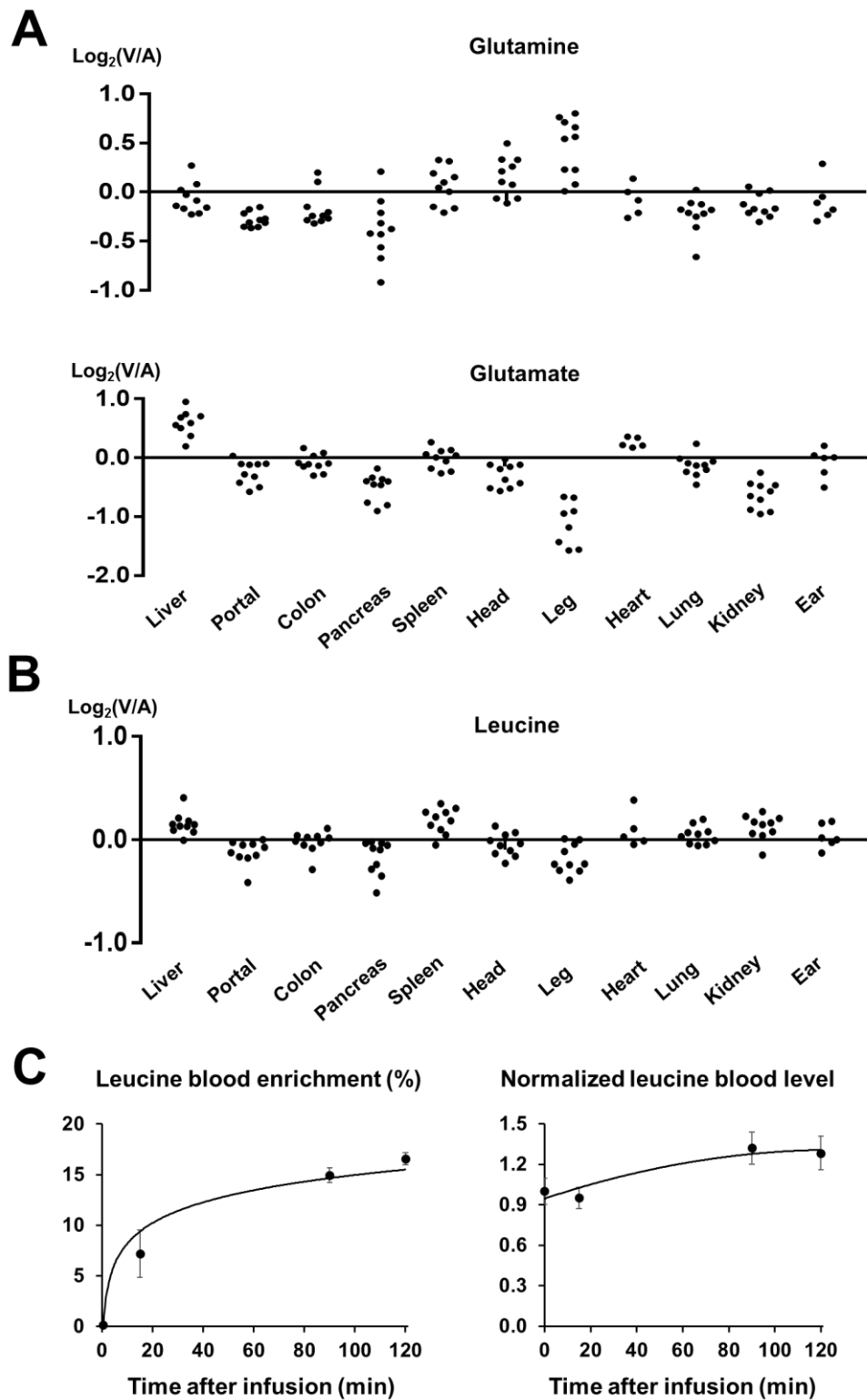


Figure S5. Exchange of amino acids in pigs (A and B), and steady-state infusion of a ¹³C-leucine tracer in mice (C). Data are means and error bars are standard errors (N = 4 mice). Related to Fig. 4.

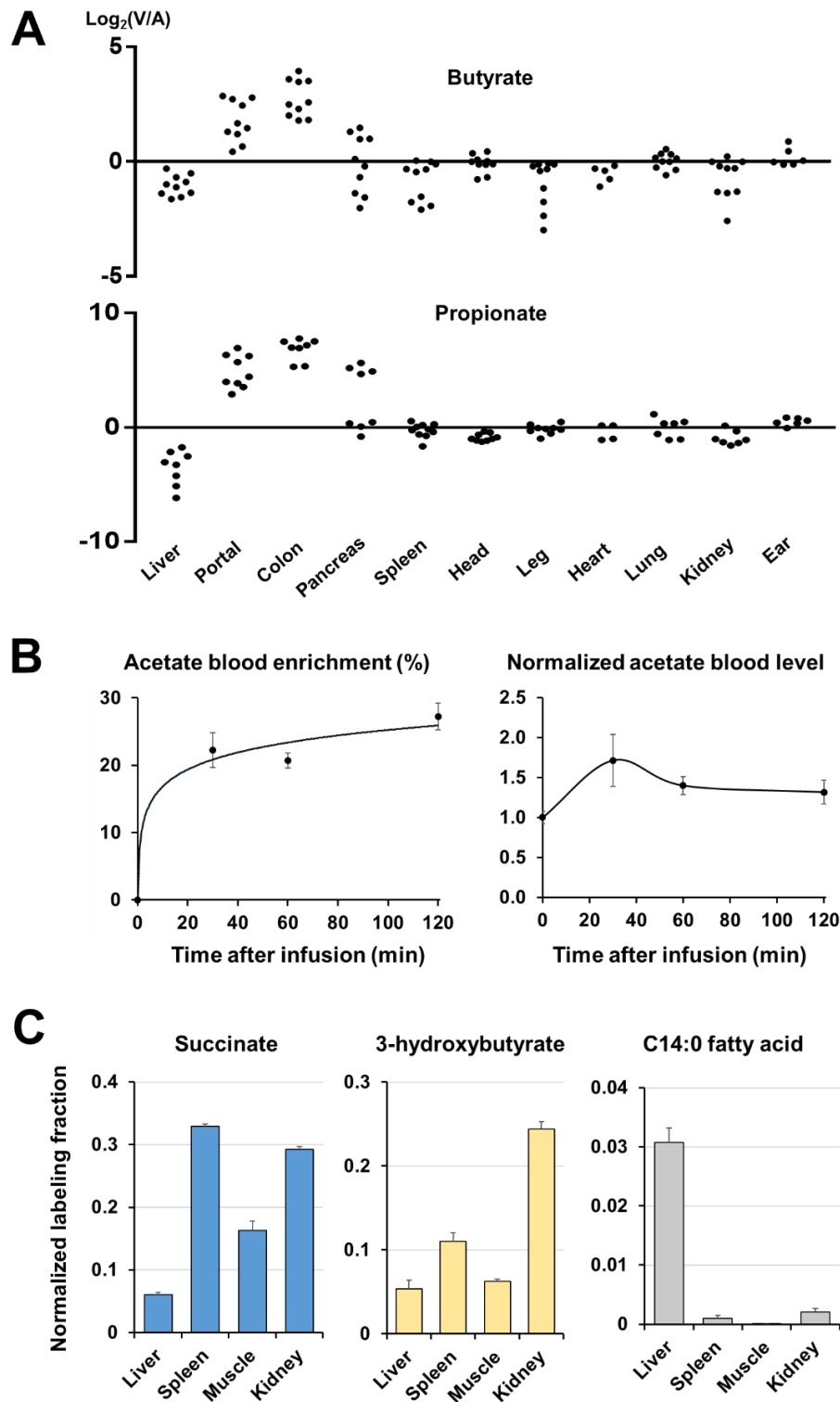


Figure S6. Short chain fatty acid exchange in pigs (A) and steady-state infusion of a ^{13}C -acetate tracer in mice (B and C). Data are means and error bars are standard errors (N = 3 mice). Related to Fig. 5.

Metabolites	Produced	Consumed
Secondary bile acids	Intestine, Colon	Liver
Acetate	Intestine, Colon, Head	Liver, Spleen, Leg
Butyrate, Propionate	Intestine, Colon	Liver
Ribonucleosides	Spleen	Kidneys
Deoxyribonucleosides	Colon, Spleen	Kidneys
Glucose	Liver, Kidneys	Intestine, Colon, Pancreas, Spleen, Head, Leg
Lactate	Spleen, Ear	Liver, Kidneys
Pyruvate	Pancreas, Spleen	Heart
3-hydroxybutyrate	Colon	Leg, Lung, Kidneys
Acetoacetate	Liver	Pancreas, Spleen, Leg, Lung, Kidneys
Malate, Fumarate, α -KG	Intestine, Colon, Pancreas, Spleen, Leg, Ear	Liver, Kidneys
Succinate	Intestine, Colon, Pancreas, Leg	Liver, Kidneys
Citrate	Pancreas, Head, Leg	Kidneys
Indole metabolites	Intestine, Colon	Kidneys
Taurine	Liver, Spleen, Ear	-
Inositol	Liver, Spleen	Kidneys
Serine	Kidneys, Liver	Intestine, Pancreas, Head, Leg, Ear
Aspartate	Liver, Spleen	Leg, Kidneys
Asparagine	Spleen	Intestine, Pancreas
Glutamate	Liver, Heart	Intestine, Pancreas, Head, Leg, Kidneys
Glutamine	Leg	Intestine, Pancreas, Lung, Kidneys
Alanine	Leg	Colon
Branched-chain amino acids	Liver	Intestine, Leg
Other essential amino acids	Liver, Kidneys	Intestine, Pancreas
Branched-chain α -keto acids	Leg	Intestine, Colon, Spleen
Branched-chain α -hydroxy acids	Leg	Kidneys
N-acetyl-amino acids	Liver, Spleen	Kidneys
Unsaturated fatty acids (C14-C20)	Intestine, Colon, Pancreas, Spleen, Head, Leg	Liver, Heart
Unsaturated fatty acids (C22)	Intestine, Spleen, Leg	Liver, Heart
Unsaturated fatty acids (C24)	Spleen	Liver, Heart
Saturated fatty acids (C14-C20)	-	Heart
Saturated fatty acids (C22-C24)	-	Head, Leg, Lung
Carnitine	-	Intestine, Colon, Spleen
Short-chain carnitines (C2-C5)	Colon, Heart	Spleen, Leg, Kidneys
Medium-chain carnitines (C6-C12)	Pancreas, Leg	Kidneys
Long-chain carnitines (C14-C20)	Intestine, Pancreas, Leg, Ear	Heart, Kidneys

Table S1. Sources and sinks of metabolites (continued). Related to Fig. 1.

Metabolites	Produced	Consumed
Nicotinamide	Spleen	Leg, Colon
Ornithine, Citrulline	Intestine	Spleen, Leg, Kidneys
Creatine	Liver, Heart	Intestine, Leg
Creatinine	Liver, Leg	Intestine, Colon, Kidneys
D-gluconate	Colon, Pancreas, Spleen, Brain	Leg
Allantoin	Liver	Intestine, Colon, Pancreas, Spleen, Kidneys, Ear
Allantoate	Kidneys	Head
Benzoic acid	Colon, Ear	-
Biotin	Spleen, Heart	Intestine, Kidneys
Capryloyl glycine	Liver, Pancreas	Kidneys
Carnosine	Liver	Kidneys, Ear
Citramalic acid	Colon, Pancreas, Head, Leg	Liver, Kidneys
Dihydroxymandelic acid	Intestine, Colon	Spleen, Head, Kidneys
Gluconolactone	Brain	-
Glycerate	Liver, Lung	Kidneys
Glycerol-3-phosphate	Liver, Pancreas, Spleen	Leg, Kidneys
Glycyl-L-proline	Leg	-
Guanine	Spleen, Leg, Ear	Kidneys
Glycocyamine	Kidneys	Liver
Homocysteine	Liver	Intestine, Colon
Homogentisic acid	Liver, Leg	Kidneys
Hypotaurine	Colon, Spleen, Leg, Heart	Liver
L-Threonic acid	Liver, Lung	Kidneys
m-Coumaric acid	Intestine, Colon	Brain
Methylcysteine	Liver	Intestine, Colon
Methylmalonic acid	Intestine, Colon, Pancreas, Leg	Liver, Kidneys
m-Hydroxyhippuric acid	Liver	Leg, Kidneys, Ear
N-Tiglylglycine	Liver, Spleen	Kidneys
O-Phosphorylethanolamine	Pancreas, Spleen	Leg, Kidneys
Phenol sulphate	Liver	Intestine, Colon, Pancreas, Spleen, Kidneys
Phenylacetate	Intestine, Colon, Kidneys	Liver
Phenylpropionylglycine	Lung	Leg, Kidneys
Propionyl-glycine	Liver	Intestine, Colon, Pancreas, Spleen, Leg, Kidneys
S-methyl-5'-thioadenosine	Pancreas	Kidneys
Synephrine	Colon, Head	Liver, Leg, Kidneys

Table S1. Sources and sinks of metabolites (continued). Related to Fig. 1.

Metabolites	Produced	Consumed
Thymine	Intestine, Colon, Pancreas, Spleen, Head	Liver, Kidneys
Triethanolamine	Liver	Leg, Kidneys
Uracil	Leg	Kidneys
Uric acid	Head, Skin	Spleen, Kidneys
Xanthine	Intestine, Colon	Liver
1-methyl-histidine	Liver	Intestine, Colon, Pancreas
3-hydroxyanthranilic acid	Liver, Lung, Ear	Kidneys
3-hydroxyphenyllactate	Leg	Kidneys
Phenylpropionic acid	Intestine, Colon	Liver, Kidneys
2-hydroxybutyrate	Liver, Ear	-
3-hydroxyisobutyrate	Liver	Intestine, Pancreas, Spleen, Leg, Kidneys
2-Isopropylmalic acid	Liver	Colon, Head
3-4-dihydroxyhydrocinnamic acid	Leg	Kidneys
4-pyridoxic acid	Liver	Kidneys, Ear
5-aminolevulinic acid	Leg	Colon, Spleen, Kidneys
Beta-aminoisobutyric acid	Liver	Intestine, Pancreas, Ear
Cinnamoylglycine	Colon, Ear	Leg, Kidneys
Dehydroascorbic acid	Spleen, Lung	-
D-Galactonic acid	Colon, Pancreas, Spleen	Kidneys
Dimethylglycine	Liver	Intestine, Colon, Spleen
5-Hydroxylysine	Ear	Intestine, Colon, Pancreas
L-Rhamnose	Liver	Intestine, Colon, Pancreas
Pipecolic acid	Liver	Intestine, Colon, Spleen
Sorbitol	Spleen, Leg, Ear	Kidneys
Ureidopropionic acid	-	Liver, Kidneys

Table S1. Sources and sinks of metabolites. Related to Fig. 1.