

SUPPLEMENTAL MATERIAL

Untargeted metabolomics confirms and extends the understanding of the impact of aminoimidazole carboxamide ribotide (AICAR) in the metabolic network of *Salmonella enterica*.

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TABLE S1. Bacterial strains used in this study^a

<u>Strain</u>	<u>Genotype^b</u>
DM10000	Wild-type
DM12239	$\Delta purH3121::kan$
DM14016	$\Delta purH3121::kan \Delta gdhA631::cat$
DM14017	$\Delta purH3121::kan \Delta mtfA622::cat$
DM14018	$\Delta purH3121::kan zwf21::Tn10d(Tc)$
DM14019	$\Delta purH3121::kan zxx4150::Tn10d(Tc) fumAC1$
DM14020	$\Delta purH3121::kan zxx4150::Tn10d(Tc)$
DM14719	$\Delta icc::kan$

^a All strains are *S. enterica* serovar Typhimurium LT2 variants and were constructed for this study.

^b *Tn10d(Tc)* refers to the transposition-defective mini-*Tn10* (*Tn10* $\Delta 16\Delta 17$) construct [Way, 1984].

TABLE S2. Metabolome changes of *purH* mutant at different growth phases.

Metabolite	EARLY STATIONARY PHASE									
	Exp 1		Exp 2		Exp 3		Exp 4		Exp 5	
	Fold Change	p-value	Fold Change	p-value	Fold Change	p-value	Fold Change	p-value	Fold Change	p-value
cAMP	1.2	0.281	2.2	0.165	2.2	0.035	1.1	0.066	2.1	0.022
AICARs	407.2	0.194	94.4	0.027	164.3	0.079	ND		0.3	0.306
AICAR	346.6	0.009	367.2	0.003	206.0	0.017	124.9	0.020	133.0	0.033
Pantothenate	0.3	0.004	0.2	0.002	0.4	0.038	ND		ND	
Pyruvate	1.0	0.912	0.9	0.831	1.5	0.132	1.8	0.205	1.2	0.840
Ala	4.8	0.404	2.4	0.157	0.3	0.345	1.7	0.429	2.2	0.095
Lactate	2.0	0.149	0.8	0.484	ND		0.5	0.610	1.6	0.225
2-Oxobutanoate	2.0	0.250	1.2	0.078	1.1	0.865	1.1	0.779	1.2	0.431
Dimethylglycine/4-Aminobutyrate	0.3	0.063	0.6	0.052	0.4	0.108	1.1	0.802	2.1	0.084
Ser	0.4	0.097	0.7	0.454	0.2	0.010	0.4	0.038	1.6	0.550
Glycerate	1.1	0.493	1.1	0.685	1.2	0.044	1.9	0.223	1.0	0.909
Uracil	0.5	0.156	0.6	0.550	1.2	0.500	1.9	0.037	1.2	0.321
Creatinine	0.9	0.730	0.8	0.327	0.7	0.445	1.2	0.674	ND	
Pro	1.6	0.430	1.4	0.386	1.2	0.605	0.1	0.041	1.1	0.879
Fumarate ¹	1.3	0.053	1.3	0.011	1.7	0.156	0.7	0.728	4.3	0.157
Fumarate ²	0.9	0.806	0.1	0.014	0.6	0.554	ND		ND	
2-Ketoisovalerate (KIV) ¹	1.2	0.027	1.2	0.033	1.1	0.207	3.0	0.032	1.5	0.181
2-Ketoisovalerate (KIV) ²	1.2	0.256	1.5	0.198	2.3	0.216	1.4	0.025	1.3	0.032
Guanidoacetic acid	1.7	0.197	1.6	0.449	8.9	0.020	4.1	0.093	1.5	0.016
Indole ¹	2.6	0.159	3.2	0.009	5.1	0.025	2.8	0.166	3.8	0.010
Indole ²	0.9	0.957	ND		1.8	0.352	4.9	0.098	2.1	0.115
Betaine/Val	2.5	0.144	2.9	0.113	5.0	0.000	3.8	0.004	2.3	0.009
Methylmalonic acid	0.9	0.792	0.2	0.034	1.1	0.930	0.6	0.386	0.9	0.729
Homoserine/Thr	1.3	0.294	1.2	0.099	0.9	0.685	1.2	0.071	1.2	0.467
3-S-Methylthiopropionate	1.9	0.328	1.8	0.534	1.8	0.154	1.3	0.485	1.8	0.096
Nicotinamide	0.5	0.003	1.9	0.125	1.5	0.502	0.8	0.654	1.4	0.570
Nicotinate	0.6	0.085	1.0	0.995	1.0	0.944	7.2	0.094	1.1	0.929
Thymine	2.2	0.524	3.4	0.445	2.3	0.006	4.2	0.021	1.8	0.006
Pyroglutamic acid (5-Oxoproline) ¹	0.9	0.496	0.8	0.268	0.7	0.386	0.7	0.336	0.5	0.001
Pyroglutamic acid (5-Oxoproline) ²	1.1	0.886	3.9	0.172	1.7	0.201	11.0	0.006	4.0	0.450
Citraconic acid	0.9	0.314	1.0	0.988	0.9	0.437	1.0	0.957	0.9	0.434
Hydroxyproline	0.2	0.095	0.1	0.158	0.4	0.044	0.4	0.314	0.6	0.196
Citraconic acid	0.8	0.031	0.5	0.062	0.9	0.708	0.8	0.205	0.9	0.269
Leu/Ile	1.9	0.351	3.8	0.151	4.4	0.002	0.8	0.882	0.2	0.266
Asn	1.0	0.901	0.6	0.031	0.6	0.349	0.8	0.160	3.6	0.048
Hydroxyisocaproate ¹	0.9	0.072	0.9	0.176	0.8	0.052	0.9	0.573	0.9	0.279
Hydroxyisocaproate ²	2.4	0.404	1.9	0.314	20.2	0.020	3.6	0.094	1.4	0.469
Ornithine	0.4	0.212	0.5	0.220	ND		0.1	0.324	3.0	0.061
Asp	0.8	0.422	0.3	0.017	0.4	0.109	0.6	0.036	0.5	0.033
Malate ¹	0.8	0.528	0.1	0.045	0.4	0.312	0.4	0.000	0.3	0.050
Malate ²	0.8	0.528	0.1	0.045	0.4	0.312	0.1	0.293	0.3	0.265
Homocysteine	5.4	0.200	1.1	0.838	2.2	0.121	1.4	0.266	5.1	0.085
Adenine ¹	0.5	0.004	0.7	0.149	0.8	0.287	0.9	0.202	0.9	0.238

Adenine ²	1.2	0.806	1.3	0.710	1.1	0.601	0.6	0.414	0.7	0.129
Hypoxanthine	0.5	0.140	1.1	0.826	0.8	0.138	0.7	0.037	0.5	0.001
p-Hydroxybenzoate	0.9	0.689	2.4	0.341	0.8	0.534	1.3	0.356	1.5	0.233
Acetyl-P	0.2	0.000	0.7	0.255	0.7	0.318	0.2	0.001	0.1	0.036
Carbamoyl-P	2.2	0.296	3.5	0.155	6.5	0.042	ND		ND	
a-Ketoglutarate	1.3	0.399	1.2	0.289	2.0	0.023	0.9	0.497	0.8	0.224
Gln	0.9	0.806	1.1	0.755	1.1	0.576	0.4	0.090	0.7	0.003
Lys	0.7	0.129	0.9	0.246	1.5	0.375	1.4	0.286	1.7	0.258
Glu ¹	0.9	0.351	0.7	0.137	0.8	0.370	0.6	0.075	0.5	0.001
Glu ²	1.8	0.256	1.2	0.798	2.4	0.003	5.5	0.044	3.2	0.155
2-Hydroxy-2-methylbutanedioic acid	1.1	0.900	0.5	0.254	0.7	0.209	1.4	0.153	0.7	0.105
Met	0.5	0.066	0.5	0.001	0.2	0.053	0.7	0.219	1.2	0.753
3-Methylphenylacetic acid	0.7	0.350	0.9	0.713	0.9	0.726	ND		ND	
Guanine	1.4	0.706	2.8	0.444	1.9	0.051	ND		3.0	0.020
2,3-Dihydroxybenzoic acid	4.3	0.402	13.6	0.100	14.4	0.008	ND		ND	
His	1.4	0.322	1.4	0.270	0.7	0.249	0.9	0.843	0.8	0.311
Orotate	2.7	0.113	1.9	0.171	1.9	0.011	ND		ND	
Dihydroorotate	5.7	0.210	5.1	0.010	3.1	0.179	0.8	0.898	ND	
Aminoadipate	2.5	0.097	2.5	0.114	2.7	0.001	ND		ND	
Carnitine	1.0	0.561	1.1	0.223	1.0	0.785	ND		ND	
Phenylpyruvate	4.0	0.008	2.4	0.012	1.5	0.101	ND		ND	
Methionine sulfoxide	0.5	0.085	0.7	0.147	0.3	0.305	ND		ND	
Phe	13.4	0.173	6.9	0.083	2.9	0.020	ND		ND	
Atrolactic acid	1.7	0.147	1.5	0.395	3.7	0.003	ND		ND	
Phenyllactic acid	1.8	0.134	1.5	0.379	3.7	0.003	ND		ND	
Phosphoenolpyruvate (PEP)	6.5	0.077	0.6	0.201	2.5	0.204	ND		ND	
Uric acid	4.3	0.421	1.3	0.811	ND		ND		ND	
Pyridoxamine	1.0	0.983	1.0	0.957	1.2	0.278	1.4	0.819	ND	
D-Glyceraldehyde-3-P	3.6	0.069	1.7	0.144	4.5	0.017	3.8	0.027	2.0	0.017
sn-Glycerol-3-P	4.1	0.258	1.3	0.183	1.1	0.674	2.8	0.245	1.1	0.819
Aconitate	0.8	0.291	0.4	0.033	0.8	0.489	ND		ND	
Shikimate	1.3	0.725	1.1	0.929	1.7	0.055	ND		ND	
N-Acetyl-L-ornithine	0.0	0.005	0.0	0.008	0.1	0.090	1.1	0.748	0.8	0.153
Arg	2.2	0.087	1.3	0.417	0.9	0.722	0.1	0.033	0.1	0.003
Citrulline	0.3	0.005	0.7	0.250	0.4	0.108	ND		0.8	0.503
Ascorbic acid	1.2	0.329	1.1	0.580	0.9	0.751	3.7	0.242	0.4	0.114
N-Carbamoyl-L-aspartate	8.8	0.152	15.6	0.068	1.7	0.064	0.7	0.611	0.5	0.418
Allantoate	0.8	0.864	2.6	0.244	0.9	0.841	0.1	0.031	1.1	0.881
Isopropylmalate	0.2	0.003	0.1	0.005	0.1	0.073	ND		ND	
Pyrophosphate	1.5	0.632	1.8	0.465	1.9	0.030	ND		1.2	0.882
Gluconolactone	0.4	0.019	1.0	0.913	0.7	0.088	ND		ND	
Glucosamine	0.5	0.177	0.9	0.772	0.8	0.318	ND		ND	
Hydroxyphenylpyruvate	0.7	0.235	1.1	0.520	1.6	0.028	ND		ND	
Myo-inositol	0.5	0.018	0.7	0.000	0.6	0.159	ND		6.6	0.155
Tyr	9.6	0.198	4.1	0.128	1.8	0.069	ND		0.4	0.392
4-Pyridoxic acid	0.9	0.555	1.0	0.728	1.1	0.457	ND		ND	
Phosphoserine	0.1	0.077	0.0	0.030	0.1	0.023	ND		ND	
Phosphoglycerate	3.2	0.059	0.7	0.389	1.7	0.220	0.4	0.644	ND	
N-Acetyl-glutamine	0.6	0.240	0.7	0.351	0.9	0.541	ND		1.2	0.923
Acetyllysine	0.1	0.038	0.3	0.005	0.2	0.003	0.1	0.012	0.8	0.556
Kynurenic acid	4.0	0.078	1.5	0.489	3.5	0.016	ND		ND	
N-Acetyl-glutamate ¹	0.6	0.189	1.1	0.878	1.6	0.020	ND		ND	

N-Acetyl-glutamate ²	0.9	0.900	1.0	0.789	1.9	0.021	ND	ND
Citrate	0.4	0.076	0.2	0.070	0.2	0.153	ND	0.6 0.088
2-Dehydro-D-gluconate	1.8	0.361	2.4	0.391	1.5	0.010	ND	ND
D-Gluconate	0.1	0.399	2.0	0.486	5.5	0.287	0.7 0.326	0.7 0.227
Trp	3.0	0.244	2.2	0.132	1.0	0.875	ND	ND
Acetylcarnitine	ND		ND		ND		0.6 0.225	0.8 0.502
Xanthurenic acid	0.8	0.515	0.9	0.882	1.7	0.511	1.9 0.152	1.6 0.143
Lipoate	0.3	0.180	0.4	0.033	0.7	0.498	ND	ND
Kynurenine	1.2	0.572	0.8	0.217	1.4	0.355	1.1 0.765	0.9 0.467
D-Glucarate ¹	2.6	0.402	1.1	0.752	ND		1.3 0.471	1.0 0.967
D-Glucarate ²	0.8	0.207	0.7	0.315	1.0	0.905	ND	ND
Deoxyribose-P	2.3	0.038	0.6	0.070	1.6	0.569	5.3 0.038	0.6 0.017
Cystathionine	0.4	0.175	1.0	0.949	ND		ND	ND
Prephenate	5.0	0.148	2.6	0.355	2.3	0.006	ND	ND
Deoxyuridine	0.2	0.111	1.2	0.529	1.2	0.209	0.9 0.662	3.3 0.104
Ribose-P	1.4	0.584	5.0	0.124	36.6	0.060	ND	ND
Thymidine	0.1	0.299	0.2	0.345	ND		1.5 0.375	0.9 0.737
Cytidine	1.5	0.451	9.7	0.029	1.6	0.415	ND	ND
Uridine	3.0	0.204	12.1	0.027	37.4	0.001	ND	1.2 0.202
Deoxyinosine	0.3	0.145	0.6	0.416	3.5	0.125	37.8 0.111	2.0 0.067
Shikimate-3-P	1.2	0.812	0.8	0.840	1.8	0.081	2.8 0.212	ND
D-Gluconolactone-6-P	0.9	0.665	1.2	0.362	0.9	0.537	ND	ND
Glycerophosphocholine	0.8	0.219	1.0	0.818	1.2	0.461	10.9 0.003	4.7 0.017
D-Glucosamine-1-P	2.1	0.228	2.8	0.220	2.8	0.003	ND	ND
Glucose-1-P	1.2	0.592	3.0	0.192	0.7	0.105	0.2 0.055	1.0 0.963
Thiamine	0.4	0.357	0.2	0.051	ND		ND	0.0 0.131
2,3-Diphosphoglyceric acid ¹	6.8	0.068	1.8	0.028	2.5	0.373	ND	ND
2,3-Diphosphoglyceric acid ²	0.9	0.849	1.1	0.707	2.2	0.137	0.1 0.004	0.5 0.038
S-Ribosylhomocysteine (SRH)	1.7	0.045	1.2	0.306	3.1	0.001	1.7 0.027	1.4 0.006
Adenosine	1.4	0.568	2.7	0.237	1.8	0.006	1.4 0.093	1.2 0.098
Inosine	2.5	0.002	1.1	0.767	2.9	0.114	1.2 0.706	1.7 0.053
6-Phosphogluconate	0.4	0.524	3.6	0.301	0.9	0.746	ND	ND
1-Methyladenosine ¹	1.3	0.102	4.8	0.212	ND		1.6 0.581	0.9 0.935
1-Methyladenosine ²	1.2	0.333	1.1	0.484	1.2	0.401	1.9 0.015	1.3 0.418
Guanosine	ND		0.3	0.443	ND		6.3 0.021	3.0 0.506
Xanthosine	4.8	0.169	4.9	0.184	2.6	0.003	4.5 0.007	4.1 0.016
Argininosuccinate	0.9	0.790	0.3	0.002	0.6	0.337	0.6 0.299	0.7 0.328
N-Acetyl-glucosamine	0.8	0.284	0.7	0.114	0.9	0.705	0.4 0.095	0.4 0.025
Glutathione	0.9	0.723	0.9	0.702	0.8	0.608	ND	ND
dUMP	14.3	0.000	22.2	0.048	9.8	0.013	29.3 0.058	18.2 0.059
Octoluse 8,1-P	0.6	0.485	0.5	0.370	1.9	0.217	ND	0.7 0.838
dTMP	0.8	0.371	0.9	0.766	1.3	0.161	0.8 0.057	1.3 0.373
CMP	0.7	0.327	0.4	0.061	0.6	0.015	11.6 0.057	2.1 0.021
UMP ¹	1.2	0.382	1.0	0.694	0.9	0.773	0.6 0.009	0.7 0.169
UMP ²	1.1	0.730	0.8	0.160	0.8	0.355	1.8 0.048	0.5 0.142
dAMP	1.5	0.118	0.9	0.691	2.6	0.616	ND	ND
Nicotinamide ribotide	1.4	0.410	2.8	0.100	2.1	0.002	ND	ND
Cellobiose	0.6	0.102	1.2	0.045	0.5	0.047	1.3 0.047	0.9 0.248
Trehalose/Sucrose	0.6	0.102	1.2	0.045	0.5	0.047	1.3 0.047	0.9 0.248
AMP	1.4	0.044	1.2	0.275	0.9	0.486	1.1 0.692	1.1 0.781
IMP ¹	1.2	0.868	1.9	0.408	0.4	0.203	ND	0.7 0.718
IMP ²	ND		0.4	0.263	ND		0.3 0.194	0.5 0.418

GMP	1.7	0.354	0.7	0.048	0.6	0.153	1.3	0.569	0.9	0.893
XMP	3.8	0.090	1.3	0.690	1.9	0.018	1.2	0.638	0.3	0.069
Riboflavin	3.3	0.390	2.8	0.402	1.5	0.220	0.8	0.002	1.1	0.175
S-Adenosylhomocysteine (SAH)	1.0	0.909	1.2	0.913	6.3	0.000	1.8	0.157	1.0	0.967
dCDP	7.8	0.455	0.3	0.198	0.8	0.273	1.2	0.531	0.8	0.357
dTDP	4.4	0.347	1.4	0.537	0.9	0.723	1.2	0.239	1.0	0.969
CDP	1.1	0.926	0.3	0.012	0.5	0.088	1.9	0.037	0.4	0.045
UDP	5.1	0.356	1.6	0.556	1.3	0.145	1.6	0.108	0.8	0.212
Trehalose-6-P	0.3	0.162	0.8	0.597	ND		1.3	0.103	2.4	0.185
Adenylyl sulfate	1.8	0.352	3.2	0.242	1.9	0.141	0.8	0.629	2.8	0.567
ADP	4.1	0.309	2.0	0.156	1.2	0.045	1.5	0.105	1.7	0.085
GDP	6.3	0.219	0.9	0.914	0.5	0.050	0.8	0.386	0.8	0.578
Deoxycholic acid	0.4	0.524	1.0	0.619	1.1	0.110	0.7	0.036	0.9	0.085
FMN	1.5	0.261	1.0	0.973	1.1	0.728	0.8	0.457	0.9	0.454
Cholesteryl sulfate	0.8	0.112	1.0	0.858	0.8	0.008	0.5	0.100	0.9	0.069
dCTP	1.2	0.596	1.0	0.942	0.6	0.052	0.8	0.325	1.3	0.265
dTTP	1.1	0.565	0.9	0.234	0.9	0.565	0.9	0.415	1.0	0.764
CTP	1.0	0.993	0.5	0.203	0.4	0.028	2.9	0.050	0.7	0.139
UTP	2.3	0.291	2.1	0.502	0.5	0.127	2.7	0.061	1.6	0.156
dATP	0.9	0.877	1.5	0.518	0.9	0.461	1.2	0.266	2.6	0.040
ATP	1.6	0.178	1.4	0.607	0.5	0.050	1.5	0.102	3.1	0.063
GTP	1.1	0.911	1.6	0.613	0.5	0.012	0.9	0.534	1.2	0.455
UDP-D-glucose	4.9	0.068	13.2	0.086	2.0	0.189	0.8	0.631	0.8	0.620
UDP-D-glucuronate	5.7	0.307	ND		2.0	0.001	1.4	0.175	1.7	0.035
UDP-N-acetyl-glucosamine	3.0	0.298	5.0	0.305	1.3	0.354	1.0	0.994	1.1	0.681
Glutathione disulfide	1.3	0.722	0.9	0.554	1.5	0.082	0.7	0.609	0.5	0.099
NAD+	1.1	0.200	1.3	0.110	1.0	0.982	ND		ND	
NADH	0.3	0.558	0.8	0.887	1.6	0.060	3.6	0.010	0.3	0.074
NADP+	1.9	0.265	1.6	0.342	1.5	0.062	1.3	0.064	1.9	0.103
NADPH	ND		0.6	0.551	0.9	0.701	3.1	0.026	1.5	0.117
FAD	2.4	0.152	2.0	0.327	2.4	0.017	1.5	0.001	1.4	0.188
Acetyl-CoA	1.3	0.718	0.5	0.058	0.5	0.113	1.3	0.367	0.8	0.111
LATE STATIONARY PHASE										
	Exp 1		Exp 2		Exp 3		Exp 4		Exp 5	
cAMP	2.4	0.011	1.3	0.105	1.6	0.005	2.7	0.092	1.7	0.071
AICARs	2.8	0.011	3.4	0.395	7.4	0.023	1.1	0.946	0.5	0.423
AICAR	16.8	0.116	34.1	0.032	32.7	0.007	82.0	0.053	47.9	0.055
Pantothenate	0.8	0.607	0.2	0.000	0.2	0.000	ND		ND	
Pyruvate	0.7	0.321	1.3	0.263	0.9	0.672	2.4	0.300	0.8	0.510
Ala	1.0	0.938	1.1	0.909	0.4	0.440	1.9	0.557	0.5	0.158
Lactate	0.3	0.380	0.5	0.620	1.5	0.262	1.5	0.649	0.9	0.627
2-Oxobutanoate	1.8	0.114	0.7	0.193	0.8	0.623	3.8	0.381	0.9	0.599
Dimethylglycine/4-Aminobutyrate	0.5	0.355	0.5	0.330	0.5	0.011	0.1	0.029	0.0	0.000
Ser	0.8	0.558	1.4	0.017	0.4	0.308	0.9	0.748	3.2	0.250
Glycerate	0.5	0.020	1.0	0.986	1.1	0.726	0.1	0.000	0.4	0.010
Uracil	1.1	0.698	0.9	0.296	1.3	0.009	2.0	0.243	1.2	0.213
Creatinine	1.3	0.561	0.5	0.202	1.3	0.588	14.6	0.304	ND	
Pro	0.8	0.703	0.8	0.615	1.3	0.493	1.2	0.831	3.6	0.209
Fumarate ¹	1.9	0.026	0.9	0.644	1.1	0.290	1.0	0.987	3.3	0.482
Fumarate ²	0.2	0.157	0.6	0.078	0.3	0.332	0.5	0.491	ND	
2-Ketoisovalerate (KIV) ¹	0.7	0.648	1.5	0.259	1.1	0.376	1.2	0.554	1.5	0.319
2-Ketoisovalerate (KIV) ²	1.2	0.347	1.6	0.032	1.0	0.601	4.1	0.050	1.7	0.288
Guanidoacetic acid	2.2	0.060	2.2	0.233	4.7	0.142	5.2	0.206	2.7	0.084

Indole ¹	2.3	0.033	4.1	0.038	7.1	0.055	5.4	0.185	2.9	0.155
Indole ²	1.2	0.687	0.9	0.942	2.5	0.063	3.9	0.195	2.1	0.035
Betaine/Val	1.9	0.012	2.3	0.001	3.6	0.010	6.1	0.069	2.9	0.000
Methylmalonic acid	0.9	0.116	0.9	0.051	1.1	0.715	1.7	0.264	1.4	0.528
Homoserine/Thr	0.7	0.039	0.9	0.536	0.9	0.776	1.4	0.486	1.1	0.857
3-S-Methylthiopropionate	0.7	0.541	1.2	0.597	1.6	0.074	1.5	0.385	1.1	0.562
Nicotinamide	0.8	0.586	1.4	0.320	1.7	0.297	1.3	0.506	1.4	0.538
Nicotinate	1.9	0.256	1.1	0.742	1.1	0.723	1.3	0.697	3.1	0.268
Thymine	0.7	0.361	0.8	0.433	1.2	0.220	0.9	0.604	1.1	0.568
Pyroglutamic acid (5-Oxoproline) ¹	0.2	0.079	0.4	0.012	0.4	0.007	0.8	0.692	0.8	0.408
Pyroglutamic acid (5-Oxoproline) ²	0.7	0.462	0.7	0.221	0.7	0.498	1.6	0.369	8.4	0.215
Citraconic acid	0.9	0.251	1.0	0.928	0.9	0.035	0.6	0.193	1.0	0.901
Hydroxyproline	0.2	0.279	0.5	0.012	0.4	0.003	0.8	0.815	2.5	0.178
Citraconic acid	0.8	0.494	0.4	0.064	0.6	0.010	1.4	0.425	0.9	0.548
Leu/Ile	1.1	0.661	1.1	0.528	2.9	0.010	3437.8	0.500	ND	
Asn	2.0	0.030	1.1	0.644	0.8	0.435	1.4	0.202	1.9	0.281
Hydroxyisocaproate ¹	0.8	0.108	0.9	0.603	0.8	0.037	5.9	0.027	1.5	0.290
Hydroxyisocaproate ²	1.0	0.818	1.3	0.089	6.2	0.002	5.5	0.171	8.9	0.139
Ornithine	0.4	0.269	0.7	0.272	ND		0.2	0.075	0.8	0.646
Asp	0.3	0.021	0.3	0.001	0.4	0.013	0.7	0.022	1.1	0.810
Malate ¹	0.1	0.105	0.3	0.186	0.2	0.178	1.6	0.449	0.3	0.082
Malate ²	0.1	0.105	0.3	0.186	0.1	0.169	1.8	0.507	0.0	0.327
Homocysteine	ND		1.5	0.153	ND		0.7	0.455	0.2	0.011
Adenine ¹	1.1	0.704	1.5	0.038	1.2	0.588	1.7	0.260	0.9	0.019
Adenine ²	1.1	0.722	1.7	0.027	1.9	0.003	1.5	0.331	0.9	0.451
Hypoxanthine	0.5	0.046	0.5	0.081	0.7	0.001	0.9	0.586	0.6	0.028
p-Hydroxybenzoate	0.8	0.385	0.6	0.414	0.8	0.027	2.9	0.025	1.0	0.951
Acetyl-P	0.1	0.220	0.1	0.085	0.1	0.032	2.4	0.272	0.0	0.020
Carbamoyl-P	0.1	0.055	0.5	0.330	0.4	0.091	ND		ND	
a-Ketoglutarate	1.1	0.923	0.4	0.056	1.8	0.125	0.6	0.406	0.3	0.055
Gln	0.4	0.015	0.9	0.591	0.7	0.511	2.2	0.000	0.4	0.004
Lys	0.5	0.254	0.4	0.004	0.8	0.476	0.8	0.599	2.8	0.101
Glu ¹	0.3	0.054	0.5	0.011	0.5	0.006	1.3	0.157	0.8	0.330
Glu ²	0.6	0.009	1.2	0.785	0.9	0.518	1.3	0.557	1.9	0.212
2-Hydroxy-2-methylbutanedioic acid	0.5	0.219	0.2	0.060	0.6	0.015	1.1	0.841	0.6	0.074
Met	0.9	0.514	1.3	0.609	0.6	0.052	0.2	0.161	2.2	0.290
3-Methylphenylacetic acid	1.2	0.276	1.4	0.180	1.2	0.599	ND		ND	
Guanine	1.0	0.929	0.8	0.091	1.5	0.001	0.6	0.235	1.4	0.729
2,3-Dihydroxybenzoic acid	1.0	0.974	1.6	0.560	3.7	0.441	ND		0.3	0.131
His	0.2	0.019	0.6	0.247	0.6	0.583	3.1	0.434	0.8	0.203
Orotate	3.2	0.339	1.4	0.615	0.5	0.573	4.6	0.519	ND	
Dihydrooorotate	0.8	0.666	1.7	0.312	1.2	0.176	ND		ND	
Amino adipate	1.1	0.459	1.8	0.005	2.0	0.021	ND		ND	
Carnitine	0.8	0.112	1.0	0.370	0.9	0.548	ND		ND	
Phenylpyruvate	0.2	0.309	1.3	0.149	1.0	0.784	ND		ND	
Methionine sulfoxide	0.9	0.843	5.8	0.059	1.2	0.802	ND		ND	
Phe	0.4	0.046	0.7	0.018	0.8	0.276	ND		5.3	0.406
Atrolactic acid	1.0	0.909	1.5	0.205	1.4	0.066	ND		ND	
Phenyllactic acid	1.0	0.909	1.5	0.205	1.4	0.066	ND		ND	
Phosphoenolpyruvate (PEP)	0.2	0.172	0.7	0.320	0.4	0.010	ND		ND	
Uric acid	4.1	0.422	0.2	0.426	ND		ND		ND	

Pyridoxamine	1.2	0.557	1.0	0.957	0.9	0.826	ND	ND		
D-Glyceraldehyde-3-P	0.1	0.161	2.3	0.031	1.7	0.129	1.7	0.572	0.8	0.355
sn-Glycerol-3-P	0.4	0.113	1.9	0.045	0.4	0.215	0.5	0.635	1.1	0.891
Aconitate	0.8	0.432	0.4	0.021	0.6	0.050	ND		ND	
Shikimate	1.0	0.974	1.0	0.843	1.5	0.015	ND		0.3	0.098
N-Acetyl-L-ornithine	0.1	0.011	0.2	0.168	0.1	0.103	2.7	0.440	0.9	0.239
Arg	0.4	0.021	0.4	0.011	1.0	0.906	0.1	0.011	1.2	0.795
Citrulline	1.1	0.854	1.1	0.638	1.9	0.036	0.3	0.175	1.9	0.104
Ascorbic acid	0.8	0.508	0.7	0.448	0.9	0.505	0.1	0.077	0.0	0.006
N-Carbamoyl-L-aspartate	0.5	0.283	0.7	0.232	0.7	0.019	0.8	0.711	1.3	0.773
Allantoate	0.4	0.403	0.8	0.872	1.0	0.935	2.0	0.398	1.0	0.937
Isopropylmalate	3.5	0.319	4.1	0.002	0.6	0.068	ND		ND	
Pyrophosphate	0.9	0.749	1.0	0.858	1.0	0.618	ND		ND	
Gluconolactone	2.5	0.166	1.4	0.242	1.0	0.832	ND		ND	
Glucosamine	0.5	0.116	0.6	0.359	0.9	0.582	ND		ND	
Hydroxyphenylpyruvate	0.9	0.763	1.0	0.804	1.2	0.258	ND		ND	
Myo-inositol	0.8	0.131	0.8	0.380	0.8	0.105	1.7	0.258	3.5	0.306
Tyr	0.4	0.011	0.7	0.081	0.8	0.154	ND		1.2	0.782
4-Pyridoxic acid	0.5	0.327	0.9	0.181	0.4	0.030	ND		ND	
Phosphoserine	0.4	0.010	5.1	0.048	1.1	0.756	ND		ND	
Phosphoglycerate	0.1	0.152	1.0	0.953	0.5	0.011	ND		ND	
N-Acetyl-glutamine	0.1	0.040	0.2	0.016	0.4	0.018	ND		ND	
Acetyllysine	0.2	0.007	0.2	0.016	0.3	0.186	1.1	0.812	1.0	0.925
Kynurenic acid	1.6	0.336	0.6	0.350	2.3	0.030	ND		ND	
N-Acetyl-glutamate ¹	1.1	0.802	1.0	0.970	1.0	0.450	ND		ND	
N-Acetyl-glutamate ²	0.2	0.004	0.9	0.679	0.7	0.203	ND		ND	
Citrate	0.6	0.354	0.4	0.173	0.3	0.001	ND		ND	
2-Dehydro-D-gluconate	1.0	0.989	1.4	0.720	1.2	0.281	ND		ND	
D-Gluconate	0.7	0.304	0.8	0.558	0.8	0.851	0.8	0.401	1.2	0.726
Trp	0.4	0.033	0.5	0.190	0.9	0.505	ND		ND	
Acetylcarnitine	2.3	0.691	ND		ND		1.2	0.718	0.5	0.087
Xanthurenic acid	0.6	0.075	0.7	0.503	1.2	0.482	1.7	0.446	1.4	0.439
Lipoate	66.9	0.127	2.8	0.276	1.7	0.445	ND		0.2	0.069
Kynurenine	0.8	0.633	0.6	0.229	1.0	0.996	4.8	0.387	0.9	0.175
D-Glucarate ¹	7.9	0.318	ND		ND		1.0	0.891	0.8	0.190
D-Glucarate ²	0.9	0.367	0.7	0.375	0.8	0.137	1.1	0.963	ND	
Deoxyribose-P	1.0	0.938	1.1	0.549	1.0	0.953	0.4	0.438	1.8	0.271
Cystathionine	0.9	0.763	3.6	0.203	ND		ND		ND	
Prephenate	0.9	0.961	0.6	0.584	1.3	0.627	ND		ND	
Deoxyuridine	1.3	0.546	0.9	0.456	1.0	0.869	1.9	0.436	1.8	0.238
Ribose-P	0.1	0.156	2.1	0.078	1.5	0.103	ND		ND	
Thymidine	0.2	0.034	0.3	0.118	ND		0.2	0.078	0.2	0.034
Cytidine	5.9	0.054	10.9	0.070	24.0	0.373	ND		1.1	0.946
Uridine	0.6	0.363	0.6	0.376	5.0	0.010	1.7	0.736	0.5	0.578
Deoxyinosine	13.4	0.240	1.5	0.139	0.4	0.287	20.7	0.136	12.6	0.147
Shikimate-3-P	3.2	0.150	13.0	0.023	2.0	0.004	1.3	0.721	0.7	0.238
D-Gluconolactone-6-P	0.8	0.461	1.1	0.952	1.1	0.829	ND		ND	
Glycerophosphocholine	0.8	0.155	0.8	0.253	0.7	0.330	16.2	0.242	9.6	0.013
D-Glucosamine-1-P	0.9	0.711	1.6	0.058	2.2	0.053	ND		ND	
Glucose-1-P	0.1	0.150	5.0	0.127	0.7	0.239	1.3	0.592	0.6	0.414
Thiamine	0.1	0.049	ND		ND		ND		ND	
2,3-Diphosphoglyceric acid ¹	2.9	0.065	0.8	0.862	0.5	0.670	ND		ND	
2,3-Diphosphoglyceric acid ²	0.6	0.275	ND		0.9	0.706	2.3	0.178	1.3	0.701

S-Ribosylhomocysteine (SRH)	1.8	0.052	1.6	0.001	3.7	0.010	1.3	0.594	1.0	0.896
Adenosine	1.1	0.755	1.3	0.442	1.5	0.055	0.7	0.164	0.8	0.273
Inosine	1.7	0.340	1.2	0.653	6.4	0.071	0.8	0.456	1.0	0.955
6-Phosphogluconate	0.5	0.458	1.5	0.546	0.7	0.219	ND		1.1	0.622
1-Methyladenosine ¹	1.6	0.945	ND		0.4	0.464	2.4	0.442	4.8	0.254
1-Methyladenosine ²	1.8	0.349	1.4	0.115	0.8	0.441	0.7	0.211	1.2	0.521
Guanosine	0.9	0.941	0.9	0.785	0.5	0.030	1.6	0.507	6.1	0.213
Xanthosine	2.7	0.083	4.2	0.003	3.3	0.018	5.3	0.058	2.4	0.025
Argininosuccinate	0.2	0.050	0.4	0.009	0.6	0.274	1.4	0.039	0.7	0.435
N-Acetyl-glucosamine	0.6	0.211	2.0	0.026	0.7	0.220	1.8	0.353	0.8	0.350
Glutathione	1.5	0.498	0.7	0.738	0.8	0.455	ND		0.1	0.496
dUMP	2.7	0.155	0.9	0.576	1.1	0.830	7.5	0.236	3.5	0.013
Octoluse 8,1-P	1.1	0.783	1.6	0.086	2.0	0.040	ND		ND	
dTMP	0.9	0.466	0.6	0.361	0.8	0.196	1.1	0.610	0.7	0.034
CMP	1.9	0.033	0.5	0.016	0.6	0.063	4.2	0.052	2.2	0.050
UMP ¹	0.9	0.560	0.6	0.067	0.6	0.030	0.7	0.726	0.2	0.108
UMP ²	0.8	0.556	0.6	0.016	0.7	0.306	0.7	0.201	0.3	0.020
dAMP	0.3	0.161	0.5	0.265	0.9	0.746	ND		ND	
Nicotinamide ribotide	1.8	0.033	2.0	0.097	1.3	0.671	ND		ND	
Cellobiose	1.0	0.890	0.7	0.017	0.6	0.173	3.6	0.005	1.1	0.068
Trehalose/Sucrose	1.0	0.890	0.7	0.017	0.6	0.173	3.6	0.005	1.1	0.068
AMP	1.5	0.356	0.6	0.203	0.9	0.623	0.8	0.258	0.4	0.013
IMP ¹	1.4	0.223	0.8	0.875	ND		ND		2.5	0.436
IMP ²	ND		ND		ND		1.9	0.243	0.5	0.085
GMP	1.7	0.400	0.4	0.339	0.4	0.230	0.8	0.324	0.8	0.427
XMP	ND		0.4	0.424	0.2	0.461	4.6	0.106	1.6	0.350
Riboflavin	0.2	0.153	0.4	0.323	0.6	0.025	0.9	0.550	1.2	0.035
S-Adenosylhomocysteine (SAH)	0.7	0.139	0.2	0.052	0.4	0.080	2.6	0.596	1.3	0.718
dCDP	1.7	0.389	0.8	0.476	0.8	0.062	0.9	0.610	0.5	0.009
dTDP	1.5	0.131	0.7	0.588	0.7	0.072	1.1	0.763	1.2	0.092
CDP	1.3	0.574	0.5	0.208	0.5	0.113	1.9	0.133	0.7	0.033
UDP	0.8	0.627	0.7	0.404	0.6	0.054	1.8	0.237	0.8	0.180
Trehalose-6-P	5.6	0.039	1.5	0.281	3.4	0.066	11.4	0.072	3.0	0.098
Adenylyl sulfate	1.2	0.801	1.3	0.472	1.8	0.066	7.6	0.360	1.4	0.369
ADP	1.0	0.757	0.9	0.536	0.8	0.088	1.4	0.400	0.9	0.164
GDP	0.6	0.479	1.4	0.048	0.5	0.042	1.4	0.408	0.7	0.006
Deoxycholic acid	1.0	0.615	1.0	0.784	1.1	0.635	3.2	0.222	1.2	0.545
FMN	0.8	0.183	0.7	0.061	0.7	0.357	1.9	0.272	0.7	0.100
Cholesteryl sulfate	1.0	0.599	1.0	0.961	1.0	0.811	4.7	0.343	0.9	0.558
dCTP	0.4	0.087	2.2	0.146	1.0	0.863	1.4	0.477	0.8	0.209
dTTP	0.8	0.252	1.2	0.031	1.1	0.852	0.9	0.726	0.8	0.018
CTP	0.6	0.290	1.5	0.025	0.7	0.397	2.5	0.161	0.7	0.078
UTP	0.8	0.753	2.0	0.176	1.0	0.972	2.3	0.225	0.8	0.164
dATP	0.7	0.464	1.5	0.116	0.9	0.323	2.1	0.212	1.3	0.215
ATP	0.4	0.133	1.6	0.333	1.0	0.825	1.6	0.344	1.0	0.883
GTP	0.6	0.548	4.4	0.185	1.0	0.906	1.9	0.342	0.7	0.105
UDP-D-glucose	0.0	0.153	3.0	0.050	0.5	0.428	4.1	0.088	0.8	0.601
UDP-D-glucuronate	0.1	0.054	ND		0.2	0.001	3.5	0.087	0.5	0.008
UDP-N-acetyl-glucosamine	0.4	0.145	2.4	0.031	0.9	0.703	1.2	0.593	0.6	0.096
Glutathione disulfide	3.6	0.063	2.0	0.200	2.6	0.047	2.1	0.201	0.4	0.400
NAD ⁺	1.1	0.504	0.9	0.248	1.0	0.948	ND		ND	
NADH	0.6	0.551	0.9	0.754	0.8	0.427	1.7	0.249	1.0	0.967
NADP ⁺	2.4	0.026	1.1	0.498	1.1	0.108	2.7	0.163	1.5	0.121

NADPH	0.7	0.814	4.1	0.272	1.5	0.459	2.7	0.268	0.7	0.394
FAD	1.3	0.336	1.1	0.492	0.9	0.740	2.6	0.193	1.2	0.115
Acetyl-CoA	0.8	0.612	2.2	0.154	0.9	0.690	1.3	0.535	0.4	0.074
					LOG TRANSFORMED DATA FOR EXP 3					
	EXPONENTIAL PHASE				EARLY STATIONARY		LATE STATIONARY			
	Exp 1				FC (log2)	PV (-log10)	FC (log2)	PV (-log10)		
cAMP	1.9	0.239			1.1	1.456	0.7	2.301		
AICARs	114.4	0.023			7.4	1.102	2.9	1.632		
AICAR	65.0	0.007			7.7	1.770	5.0	2.125		
Pantothenate	1.1	0.187			-1.3	1.420	-2.6	3.427		
Pyruvate	0.7	0.414			0.6	0.879	-0.2	0.173		
Ala	3.6	0.133			-1.7	0.462	-1.2	0.356		
Lactate	0.4	0.136			ND		0.6	0.582		
2-Oxobutanoate	1.8	0.169			0.1	0.063	-0.3	0.206		
Dimethylglycine/4-Aminobutyrate	0.9	0.633			-1.3	0.967	-1.1	1.948		
Ser	0.2	0.017			-2.3	2.000	-1.2	0.512		
Glycerate	1.4	0.340			0.3	1.357	0.2	0.139		
Uracil	0.5	0.577			0.3	0.301	0.4	2.069		
Creatinine	0.7	0.303			-0.5	0.352	0.4	0.231		
Pro	1.8	0.049			0.3	0.218	0.4	0.307		
Fumarate ¹	1.3	0.131			0.8	0.807	0.1	0.538		
Fumarate ²	0.5	0.039			-0.7	0.256	-1.5	0.478		
2-Ketoisovalerate (KIV) ¹	0.9	0.611			0.1	0.684	0.1	0.425		
2-Ketoisovalerate (KIV) ²	1.5	0.068			1.2	0.666	0.0	0.221		
Guanidoacetic acid	2.6	0.159			3.2	1.699	2.2	0.848		
Indole ¹	2.1	0.097			2.4	1.602	2.8	1.263		
Indole ²	2.3	0.467			0.8	0.453	1.3	1.197		
Betaine/Val	2.4	0.004			2.3	4.568	1.9	1.987		
Methylmalonic acid	0.4	0.068			0.1	0.032	0.2	0.146		
Homoserine/Thr	1.8	0.008			-0.2	0.164	-0.1	0.110		
3-S-Methylthiopropionate	0.2	0.081			0.8	0.812	0.7	1.131		
Nicotinamide	1.0	0.928			0.6	0.299	0.7	0.528		
Nicotinate	0.8	0.198			0.0	0.025	0.2	0.141		
Thymine	0.9	0.684			1.2	2.222	0.3	0.658		
Pyroglutamic acid (5-Oxoproline) ¹	1.1	0.568			-0.5	0.413	-1.2	2.148		
Pyroglutamic acid (5-Oxoproline) ²	0.3	0.274			0.8	0.697	-0.6	0.303		
Citraconic acid	1.1	0.660			-0.2	0.360	-0.2	1.451		
Hydroxyproline	0.4	0.034			-1.3	1.357	-1.4	2.534		
Citraconic acid	0.9	0.489			-0.2	0.150	-0.8	2.003		
Leu/Ile	2.1	0.046			2.1	2.699	1.5	2.013		
Asn	2.2	0.013			-0.7	0.457	-0.3	0.361		
Hydroxyisocaproate ¹	1.0	0.980			-0.3	1.284	-0.4	1.433		
Hydroxyisocaproate ²	0.8	0.213			4.3	1.699	2.6	2.745		
Ornithine	0.2	0.002			ND		ND			
Asp	1.0	0.942			-1.3	0.963	-1.4	1.870		
Malate ¹	0.6	0.029			-1.3	0.506	-2.7	0.750		
Malate ²	0.6	0.029			-1.3	0.506	-3.0	0.773		
Homocysteine	0.9	0.448			1.1	0.917	ND			
Adenine ¹	0.9	0.658			-0.3	0.542	0.2	0.231		
Adenine ²	0.8	0.429			0.1	0.221	1.0	2.488		
Hypoxanthine	1.0	0.994			-0.3	0.860	-0.5	3.033		
p-Hydroxybenzoate	0.7	0.172			-0.3	0.272	-0.4	1.574		

Acetyl-P	0.3	0.010	-0.5	0.498	-4.0	1.500
Carbamoyl-P	1.1	0.830	2.7	1.377	-1.2	1.040
α-Ketoglutarate	0.8	0.207	1.0	1.638	0.9	0.903
Gln	1.3	0.324	0.1	0.240	-0.5	0.292
Lys	2.0	0.309	0.6	0.426	-0.4	0.323
Glu ¹	1.0	0.938	-0.3	0.432	-1.1	2.190
Glu ²	0.7	0.314	1.3	2.523	-0.1	0.286
2-Hydroxy-2-methylbutanedioic acid	0.4	0.022	-0.5	0.680	-0.8	1.821
Met	0.9	0.872	-2.3	1.276	-0.7	1.287
3-Methylphenylacetic acid	1.0	0.864	-0.2	0.139	0.2	0.222
Guanine	0.7	0.469	0.9	1.292	0.5	2.965
2,3-Dihydroxybenzoic acid	5.1	0.048	3.8	2.097	1.9	0.356
His	2.0	0.070	-0.5	0.604	-0.8	0.234
Orotate	2.0	0.043	0.9	1.959	-1.1	0.242
Dihydroorotate	1.3	0.126	1.6	0.747	0.3	0.754
Amino adipate	2.0	0.045	1.4	3.000	1.0	1.672
Carnitine	0.9	0.407	0.0	0.105	-0.1	0.261
Phenylpyruvate	1.3	0.106	0.6	0.996	-0.1	0.106
Methionine sulfoxide	1.0	0.925	-1.7	0.516	0.3	0.096
Phe	2.5	0.003	1.5	1.699	-0.3	0.559
Atrolactic acid	1.0	0.959	1.9	2.523	0.5	1.183
Phenyllactic acid	1.0	0.959	1.9	2.523	0.5	1.183
Phosphoenolpyruvate (PEP)	0.8	0.287	1.3	0.690	-1.4	2.006
Uric acid	14.7	0.392	ND		ND	
Pyridoxamine	1.3	0.088	0.3	0.556	-0.1	0.083
D-Glyceraldehyde-3-P	0.7	0.116	2.2	1.770	0.8	0.888
sn-Glycerol-3-P	0.7	0.136	0.1	0.171	-1.4	0.667
Aconitate	0.8	0.112	-0.3	0.311	-0.8	1.300
Shikimate	0.5	0.053	0.8	1.260	0.6	1.815
N-Acetyl-L-ornithine	0.5	0.035	-3.3	1.046	-2.8	0.989
Arg	3.0	0.065	-0.2	0.141	0.0	0.043
Citrulline	0.4	0.018	-1.3	0.967	0.9	1.443
Ascorbic acid	0.9	0.694	-0.2	0.124	-0.1	0.297
N-Carbamoyl-L-aspartate	0.7	0.032	0.8	1.194	-0.5	1.731
Allantoate	0.5	0.562	-0.2	0.075	0.1	0.029
Isopropylmalate	0.1	0.050	-3.3	1.137	-0.8	1.170
Pyrophosphate	0.9	0.503	0.9	1.523	0.0	0.209
Gluconolactone	0.7	0.650	-0.5	1.056	0.1	0.080
Glucosamine	1.2	0.725	-0.3	0.498	-0.2	0.235
Hydroxyphenylpyruvate	0.7	0.225	0.7	1.553	0.2	0.589
Myo-inositol	0.9	0.606	-0.7	0.799	-0.3	0.979
Tyr	2.8	0.175	0.8	1.161	-0.3	0.814
4-Pyridoxic acid	1.2	0.423	0.1	0.340	-1.2	1.524
Phosphoserine	0.2	0.026	-3.3	1.638	0.2	0.121
Phosphoglycerate	0.5	0.022	0.8	0.658	-1.0	1.965
N-Acetyl-glutamine	0.5	0.060	-0.2	0.267	-1.4	1.739
Acetyllysine	0.9	0.660	-2.3	2.523	-1.5	0.731
Kynurenic acid	0.9	0.304	1.8	1.796	1.2	1.528
N-Acetyl-glutamate ¹	0.1	0.023	0.7	1.699	-0.1	0.347
N-Acetyl-glutamate ²	0.9	0.462	0.9	1.678	-0.5	0.693
Citrate	1.0	0.821	-2.3	0.815	-1.7	2.866
2-Dehydro-D-gluconate	0.8	0.714	0.6	2.000	0.3	0.551
D-Gluconate	0.7	0.531	2.5	0.542	-0.3	0.070

Trp	1.4	0.057	0.0	0.058	-0.1	0.297
Acetylcarnitine	ND		ND		ND	
Xanthurenic acid	2.1	0.135	0.8	0.292	0.3	0.317
Lipoate	0.3	0.104	-0.5	0.303	0.8	0.352
Kynurenine	0.5	0.266	0.5	0.450	0.0	0.002
D-Glucarate ¹	1.0	0.941	ND		ND	
D-Glucarate ²	1.7	0.114	0.0	0.043	-0.3	0.863
Deoxyribose-P	0.4	0.000	0.7	0.245	0.0	0.021
Cystathionine	0.4	0.043	ND		ND	
Prephenate	0.6	0.405	1.2	2.222	0.4	0.203
Deoxyuridine	1.0	0.981	0.3	0.680	0.1	0.061
Ribose-P	1.1	0.355	5.2	1.222	0.6	0.988
Thymidine	1.6	0.497	ND		ND	
Cytidine	1.1	0.791	0.7	0.382	4.6	0.428
Uridine	0.9	0.701	5.2	3.000	2.3	2.010
Deoxyinosine	0.2	0.300	1.8	0.903	-1.2	0.541
Shikimate-3-P	0.2	0.026	0.8	1.092	1.0	2.414
D-Gluconolactone-6-P	0.6	0.035	-0.2	0.270	0.1	0.082
Glycerophosphocholine	1.0	0.988	0.3	0.336	-0.4	0.482
D-Glucosamine-1-P	1.6	0.300	1.5	2.523	1.1	1.277
Glucose-1-P	0.7	0.021	-0.5	0.979	-0.6	0.622
Thiamine	0.9	0.916	ND		ND	
2,3-Diphosphoglyceric acid ¹	0.5	0.196	1.3	0.428	-1.0	0.174
2,3-Diphosphoglyceric acid ²	0.7	0.471	1.1	0.863	-0.2	0.151
S-Ribosylhomocysteine (SRH)	1.7	0.060	1.6	3.000	1.9	2.014
Adenosine	0.8	0.561	0.8	2.222	0.6	1.263
Inosine	1.3	0.447	1.5	0.943	2.7	1.147
6-Phosphogluconate	0.3	0.004	-0.2	0.127	-0.5	0.659
1-Methyladenosine ¹	1.4	0.655	ND		-1.2	0.334
1-Methyladenosine ²	0.6	0.133	0.3	0.397	-0.3	0.356
Guanosine	2.1	0.185	ND		-1.1	1.527
Xanthosine	6.3	0.001	1.4	2.523	1.7	1.748
Argininosuccinate	0.3	0.011	-0.7	0.472	-0.8	0.562
N-Acetyl-glucosamine	0.8	0.254	-0.2	0.152	-0.6	0.657
Glutathione	1.2	0.123	-0.3	0.216	-0.3	0.342
dUMP	5.6	0.031	3.3	1.886	0.1	0.081
Octoluse 8,1-P	0.4	0.015	0.9	0.664	1.0	1.394
dTMP	0.7	0.002	0.4	0.793	-0.3	0.707
CMP	1.2	0.195	-0.7	1.824	-0.7	1.203
UMP ¹	1.4	0.121	-0.2	0.112	-0.7	1.522
UMP ²	1.0	0.818	-0.3	0.450	-0.5	0.515
dAMP	1.2	0.848	1.4	0.210	-0.1	0.127
Nicotinamide ribotide	0.5	0.025	1.1	2.699	0.3	0.173
Cellobiose	0.9	0.878	-1.0	1.328	-0.7	0.762
Trehalose/Sucrose	0.9	0.744	-1.0	1.328	-0.7	0.762
AMP	1.9	0.098	-0.2	0.313	-0.1	0.206
IMP ¹	0.9	0.745	-1.3	0.693	ND	
IMP ²	1.1	0.830	ND		ND	
GMP	1.6	0.037	-0.7	0.815	-1.5	0.638
XMP	1.4	0.224	0.9	1.745	-2.1	0.336
Riboflavin	1.5	0.184	0.6	0.658	-0.8	1.597
S-Adenosylhomocysteine	1.2	0.421	2.7	3.701	-1.3	1.095

(SAH)					
dCDP	2.4	0.017	-0.3	0.564	-0.3 1.206
dTDP	1.3	0.408	-0.2	0.141	-0.5 1.141
CDP	2.3	0.148	-1.0	1.056	-1.0 0.946
UDP	2.0	0.212	0.4	0.839	-0.7 1.266
Trehalose-6-P	ND		ND		1.8 1.181
Adenylyl sulfate	ND		0.9	0.851	0.9 1.178
ADP	2.0	0.061	0.3	1.347	-0.4 1.054
GDP	2.7	0.005	-1.0	1.301	-1.0 1.382
Deoxycholic acid	0.9	0.212	0.1	0.959	0.2 0.197
FMN	1.0	0.951	0.1	0.138	-0.4 0.448
Cholesteryl sulfate	1.0	0.844	-0.3	2.097	0.0 0.091
dCTP	2.0	0.012	-0.7	1.284	0.0 0.064
dTTP	1.4	0.142	-0.2	0.248	0.1 0.070
CTP	2.2	0.040	-1.3	1.553	-0.5 0.402
UTP	2.2	0.023	-1.0	0.896	0.0 0.012
dATP	1.9	0.131	-0.2	0.336	-0.1 0.490
ATP	2.7	0.005	-1.0	1.301	-0.1 0.083
GTP	1.9	0.161	-1.0	1.921	-0.1 0.043
UDP-D-glucose	1.8	0.010	1.0	0.724	-1.1 0.369
UDP-D-glucuronate	0.8	0.491	1.0	3.000	-2.6 2.893
UDP-N-acetyl-glucosamine	0.6	0.219	0.4	0.451	-0.1 0.153
Glutathione disulfide	1.0	0.892	0.6	1.086	1.4 1.327
NAD+	1.1	0.104	0.0	0.008	0.0 0.023
NADH	9.2	0.065	0.7	1.222	-0.4 0.369
NADP+	0.8	0.426	0.6	1.208	0.1 0.966
NADPH	6.2	0.355	-0.2	0.154	0.5 0.338
FAD	1.2	0.707	1.3	1.770	-0.1 0.131
Acetyl-CoA	1.1	0.656	-1.0	0.947	-0.1 0.161

Early and late stationary phase data from Experiment 3 was plotted in Figure 1.

^{1,2} Multiple species with identical m/z.

TABLE S3. AICAR perturbs various areas of metabolism.

		EARLY STATIONARY PHASE						LATE STATIONARY PHASE					
		Linear Fold Changes			Log2 Transformed FC			Linear Fold Changes			Log2 Transformed FC		
		Exp 1	Exp 2	Exp 3	Exp 1	Exp 2	Exp 3	Exp 1	Exp 2	Exp 3	Exp 1	Exp 2	Exp 3
Carbon	cAMP	1.2	2.2	<u>2.2</u>	<u>0.3</u>	1.1	1.1	<u>2.4</u>	1.3	<u>1.6</u>	1.3	0.3	0.7
	Acetyl-P	<u>0.2</u>	0.7	0.7	-2.7	-0.5	-0.6	0.1	0.1	<u>0.1</u>	-3.1	-3.1	-4.0
	Glyceraldehyde-3-P	3.6	1.7	<u>4.5</u>	1.8	0.8	2.2	0.1	<u>2.3</u>	1.7	-3.1	1.2	0.8
	2,3-Diphosphoglycerate	6.8	<u>1.8</u>	2.5	2.8	0.9	1.3	2.9	0.8	0.5	1.5	-0.3	-1.0
	Aconitate	0.8	<u>0.4</u>	0.8	-0.4	-1.3	-0.3	0.8	<u>0.4</u>	0.6	-0.4	-1.3	-0.8
	2-Ketoglutarate	1.3	1.2	<u>2.0</u>	0.4	0.3	1.0	1.1	0.4	1.8	0.1	-1.3	0.9
	Fumarate ¹	1.3	<u>1.3</u>	1.7	0.3	0.4	0.8	<u>1.9</u>	0.9	1.1	0.9	-0.2	0.1
	Fumarate ²	0.9	<u>0.1</u>	0.6	-0.2	-3.3	-0.6	0.2	0.6	0.3	-2.6	-0.7	-1.5
	Malate	0.8	<u>0.1</u>	0.4	-0.4	-3.5	-1.4	0.1	0.3	0.2	-3.7	-1.6	-2.7
	Citraconic acid	<u>0.8</u>	0.5	0.9	-0.4	-1.0	-0.2	0.8	0.4	<u>0.6</u>	-0.4	-1.2	-0.8
	Glucanolactone	<u>0.4</u>	1.0	0.7	-1.4	0.0	-0.5	2.5	1.4	1.0	1.3	0.5	0.1
	2-Dehydrogluconate	1.8	2.4	<u>1.5</u>	0.8	1.3	0.6	1.0	1.4	1.2	0.0	0.4	0.3
	Glucosamine-1-P	2.1	2.8	<u>2.8</u>	1.1	1.5	1.5	0.9	1.6	2.2	-0.1	0.7	1.1
	UDP-Glucuronate	5.7	ND	<u>2.0</u>	2.5	ND	1.0	0.1	ND	<u>0.2</u>	-3.0	ND	-2.6
Atrolactic acid	1.7	1.5	<u>3.7</u>	0.8	0.6	1.9	1.0	1.5	1.4	-0.1	0.6	0.5	
Cofactor	Pantothenate	<u>0.3</u>	<u>0.2</u>	<u>0.4</u>	-1.6	-2.1	-1.5	0.8	<u>0.2</u>	<u>0.2</u>	-0.3	-2.0	-2.6
	Dihydroxybenzoic acid	4.3	13.6	<u>14.4</u>	2.1	3.8	3.8	1.0	1.6	3.7	0.0	0.7	1.9
	Lipoate	0.3	<u>0.4</u>	0.7	-1.7	-1.4	-0.5	66.9	2.8	1.7	6.1	1.5	0.8
	S-Adenosylhomocysteine (SAH)	1.0	1.2	<u>6.3</u>	0.0	0.2	2.6	0.7	0.2	0.4	-0.5	-2.3	-1.3
	FAD	2.4	2.0	<u>2.4</u>	1.3	1.0	1.3	1.3	1.1	0.9	0.4	0.2	-0.1
	Nicotinamide ribotide (NMN)	1.4	2.8	<u>2.1</u>	0.5	1.5	1.0	<u>1.8</u>	2.0	1.3	0.9	1.0	0.3
Amino Acids	Glutamine	0.9	1.1	1.1	-0.1	0.1	0.2	<u>0.4</u>	0.9	0.7	-1.5	-0.2	-0.5
	Glu ¹	0.9	0.7	0.8	-0.2	-0.5	-0.4	0.3	<u>0.5</u>	<u>0.5</u>	-1.7	-1.0	-1.1
	Glu ²	1.8	1.2	<u>2.4</u>	0.8	0.2	1.3	<u>0.6</u>	1.2	0.9	-0.8	0.3	-0.1
	Phosphoserine	0.1	<u>0.0</u>	<u>0.1</u>	-3.2	-4.9	-3.9	<u>0.4</u>	<u>5.1</u>	1.1	-1.3	2.3	0.2
	Ser	0.4	0.7	<u>0.2</u>	-1.2	-0.5	-2.2	0.8	<u>1.4</u>	0.4	-0.2	0.5	-1.2
	2-Ketoisovalerate (KIV)	<u>1.2</u>	<u>1.2</u>	1.1	0.3	0.3	0.2	0.7	1.5	1.1	-0.5	0.6	0.1
	Isopropylmalic acid	<u>0.2</u>	<u>0.1</u>	0.1	-2.3	-4.1	-3.5	3.5	<u>4.1</u>	0.6	1.8	2.0	-0.8
	Leu/Ile	1.9	3.8	<u>4.4</u>	0.9	1.9	2.1	1.1	1.1	<u>2.9</u>	0.2	0.1	1.5
	Hydroxyisocaproic acid	2.4	1.9	<u>20.2</u>	1.2	0.9	4.3	1.0	1.3	<u>6.2</u>	0.0	0.3	2.6
	Aminoadipic acid	2.5	2.5	<u>2.7</u>	1.3	1.3	1.4	1.1	<u>1.8</u>	<u>2.0</u>	0.1	0.8	1.0
	Acetyllysine	<u>0.1</u>	<u>0.3</u>	<u>0.2</u>	-3.3	-1.7	-2.2	<u>0.2</u>	<u>0.2</u>	0.3	-2.5	-2.2	-1.5
	Prephenate	5.0	2.6	<u>2.3</u>	2.3	1.4	1.2	0.9	0.6	1.3	-0.1	-0.7	0.4
	Phenylpyruvate	<u>4.0</u>	<u>2.4</u>	1.5	2.0	1.3	0.5	0.2	1.3	1.0	-2.1	0.3	-0.1
	Phe	13.4	6.9	<u>2.9</u>	3.7	2.8	1.5	<u>0.4</u>	<u>0.7</u>	0.8	-1.4	-0.6	-0.3
	Phenyllactic acid	1.8	1.5	<u>3.7</u>	0.8	0.6	1.9	1.0	1.5	1.4	-0.1	0.6	0.5
	Indole	2.6	<u>3.2</u>	<u>5.1</u>	1.4	1.7	2.3	<u>2.3</u>	<u>4.1</u>	7.1	1.2	2.0	2.8
	Kynurenic acid	4.0	1.5	<u>3.5</u>	2.0	0.6	1.8	1.6	0.6	<u>2.3</u>	0.6	-0.7	1.2
	Asp	0.8	<u>0.3</u>	0.4	-0.3	-1.7	-1.3	<u>0.3</u>	<u>0.3</u>	<u>0.4</u>	-1.8	-1.7	-1.4
	Asn	1.0	<u>0.6</u>	0.6	0.1	-0.8	-0.7	<u>2.0</u>	1.1	0.8	1.0	0.2	-0.3
	Met	0.5	<u>0.5</u>	0.2	-0.9	-1.0	-2.4	0.9	1.3	0.6	-0.2	0.4	-0.7
	S-Ribosylhomocysteine (SRH)	<u>1.7</u>	1.2	<u>3.1</u>	0.7	0.3	1.6	1.8	<u>1.6</u>	<u>3.7</u>	0.9	0.7	1.9
	N-Acetylornithine	<u>0.0</u>	<u>0.0</u>	0.1	-6.8	-4.9	-4.1	<u>0.1</u>	0.2	0.1	-3.7	-2.1	-2.8
	Carbamoyl-P	2.2	3.5	<u>6.5</u>	1.1	1.8	2.7	0.1	0.5	0.4	-3.3	-0.9	-1.2
	Citrulline	<u>0.3</u>	0.7	0.4	-1.5	-0.6	-1.3	1.1	1.1	<u>1.9</u>	0.1	0.2	0.9
	Argininosuccinate	0.9	<u>0.3</u>	0.6	-0.1	-2.0	-0.7	0.2	<u>0.4</u>	0.6	-2.7	-1.3	-0.8
	Arg	2.2	1.3	0.9	1.1	0.4	-0.2	<u>0.4</u>	<u>0.4</u>	1.0	-1.2	-1.4	0.0
Betaine	2.5	2.9	<u>5.0</u>	1.3	1.5	2.3	<u>1.9</u>	<u>2.3</u>	<u>3.6</u>	0.9	1.2	1.9	
Dimethylglycine/4-Aminobutyrate	0.3	0.6	0.4	-1.6	-0.8	-1.2	0.5	0.5	<u>0.5</u>	-1.0	-1.1	-1.1	

	Hydroxyproline	0.2	0.1	<u>0.4</u>	-2.5	-2.9	-1.4	0.2	<u>0.5</u>	<u>0.4</u>	-2.1	-1.1	-1.4
	Pyroglutamic acid (5-Oxoproline) ¹	0.9	0.8	0.7	-0.2	-0.4	-0.4	0.2	<u>0.4</u>	<u>0.4</u>	-2.1	-1.2	-1.2
	Pyroglutamic acid (5-Oxoproline) ²	1.1	3.9	1.7	0.1	2.0	0.7	0.7	0.7	0.7	-0.6	-0.5	-0.6
	Guanidoacetic acid	1.7	1.6	<u>8.9</u>	0.7	0.7	3.1	2.2	2.2	4.7	1.1	1.1	2.2
Purines	AICARs	407.2	<u>94.4</u>	164.3	8.7	6.6	7.4	<u>2.8</u>	3.4	<u>7.4</u>	1.5	1.8	2.9
	AICAR	<u>346.6</u>	<u>367.2</u>	<u>206.0</u>	8.4	8.5	7.7	16.8	<u>34.1</u>	<u>32.7</u>	4.1	5.1	5.0
	Adenine	<u>0.5</u>	0.7	0.8	-0.9	-0.4	-0.3	1.1	<u>1.5</u>	1.2	0.1	0.6	0.2
	Hypoxanthine	0.5	1.1	0.8	-1.0	0.2	-0.3	<u>0.5</u>	0.5	<u>0.7</u>	-1.1	-1.1	-0.5
	Adenosine	1.4	2.7	<u>1.8</u>	0.5	1.4	0.9	1.1	1.3	1.5	0.2	0.3	0.6
	Inosine	<u>2.5</u>	1.1	2.9	1.3	0.2	1.5	1.7	1.2	6.4	0.8	0.3	2.7
	Guanosine	ND	0.3	ND	ND	-1.8	ND	0.9	0.9	<u>0.5</u>	-0.1	-0.1	-1.1
	Xanthosine	4.8	4.9	<u>2.6</u>	2.3	2.3	1.4	2.7	<u>4.2</u>	<u>3.3</u>	1.5	2.1	1.7
	AMP	<u>1.4</u>	1.2	0.9	0.4	0.2	-0.1	1.5	0.6	0.9	0.6	-0.7	-0.1
	XMP	3.8	1.3	<u>1.9</u>	1.9	0.3	0.9	ND	0.4	0.2	ND	-1.3	-2.1
	ADP	4.1	2.0	<u>1.2</u>	2.0	1.0	0.3	1.0	0.9	0.8	0.1	-0.2	-0.4
	dATP	0.9	1.5	0.9	-0.1	0.5	-0.2	0.7	1.5	0.9	-0.6	0.6	-0.1
Pyrimidines	Dihydroorotate	5.7	<u>5.1</u>	3.1	2.5	2.3	1.6	0.8	1.7	1.2	-0.4	0.8	0.3
	Orotate	2.7	1.9	<u>1.9</u>	1.4	1.0	0.9	3.2	1.4	0.5	1.7	0.5	-1.1
	UMP	1.2	1.0	0.9	0.3	-0.1	-0.1	0.9	0.6	<u>0.6</u>	-0.2	-0.9	-0.7
	UMP	1.1	0.8	0.8	0.1	-0.3	-0.4	0.8	<u>0.6</u>	0.7	-0.3	-0.7	-0.5
	Uracil	0.5	0.6	1.2	-0.9	-0.7	0.3	1.1	0.9	<u>1.3</u>	0.2	-0.2	0.4
	Uridine	3.0	<u>12.1</u>	<u>37.4</u>	1.6	3.6	5.2	0.6	0.6	<u>5.0</u>	-0.7	-0.8	2.3
	Cytidine	1.5	<u>9.7</u>	1.6	0.6	3.3	0.6	5.9	10.9	24.0	2.6	3.4	4.6
	CMP	0.7	0.4	<u>0.6</u>	-0.5	-1.3	-0.8	<u>1.9</u>	<u>0.5</u>	0.6	0.9	-1.0	-0.7
	CDP	1.1	<u>0.3</u>	0.5	0.1	-1.7	-1.1	1.3	0.5	0.5	0.4	-1.0	-1.0
	CTP	1.0	0.5	<u>0.4</u>	0.0	-0.9	-1.4	0.6	<u>1.5</u>	0.7	-0.7	0.6	-0.5
	dUMP	<u>14.3</u>	<u>22.2</u>	<u>9.8</u>	3.8	4.5	3.3	2.7	0.9	1.1	1.4	-0.2	0.1
	Thymine	2.2	3.4	<u>2.3</u>	1.1	1.8	1.2	0.7	0.8	1.2	-0.6	-0.4	0.3

Early stationary phase data was plotted in Figure 4.

Underlined fold changes indicate instances where p-value was <0.05.

In instances where differences were not detected (or significant) in early stationary phase, data were included if statistically significant differences were present in late stationary phase.

^{1,2} Multiple species with identical m/z.

TABLE S4. Metabolome of *purH* and *icc* mutants

Metabolite	EARLY STATIONARY PHASE							
	Exp 1				Exp 2			
	<i>purH</i>		<i>icc</i>		<i>purH</i>		<i>icc</i>	
	Fold Change	p-value	Fold Change	p-value	Fold Change	p-value	Fold Change	p-value
cAMP	2.2	0.165	2.7	0.293	2.2	<u>0.035</u>	3.3	<u>0.004</u>
AICARs	ND	-	ND	-	169.1	0.079	0.3	0.354
AICAR	367.2	<u>0.003</u>	1.0	0.943	206.0	<u>0.017</u>	0.9	0.680
Pantothenate	0.2	<u>0.002</u>	0.6	0.367	0.4	<u>0.038</u>	0.2	<u>0.008</u>
Lactate	ND	-	ND	-	0.6	0.493	0.4	0.371
Dimethylglycine/4-Aminobutyrate	1.5	0.375	0.6	0.224	ND	-	ND	-
Ser	0.7	0.454	0.5	0.105	0.2	<u>0.006</u>	0.9	0.652
Glycerate	1.1	0.685	0.8	0.266	1.2	<u>0.044</u>	1.3	0.650
Uracil	0.6	0.550	0.3	<u>0.002</u>	1.2	0.500	1.4	0.393
Pro	1.4	0.386	0.5	0.181	1.2	0.605	0.1	0.135
Fumarate ¹	1.3	<u>0.011</u>	ND	-	1.7	0.156	1.3	0.061
Fumarate ²	0.1	<u>0.014</u>	0.2	<u>0.010</u>	0.6	0.554	0.1	0.163
2-Ketoisovalerate (KIV)	1.5	0.198	0.2	<u>0.002</u>	ND	-	ND	-
Guanidoacetic acid	1.6	0.449	0.2	0.056	8.9	<u>0.020</u>	0.4	<u>0.014</u>
Indole	ND	-	ND	-	5.1	<u>0.025</u>	0.4	0.084
Phenylacetoneitrile	3.2	<u>0.009</u>	0.3	0.129	ND	-	ND	-
Betaine/Val	2.9	0.113	0.4	<u>0.027</u>	5.0	<u>0.000</u>	0.5	<u>0.025</u>
Succinate	0.2	<u>0.034</u>	0.2	<u>0.030</u>	1.1	0.930	0.3	0.194
Homoserine/Thr	1.2	0.099	0.5	0.113	0.9	0.685	0.7	0.383
3-S-Methylthiopropionate	1.8	0.534	0.4	<u>0.002</u>	1.8	0.154	0.6	0.302
Nicotinamide	1.9	0.125	1.6	0.649	1.9	0.218	1.2	0.603
Nicotinate	0.8	0.300	0.7	0.118	1.0	0.990	2.6	<u>0.004</u>
Thymine	3.4	0.445	0.4	0.167	2.3	<u>0.006</u>	2.3	0.253
Pyroglutamic acid (5-Oxoproline) ¹	0.8	0.268	0.6	0.334	0.7	0.386	0.5	0.153
Pyroglutamic acid (5-Oxoproline) ²	3.9	0.172	1.0	0.964	1.7	0.201	ND	-
Citraconic acid	0.5	0.062	ND	-	0.9	0.708	0.5	0.206
N-Acetylalanine	0.1	0.158	0.3	0.233	0.4	<u>0.044</u>	2.0	0.099
Leu/Ile	3.0	0.170	0.5	0.108	4.0	<u>0.006</u>	1.2	0.615
Oxaloacetate	1.2	0.477	0.7	0.320	ND	-	ND	-
Asn	0.6	<u>0.031</u>	0.4	0.062	0.6	0.349	0.6	0.341
Hydroxyisocaproate	1.9	0.314	0.9	0.743	20.2	<u>0.020</u>	1.3	0.155
Asp	0.3	<u>0.017</u>	0.4	<u>0.035</u>	0.4	0.109	0.5	0.150
Malate	0.0	<u>0.040</u>	0.1	<u>0.041</u>	0.4	0.305	0.0	0.174
Homocysteine	1.1	0.838	0.1	0.192	ND	-	ND	-
Adenine ¹	0.7	0.149	0.4	<u>0.014</u>	0.8	0.287	0.7	0.338
Adenine ²	1.3	0.710	ND	-	1.1	0.601	0.3	<u>0.018</u>
Hypoxanthine	1.1	0.826	1.0	0.899	0.8	0.138	1.2	0.277
p-Hydroxybenzoate	2.4	0.341	1.3	0.440	0.8	0.534	0.9	0.671
Acetyl-P	0.7	0.255	0.6	0.354	0.7	0.318	0.7	0.496
Carbamoyl-P	3.5	0.155	1.3	0.628	6.5	<u>0.042</u>	2.0	0.307
a-Ketoglutarate	1.2	0.289	0.3	<u>0.003</u>	2.0	<u>0.023</u>	0.8	0.388
Gln	1.1	0.755	1.3	0.659	1.1	0.576	0.7	0.082
Lys	0.9	0.246	0.7	0.427	1.5	0.375	7.6	0.278

Glu ¹	0.7	0.137	0.6	0.291	0.8	0.370	0.6	0.135
Glu ²	1.2	0.811	1.1	0.909	2.4	<u>0.003</u>	4.8	<u>0.051</u>
2-Hydroxy-2-methylbutanedioic acid	0.5	0.254	0.5	0.171	0.7	0.209	1.2	0.272
Met	0.5	<u>0.001</u>	0.2	<u>0.015</u>	0.2	0.053	0.3	0.063
Guanine	2.8	0.444	0.9	0.700	1.9	<u>0.051</u>	1.6	0.199
Xanthine	1.4	0.617	0.2	<u>0.006</u>	0.8	0.608	1.0	0.973
2-Hydroxyphenylacetate ¹	1.6	<u>0.025</u>	1.1	0.377	ND	-	ND	-
2-Hydroxyphenylacetate ²	0.9	0.855	0.8	0.433	ND	-	ND	-
2,3-Dihydroxybenzoic acid	13.6	0.100	1.5	0.612	14.4	<u>0.008</u>	1.0	0.972
His	4.2	0.173	3.5	0.353	ND	-	ND	-
Orotate	1.9	0.171	0.8	0.354	1.9	<u>0.011</u>	0.9	0.625
Dihydroorotate	5.1	<u>0.010</u>	1.9	0.210	3.1	0.179	2.1	0.307
Allantoin	ND	-	ND	-	14.2	<u>0.047</u>	0.9	0.622
Amino adipate	2.5	0.114	1.1	0.837	2.7	<u>0.001</u>	1.4	0.164
Phenylpyruvate ¹	2.4	<u>0.012</u>	0.6	0.273	1.5	0.101	0.8	0.186
Phenylpyruvate ²	3.1	0.155	4.2	<u>0.038</u>	2.3	0.079	2.9	0.309
Methionine sulfoxide	0.7	0.147	1.5	0.536	0.3	0.305	4.1	0.213
Phe	6.9	0.083	3.0	0.226	2.9	<u>0.020</u>	8.7	0.314
Phenyllactic acid	1.5	0.395	0.7	0.328	3.7	<u>0.003</u>	1.9	0.246
Quinolate	ND	-	ND	-	0.1	0.078	0.8	0.484
Phosphoenolpyruvate (PEP)	0.6	0.201	0.7	0.493	2.5	0.204	0.3	0.109
DHAP	1.7	0.144	0.5	0.147	4.5	<u>0.017</u>	1.7	0.105
sn-Glycerol-3-P	1.3	0.183	0.7	0.477	1.1	0.674	0.1	<u>0.032</u>
Aconitate	0.4	<u>0.033</u>	0.5	0.191	0.8	0.489	0.4	0.098
Shikimate	ND	-	ND	-	1.7	0.055	0.7	0.316
2-Isopropyl-3-oxosuccinate	1.1	0.929	0.3	0.123	ND	-	ND	-
N-Acetyl-L-ornithine	0.0	<u>0.008</u>	0.1	<u>0.002</u>	0.1	0.090	0.3	0.129
Arg	1.3	0.418	0.7	0.575	1.1	0.747	6.3	0.223
Citrulline	0.7	0.250	0.4	0.080	0.4	0.108	0.2	0.056
Ascorbic acid	1.4	0.269	0.9	0.692	0.6	0.228	0.7	0.362
N-Carbamoyl-L-aspartate	15.6	0.068	2.6	0.277	1.7	0.064	1.5	0.137
Isopropylmalate	0.1	<u>0.005</u>	0.4	0.080	0.1	0.073	0.2	0.098
Pyrophosphate	1.8	0.465	0.8	0.493	1.9	<u>0.030</u>	1.0	0.959
Gluconolactone	1.0	0.913	0.9	0.844	0.7	<u>0.088</u>	0.8	0.384
Glucosamine	0.9	0.772	0.8	0.345	0.8	0.318	0.9	0.579
Hydroxyphenylpyruvate	1.1	0.520	0.8	0.372	1.6	<u>0.028</u>	0.4	<u>0.036</u>
Myo-inositol	0.7	<u>0.000</u>	0.3	0.054	0.6	0.159	0.5	0.072
Tyr	4.1	0.128	4.4	0.306	1.8	0.069	6.0	0.317
Phosphoserine	0.0	<u>0.030</u>	0.4	0.079	0.1	<u>0.023</u>	0.4	<u>0.033</u>
Phosphoglycerate	0.7	0.389	0.7	0.469	1.7	0.220	0.4	<u>0.008</u>
N-Acetyl-glutamine	0.7	0.351	2.0	0.445	0.9	0.541	0.9	0.435
Acetyllysine	0.3	<u>0.005</u>	1.0	0.966	0.2	<u>0.003</u>	3.6	0.142
Kynurenic acid	1.5	0.489	ND	-	3.5	<u>0.016</u>	1.0	0.896
N-Acetyl-glutamate ¹	1.1	0.878	0.8	0.665	1.6	<u>0.020</u>	1.0	0.895
N-Acetyl-glutamate ²	1.0	0.789	2.7	0.409	1.9	<u>0.013</u>	23.0	0.165
Citrate	0.2	0.070	0.4	0.116	0.2	0.153	0.3	0.208
2-Dehydro-D-gluconate	2.4	0.391	ND	-	1.5	<u>0.010</u>	0.8	0.142
D-Gluconate	2.0	0.486	0.3	0.412	5.5	0.287	14.0	0.415
D-Erythrose-4-P	ND	-	ND	-	1.3	0.103	2.5	0.054
Trp	2.2	0.132	2.0	0.392	1.0	0.875	1.1	0.805
D-Glucarate ¹	0.7	0.315	0.6	0.202	1.0	0.905	1.1	0.700

Deoxyribose-P	0.6	0.070	0.4	0.093	1.6	0.569	0.6	0.113
Prephenate	ND	-	ND	-	2.3	<u>0.006</u>	2.5	0.326
Deoxyuridine	1.2	0.529	1.0	0.884	1.2	0.209	0.9	0.603
Ribose-P	5.0	0.124	1.1	0.780	1.7	<u>0.033</u>	1.4	0.198
Thymidine	0.2	0.348	0.5	0.534	ND	-	ND	-
Ribose-P	ND	-	ND	-	71.8	0.058	0.8	0.628
Cytidine	9.7	<u>0.029</u>	0.9	0.879	1.6	0.415	1.0	0.962
Uridine	12.1	<u>0.027</u>	ND	-	37.4	<u>0.001</u>	4.1	0.452
Deoxyinosine	0.6	0.416	0.3	0.215	3.7	0.118	ND	-
Shikimate-3-P	0.8	0.840	0.2	0.187	1.5	<u>0.035</u>	0.6	0.057
D-Gluconolactone-6-P	ND	-	ND	-	1.0	0.822	1.2	0.307
D-Glucosamine-1-P	2.5	0.244	0.8	0.595	2.8	<u>0.003</u>	1.8	0.077
D-Fructose 6-phosphate	3.0	0.192	1.4	0.513	ND	-	ND	-
Glucose-P	3.0	0.192	ND	-	0.7	0.105	1.1	0.584
S-Ribosylhomocysteine (SRH)	1.2	0.306	0.5	0.102	3.1	<u>0.001</u>	0.9	0.763
Adenosine	2.7	0.237	1.5	0.118	1.8	<u>0.006</u>	1.5	0.070
Inosine	1.1	0.767	1.2	0.671	2.9	0.114	0.9	0.730
6-Phosphogluconate	ND	-	ND	-	0.9	0.746	1.2	0.512
Xanthosine	4.9	0.184	1.0	0.894	2.6	<u>0.003</u>	0.6	0.138
D-Sedoheptulose-1,7-P	8.8	0.168	2.7	0.318	ND	-	ND	-
Argininosuccinate	0.3	<u>0.002</u>	0.3	<u>0.014</u>	0.6	0.337	0.6	0.294
N-Acetyl-glucosamine-1,6-P	0.7	0.114	0.4	0.066	ND	-	ND	-
Glutathione	0.9	0.702	0.0	<u>0.017</u>	0.8	0.608	0.0	0.069
dCMP	6.1	<u>0.025</u>	1.9	0.336	3.1	<u>0.021</u>	0.9	0.834
dUMP	22.2	<u>0.048</u>	2.7	0.180	8.9	<u>0.014</u>	1.0	0.968
Octoluse 8,1-P	0.9	0.922	1.2	0.725	1.9	0.232	1.1	0.674
dTMP	0.9	0.766	1.1	0.823	1.3	0.161	1.1	0.654
CMP	0.4	0.061	0.3	<u>0.033</u>	0.6	<u>0.015</u>	1.6	0.284
UMP ¹	1.0	0.694	1.0	0.964	0.9	0.773	2.7	<u>0.004</u>
dAMP	0.9	0.691	1.6	0.589	ND	-	ND	-
Trehalose/Sucrose	1.2	<u>0.045</u>	0.8	0.669	0.5	<u>0.047</u>	0.8	0.147
Cellobiose	ND	-	ND	-	0.7	0.431	0.8	0.551
dGMP	1.2	0.275	1.2	0.777	0.9	0.486	1.4	0.066
IMP ²	1.9	0.408	0.1	0.192	0.4	0.203	0.3	0.123
GMP	0.7	<u>0.048</u>	1.0	0.991	0.6	0.153	1.2	0.394
XMP	1.3	0.690	2.4	0.335	1.9	<u>0.018</u>	0.4	<u>0.047</u>
Riboflavin	2.8	0.402	ND	-	1.5	0.220	1.2	0.469
S-Adenosylhomocysteine (SAH)	ND	-	ND	-	6.3	<u>0.000</u>	3.1	<u>0.036</u>
dCDP	ND	-	ND	-	0.5	<u>0.002</u>	1.6	0.496
dTDP	1.4	0.537	2.1	0.344	0.9	0.723	1.9	0.162
CDP	0.3	<u>0.012</u>	0.3	<u>0.006</u>	0.5	0.088	0.8	0.497
UDP	1.6	0.556	0.7	0.601	1.3	0.145	2.4	0.059
Trehalose-6-P	0.8	0.597	3.7	0.466	ND	-	0.5	0.588
Adenylyl sulfate	3.2	0.242	9.5	<u>0.033</u>	1.9	0.141	3.1	<u>0.028</u>
ADP	2.0	0.156	1.3	0.546	1.2	<u>0.045</u>	2.1	0.167
GDP	1.1	0.823	0.6	0.207	0.6	<u>0.006</u>	1.1	0.578
FMN	1.0	0.973	0.5	0.102	1.1	0.728	1.4	0.303
dCTP	1.0	0.942	0.3	<u>0.008</u>	0.6	0.052	1.4	0.447
dTTP	0.9	0.234	0.6	0.229	0.9	0.565	1.1	0.812
CTP	0.5	0.203	0.2	<u>0.010</u>	0.4	<u>0.028</u>	1.2	0.664
UTP	2.1	0.502	0.5	0.198	0.5	0.127	0.9	0.887
dATP	1.5	0.518	0.3	0.181	0.9	0.461	1.5	<u>0.033</u>

ATP	1.4	0.607	0.5	0.330	0.5	<u>0.050</u>	1.0	0.983
GTP	1.6	0.613	0.3	<u>0.024</u>	0.5	<u>0.012</u>	1.1	0.878
UDP-D-glucose	13.2	0.086	3.9	0.239	2.0	0.189	3.0	0.107
UDP-D-glucuronate	ND	-	ND	-	2.2	<u>0.003</u>	2.7	0.250
UDP-N-acetyl-glucosamine	5.0	0.305	0.9	0.797	1.3	0.354	2.1	0.147
Glutathione disulfide	0.9	0.554	0.4	0.090	1.5	0.082	0.1	<u>0.028</u>
NAD+	1.3	0.110	0.7	0.499	1.0	0.982	1.0	0.809
NADH	1.2	0.892	ND	-	1.6	0.060	1.9	<u>0.021</u>
NADP+	1.8	0.274	0.6	0.356	1.5	0.062	1.0	0.915
LATE STATIONARY PHASE								
Exp 1				Exp 2				
	<i>purH</i>		<i>icc</i>		<i>purH</i>		<i>icc</i>	
cAMP	1.3	0.105	1.5	0.184	1.6	<u>0.005</u>	2.2	0.098
AICARs	ND	-	ND	-	7.6	<u>0.023</u>	1.6	0.300
AICAR	34.1	<u>0.032</u>	2.8	0.061	32.7	<u>0.007</u>	0.6	0.122
Pantothenate	0.2	<u>0.000</u>	0.2	<u>0.000</u>	0.2	<u>0.000</u>	0.6	0.128
Lactate	ND	-	ND	-	1.0	0.898	0.9	0.761
Dimethylglycine/4-Aminobutyrate	0.4	<u>0.018</u>	1.5	0.406	ND	-	ND	-
Ser	1.4	<u>0.017</u>	1.6	0.499	0.4	0.308	6.6	0.454
Glycerate	1.0	0.986	1.1	0.657	1.1	0.726	1.2	0.450
Uracil	0.9	0.296	1.3	0.198	1.3	<u>0.009</u>	1.3	0.357
Pro	0.9	0.742	2.1	0.080	1.4	0.375	2.5	0.180
Fumarate ¹	ND	-	ND	-	1.1	0.290	1.1	0.234
Fumarate ²	0.6	0.078	4.3	0.184	0.3	0.332	1.4	0.596
2-Ketoisovalerate (KIV)	3.8	<u>0.005</u>	0.7	0.070	ND	-	ND	-
Guanidoacetic acid	2.2	0.233	0.8	0.617	4.7	0.142	0.2	0.188
Indole	ND	-	ND	-	7.1	0.055	1.0	0.897
Phenylacetoneitrile	4.1	<u>0.038</u>	1.1	0.753	ND	-	ND	-
Betaine/Val	2.3	<u>0.001</u>	0.8	0.055	3.6	<u>0.010</u>	0.5	<u>0.033</u>
Succinate	0.9	0.051	1.4	<u>0.033</u>	1.1	0.715	0.8	0.680
Homoserine/Thr	0.9	0.536	1.3	0.175	0.9	0.776	1.1	0.742
3-S-								
Methylthiopropionate	1.2	0.597	0.7	0.323	1.6	0.074	1.4	0.390
Nicotinamide	1.4	0.320	1.5	0.207	1.7	0.297	1.2	0.560
Nicotinate	0.9	0.676	1.1	0.710	1.6	0.113	2.0	<u>0.045</u>
Thymine	0.8	0.433	1.5	0.616	1.2	0.220	1.1	0.872
Pyroglutamic acid (5-Oxoproline) ¹	0.4	<u>0.012</u>	2.1	0.120	0.4	<u>0.007</u>	3.9	0.165
Pyroglutamic acid (5-Oxoproline) ²	0.7	0.221	4.6	<u>0.031</u>	ND	-	ND	-
Citraconic acid	0.4	0.064	ND	-	0.6	<u>0.010</u>	1.9	0.564
N-Acetylalanine	0.5	<u>0.008</u>	1.1	0.320	0.4	<u>0.003</u>	1.7	0.257
Leu/Ile	1.0	0.851	1.0	0.970	3.1	<u>0.000</u>	0.7	0.194
Oxaloacetate	1.4	0.494	2.0	<u>0.038</u>	ND	-	ND	-
Asn	1.1	0.644	1.2	0.331	0.8	0.435	1.7	<u>0.034</u>
Hydroxyisocaproate	1.3	0.089	1.7	0.263	6.2	<u>0.002</u>	7.6	0.299
Asp	0.3	<u>0.001</u>	1.8	<u>0.000</u>	0.4	<u>0.013</u>	2.1	0.088
Malate	0.5	0.096	23.8	0.082	0.1	0.169	1.3	0.602
Homocysteine	1.5	0.153	ND	-	ND	-	ND	-
Adenine ¹	1.5	<u>0.038</u>	0.2	<u>0.011</u>	1.2	0.588	3.2	0.339
Adenine ²	1.7	<u>0.027</u>	ND	-	1.9	<u>0.003</u>	1.2	0.796
Hypoxanthine	0.5	0.081	1.4	0.376	0.7	<u>0.001</u>	1.0	0.405

p-Hydroxybenzoate	0.6	0.414	1.0	0.997	0.8	<u>0.027</u>	0.9	0.114
Acetyl-P	0.1	0.085	5.9	<u>0.029</u>	0.1	<u>0.032</u>	7.2	0.138
Carbamoyl-P	0.5	0.330	2.3	0.086	0.4	0.091	1.6	0.097
a-Ketoglutarate	0.4	0.056	0.5	0.066	1.8	0.125	2.4	0.305
Gln	0.9	0.591	2.7	0.134	0.7	0.511	3.6	0.230
Lys	0.4	<u>0.004</u>	0.6	<u>0.017</u>	0.8	0.476	0.9	0.762
Glu ¹	0.5	<u>0.011</u>	2.0	0.098	0.5	<u>0.008</u>	3.7	0.158
Glu ²	1.2	0.785	1.8	<u>0.040</u>	0.9	0.518	0.9	0.647
2-Hydroxy-2-methylbutanedioic acid	0.2	0.060	1.0	0.992	0.6	<u>0.015</u>	1.3	0.431
Met	1.3	0.609	0.6	0.408	0.6	0.052	1.0	0.837
Guanine	0.8	0.091	1.0	0.975	1.5	<u>0.001</u>	1.0	0.907
Xanthine	1.1	0.725	1.3	0.434	0.6	0.137	0.7	0.502
2-Hydroxyphenylacetate ¹	0.9	0.054	1.0	0.908	ND	-	ND	-
2-Hydroxyphenylacetate ²	0.6	<u>0.003</u>	0.9	0.322	ND	-	ND	-
2,3-Dihydroxybenzoic acid	1.6	0.560	1.0	0.981	3.7	0.441	4.5	0.241
His	0.5	0.186	0.4	0.143	0.6	0.257	2.1	0.075
Orotate	1.4	0.615	13.2	0.303	0.5	0.573	0.9	0.952
Dihydroorotate	1.7	0.312	5.6	0.242	1.2	0.176	3.5	0.297
Allantoin	ND	-	ND	-	ND	-	ND	-
Amino adipate	1.8	<u>0.005</u>	2.2	<u>0.012</u>	2.0	<u>0.021</u>	1.0	0.753
Phenylpyruvate ¹	1.3	0.149	1.2	0.231	1.0	0.784	0.9	0.303
Phenylpyruvate ²	1.2	0.594	1.4	0.186	1.2	0.823	1.6	0.451
Methionine sulfoxide	5.8	0.059	8.0	<u>0.049</u>	1.2	0.802	1.1	0.876
Phe	0.7	<u>0.018</u>	1.7	0.069	0.8	0.276	0.7	0.200
Phenyllactic acid	1.5	0.205	1.0	0.921	1.4	0.066	0.9	0.881
Quinolate	ND	-	ND	-	0.4	<u>0.033</u>	1.0	0.918
Phosphoenolpyruvate (PEP)	0.7	0.320	1.3	0.266	0.4	<u>0.010</u>	1.6	0.149
DHAP	2.3	<u>0.031</u>	4.4	0.208	1.7	0.129	1.9	0.332
sn-Glycerol-3-P	1.9	<u>0.045</u>	1.8	0.093	0.4	0.215	0.2	0.162
Aconitate	0.4	<u>0.021</u>	2.9	<u>0.029</u>	0.6	<u>0.050</u>	1.2	0.793
Shikimate	ND	-	ND	-	1.5	<u>0.015</u>	0.7	0.135
2-Isopropyl-3-oxosuccinate	1.0	0.843	0.7	0.392	ND	-	ND	-
N-Acetyl-L-ornithine	0.2	0.168	11.4	0.113	0.1	0.103	1.9	0.442
Arg	0.4	<u>0.011</u>	0.5	<u>0.033</u>	1.0	0.906	0.7	0.247
Citrulline	1.1	0.638	3.5	0.239	2.1	<u>0.007</u>	0.7	0.215
Ascorbic acid	0.5	<u>0.033</u>	1.2	0.203	1.2	0.358	1.7	0.200
N-Carbamoyl-L-aspartate	0.7	0.232	11.0	0.395	0.7	<u>0.019</u>	1.2	0.443
Isopropylmalate	4.1	<u>0.002</u>	0.4	<u>0.008</u>	0.6	0.068	0.4	0.063
Pyrophosphate	1.0	0.858	1.3	0.638	1.0	0.618	1.0	0.734
Gluconolactone	1.4	0.237	0.5	0.120	1.0	0.832	0.8	0.602
Glucosamine	0.6	0.359	1.2	0.552	0.9	0.582	1.6	0.308
Hydroxyphenylpyruvate	1.0	0.804	1.3	<u>0.050</u>	1.2	0.258	0.8	0.122
Myo-inositol	0.8	0.380	0.8	0.507	0.8	0.105	1.0	0.770
Tyr	0.7	0.081	1.4	<u>0.040</u>	0.8	0.154	1.0	0.927
Phosphoserine	5.1	<u>0.048</u>	0.7	0.376	1.1	0.756	0.7	0.568
Phosphoglycerate	1.0	0.953	1.2	0.498	0.5	<u>0.011</u>	1.7	0.259
N-Acetyl-glutamine	0.2	<u>0.016</u>	3.2	0.084	0.4	<u>0.018</u>	1.8	0.264
Acetyllysine	0.2	<u>0.016</u>	1.0	0.902	0.3	0.186	2.3	0.060
Kynurenic acid	0.6	0.350	0.5	0.213	2.3	<u>0.030</u>	0.7	0.656
N-Acetyl-glutamate ¹	1.0	0.970	2.5	<u>0.010</u>	1.0	0.450	0.8	<u>0.022</u>
N-Acetyl-glutamate ²	0.9	0.679	1.3	0.106	0.7	0.203	0.5	0.218

Citrate	0.4	0.173	3.0	<u>0.007</u>	0.3	<u>0.001</u>	0.4	0.205
2-Dehydro-D-gluconate	ND	-	1.4	0.720	1.2	0.328	1.0	0.991
D-Gluconate	0.8	0.558	0.9	0.890	0.8	0.851	0.5	0.535
D-Erythrose-4-P	ND	-	ND	-	0.7	0.101	2.9	<u>0.005</u>
Trp	0.5	0.190	0.8	0.485	0.9	0.505	1.2	0.698
D-Glucarate ¹	0.7	0.375	1.5	0.256	0.8	0.137	0.9	0.358
Deoxyribose-P	1.1	0.549	1.2	0.205	1.0	0.953	1.0	0.926
Prephenate	ND	-	ND	-	1.3	0.627	1.8	0.413
Deoxyuridine	0.9	0.456	1.2	0.483	1.0	0.869	1.3	0.335
Ribose-P	2.1	0.078	3.8	0.142	1.5	0.103	1.4	0.417
Thymidine	0.3	0.127	1.6	0.386	ND	-	ND	-
Ribose-P	ND	-	ND	-	2.3	0.149	2.0	0.191
Cytidine	10.9	0.070	1.0	0.885	ND	-	ND	-
Uridine	0.6	0.376	ND	-	5.0	<u>0.010</u>	2.5	0.576
Deoxyinosine	1.5	0.139	0.4	0.091	0.5	0.497	2.4	0.557
Shikimate-3-P	13.0	<u>0.023</u>	1.8	0.238	2.0	<u>0.004</u>	0.4	0.079
D-Gluconolactone-6-P	ND	-	ND	-	0.8	0.057	1.0	0.929
D-Glucosamine-1-P	1.6	0.058	2.0	<u>0.009</u>	2.2	0.053	1.0	0.805
D-Fructose 6-phosphate	5.0	0.127	5.2	0.076	ND	-	ND	-
Glucose-P	5.0	0.127	ND	-	0.7	0.239	4.1	0.195
S-Ribosylhomocysteine (SRH)	1.6	<u>0.001</u>	1.0	0.915	3.7	<u>0.010</u>	1.4	<u>0.045</u>
Adenosine	1.3	0.442	1.9	0.055	1.5	0.055	1.0	0.868
Inosine	1.2	0.653	1.5	0.351	6.4	0.071	1.9	0.173
6-Phosphogluconate	ND	-	ND	-	0.7	0.219	1.1	0.737
Xanthosine	4.0	<u>0.002</u>	2.1	0.063	3.3	<u>0.018</u>	0.8	0.526
D-Sedoheptulose-1,7-P	1.2	0.324	1.6	<u>0.044</u>	ND	-	ND	-
Argininosuccinate	0.4	<u>0.009</u>	1.9	0.306	0.6	0.274	1.2	0.568
N-Acetyl-glucosamine-1,6-P	2.0	<u>0.026</u>	1.9	<u>0.030</u>	ND	-	ND	-
Glutathione	1.0	0.991	0.5	0.473	1.0	0.897	1.0	0.995
dCMP	1.3	<u>0.036</u>	1.7	0.347	1.2	0.693	0.3	0.100
dUMP	1.1	0.843	1.5	0.208	1.1	0.721	1.6	0.181
Octoluse 8,1-P	1.7	<u>0.000</u>	2.1	0.061	1.6	0.261	ND	-
dTMP	0.6	0.361	1.2	0.631	0.8	0.196	1.0	0.954
CMP	0.5	<u>0.016</u>	0.5	<u>0.028</u>	0.6	0.063	0.3	<u>0.008</u>
UMP ¹	0.6	0.067	2.0	<u>0.011</u>	0.6	<u>0.030</u>	1.5	<u>0.023</u>
dAMP	0.5	0.265	3.3	0.107	ND	-	ND	-
Trehalose/Sucrose	0.7	<u>0.017</u>	0.8	0.051	0.6	0.173	0.7	0.259
Cellobiose	ND	-	ND	-	1.0	0.956	1.1	0.331
dGMP	0.6	0.203	1.8	0.111	0.9	0.623	0.9	0.766
IMP ²	ND	-	ND	-	ND	-	ND	-
GMP	0.4	0.339	2.7	0.107	0.4	0.230	1.0	0.951
XMP	ND	-	12.9	0.372	0.2	0.461	0.2	0.424
Riboflavin	0.4	0.323	0.7	0.620	0.6	<u>0.025</u>	0.6	<u>0.020</u>
S-Adenosylhomocysteine (SAH)	ND	-	ND	-	0.4	0.080	0.5	0.144
dCDP	ND	-	ND	-	0.7	0.152	1.1	0.830
dTDP	0.7	0.588	0.5	0.421	0.7	0.072	0.8	0.353
CDP	0.5	0.208	1.1	0.679	0.5	0.113	0.6	0.136
UDP	0.7	0.404	1.4	0.385	0.6	0.054	1.2	0.753
Trehalose-6-P	1.5	0.281	8.1	<u>0.002</u>	3.4	0.066	8.7	0.080
Adenylyl sulfate	1.3	0.472	1.2	0.684	1.8	0.066	2.3	0.256
ADP	0.9	0.536	1.0	0.902	0.8	0.088	0.9	0.537
GDP	1.0	0.898	1.6	0.368	0.5	<u>0.002</u>	0.4	<u>0.000</u>

FMN	0.7	0.061	1.7	<u>0.037</u>	0.7	0.357	0.9	0.349
dCTP	2.2	0.146	2.8	0.212	1.0	0.863	1.1	0.750
dTTP	1.2	<u>0.031</u>	1.2	0.501	1.1	0.852	1.0	0.980
CTP	1.5	<u>0.025</u>	3.3	0.154	0.7	0.397	0.6	0.276
UTP	2.0	0.176	4.3	0.231	1.0	0.972	0.7	0.267
dATP	1.5	0.116	0.9	0.830	0.9	0.323	1.0	0.874
ATP	1.6	0.333	2.0	0.396	1.0	0.825	0.9	0.557
GTP	4.4	0.185	5.8	0.254	1.0	0.906	0.5	0.211
UDP-D-glucose	3.0	<u>0.050</u>	14.0	<u>0.002</u>	0.5	0.428	5.0	0.198
UDP-D-glucuronate	ND	-	ND	-	0.2	<u>0.001</u>	0.8	0.337
UDP-N-acetyl- glucosamine	2.4	<u>0.031</u>	3.6	<u>0.014</u>	0.9	0.703	1.7	0.219
Glutathione disulfide	2.0	0.200	0.1	<u>0.001</u>	2.6	<u>0.047</u>	1.9	0.646
NAD ⁺	0.9	0.248	1.0	0.896	1.0	0.948	1.0	0.702
NADH	0.9	0.754	0.5	0.203	0.8	0.427	0.3	0.053
NADP ⁺	1.2	0.441	0.8	0.291	1.1	0.108	0.4	0.126

Underlined p-values are <0.05.

^{1,2} Multiple species with identical m/z.