

Supplementary Table 5. Comprehensive absolute cellular metabolite concentrations.

Metabolite[compartment] \ Concentration(M)	BIGG ID	KEGG ID	Brenda ID	Mammalian	IBMK	L.B.	U.B.	Yeast	L.B.	U.B.	<i>E. coli</i>	L.B.	U.B.
1,3-bisphosphoglycerate[c]*	13dpg[c]	C00236	18032	2.24E-6	6.77E-7	3.28E-6	4.91E-6	3.26E-7	6.47E-5	1.65E-5	1.07E-5	2.97E-5	
2,3-bisphosphoglycerate	23dpg	C01159	18034	2.37E-4	1.76E-4	3.16E-4	3.61E-5	2.58E-5	5.07E-5	8.29E-5	6.08E-5	1.05E-4	
2,3-dihydroxybenzoic acid	23dhb	C00196	24972	-	-	-	-	-	-	1.38E-4	1.17E-4	1.64E-4	
2-dehydro-D-gluconate	2dhgln	C06473	-	2.77E-6	2.05E-6	3.48E-6	-	-	-	-	-	-	-
2-phosphoglycerate[c]**	2pg[c]	C00631	17976	9.49E-6	1.37E-6	9.18E-5	2.38E-5	4.39E-6	1.60E-4	9.18E-5	3.81E-5	3.22E-4	
3-phosphoglycerate	3pg	C00197	17981	3.75E-4	2.88E-4	4.63E-4	5.78E-4	3.45E-4	8.10E-4	1.54E-3	1.51E-3	1.58E-3	
3-phospho-serine	pser-L	C01005	36327	4.40E-4	3.45E-4	5.35E-4	-	-	-	-	-	-	-
4-hydroxybenzoate	4hbz	C00156	-	-	-	-	-	-	-	5.22E-5	4.43E-5	6.15E-5	
6-phospho-D-gluconate	6pgc	C00345	22563	1.65E-5	1.23E-5	2.20E-5	2.43E-4	1.77E-4	3.08E-4	3.77E-3	3.69E-3	3.85E-3	
acetoacetyl-CoA	aacoa	C00332	13538	-	-	-	-	-	-	2.18E-5	1.37E-5	3.47E-5	
acetyl-CoA	accoa	C00024	36329	2.88E-5	2.25E-5	3.50E-5	4.36E-5	3.62E-5	5.22E-5	6.06E-4	5.29E-4	6.94E-4	
acetylphosphate	actp	C00227	-	-	-	-	-	-	-	1.07E-3	1.02E-3	1.13E-3	
aconitate	acon-C	C00417	23413	1.10E-5	8.72E-6	1.34E-5	-	-	-	1.61E-5	1.38E-5	1.88E-5	
ac-serine	acser	C00979	-	5.72E-5	7.28E-6	1.07E-4	-	-	-	-	-	-	-
adenine	ade	C00147	20886	-	-	-	-	-	-	1.47E-6	1.26E-6	1.71E-6	
adenosine	adn	C00212	850	-	-	-	-	-	-	1.31E-7	9.44E-8	1.82E-7	
adenosine-phosphosulfate	aps	C00224	1024	-	-	-	-	-	-	6.63E-6	5.10E-6	8.62E-6	
ADP	adp	C00008	1228	5.69E-4	4.52E-4	7.15E-4	4.88E-4	4.29E-4	5.52E-4	5.55E-4	4.37E-4	7.04E-4	
ADP-glucose	adpglc	C00498	7320	-	-	-	-	-	-	4.27E-6	2.83E-6	6.44E-6	
a-ketoglutarate	akg	C00026	21003	7.97E-4	7.86E-4	8.08E-4	8.48E-4	7.91E-4	9.04E-4	4.43E-4	3.12E-4	6.31E-4	
alanine	ala-L	C00041	17908	6.98E-3	6.19E-3	7.77E-3	2.23E-2	1.96E-2	2.51E-2	2.55E-3	2.32E-3	2.80E-3	
AMP	amp	C00020	147	4.23E-5	3.57E-5	5.02E-5	8.12E-5	6.38E-5	1.03E-4	2.81E-4	2.32E-4	3.41E-4	
anthranilate	anth	C00108	-	-	-	-	-	-	-	3.48E-6	3.34E-6	3.62E-6	
arginine	arg-L	C00062	36213	2.55E-4	1.75E-4	3.35E-4	2.18E-2	1.76E-2	2.61E-2	5.69E-4	4.79E-4	6.75E-4	
asparagine	asn-L	C00152	19609	2.15E-4	1.56E-4	2.74E-4	5.69E-3	5.23E-3	6.14E-3	5.11E-4	4.42E-4	5.92E-4	
aspartate	asp-L	C00049	19556	1.49E-2	1.38E-2	1.60E-2	6.29E-3	5.79E-3	6.79E-3	4.23E-3	3.56E-3	5.04E-3	
ATP	atp	C00002	1395	4.67E-3	2.40E-3	6.94E-3	1.93E-3	1.66E-3	2.21E-3	9.63E-3	8.13E-3	1.14E-2	
carbamoyl-aspartate	cbasp	C00438	21131	-	-	-	-	-	-	5.90E-4	3.64E-4	9.55E-4	
carbon dioxide[c]**	co2[c]	C00011	28651	7.63E-3	6.37E-3	9.55E-3	8.16E-5	6.01E-5	9.01E-5	7.52E-5	5.02E-5	7.54E-5	
carbon dioxide[m]**	co2[m]	C00011	28651	6.53E-3	6.37E-3	9.55E-3	7.71E-5	6.01E-5	9.01E-5	-	-	-	
citrate	cit	C00158	23703	5.84E-4	5.59E-4	6.09E-4	1.49E-3	1.31E-3	1.67E-3	1.67E-3	1.10E-3	3.48E-3	
citruiline	ctr-L	C00327	22426	-	-	-	2.70E-2	2.41E-2	3.00E-2	1.35E-3	1.23E-3	1.48E-3	
CMP	cmp	C00055	36522	1.18E-5	9.13E-6	1.44E-5	5.18E-6	2.95E-6	7.40E-6	3.60E-4	1.87E-4	6.94E-4	
coenzyme-A	coa	C00010	11741	-	-	-	-	-	-	1.37E-3	8.83E-5	2.12E-2	
coenzyme-A[m]**	coa[m]	C00010	11741	4.04E-3	4.00E-3	6.00E-3	4.90E-3	4.00E-3	6.00E-3	-	-	-	
CTP	ctp	C00063	27764	8.97E-4	7.55E-4	1.04E-3	2.49E-4	2.02E-4	2.95E-4	2.73E-3	2.27E-3	3.27E-3	
cyclic-AMP	camp	C00575	664	1.30E-7	6.29E-8	1.97E-7	4.00E-7	3.19E-7	4.82E-7	3.52E-5	2.82E-5	4.39E-5	
cysteine	cys-L	C00097	17926	8.40E-5	6.19E-5	1.06E-4	-	-	-	-	-	-	
cytidine	cytd	C00475	27472	-	-	-	-	-	-	2.59E-6	1.18E-6	5.67E-6	
cytosine	csn	C00380	19308	-	-	-	-	-	-	1.41E-5	8.65E-6	2.29E-5	
dAMP	damp	C00360	1037	1.68E-5	5.76E-6	2.79E-5	-	-	-	8.84E-6	2.99E-6	2.62E-5	
dATP	datp	C00131	1369	9.74E-7	7.52E-7	1.20E-6	9.78E-6	6.55E-6	1.30E-5	1.55E-5	8.13E-6	2.96E-5	
dCDP	dcdp	C00705	27662	1.82E-6	1.62E-6	2.02E-6	-	-	-	-	-	-	
dCMP	dcmp	C00239	27589	3.71E-5	2.55E-5	4.88E-5	-	-	-	-	-	-	
dCTP	dctp	C00458	27759	-	-	-	4.46E-6	1.96E-6	6.96E-6	3.45E-5	2.60E-5	4.57E-5	
deoxyadenosine	dad-2	C00559	836	-	-	-	-	-	-	2.82E-6	1.80E-6	4.41E-6	
deoxyguanosine	dgsn	C00330	842	-	-	-	-	-	-	5.22E-7	4.11E-7	6.62E-7	
deoxyribose-5-phosphate	2dr5p	C00673	34541	-	-	-	-	-	-	3.03E-4	4.82E-5	1.90E-3	
dGMP	dgmpp	C00362	1047	-	-	-	-	-	-	5.07E-5	3.91E-5	6.58E-5	
dihydroorotate	dhor-S	C00337	20954	7.35E-4	6.30E-4	8.40E-4	-	-	-	1.19E-5	1.16E-5	1.23E-5	
dihydroxyacetonephosphate	dhap	C00111	89172	-	-	-	8.07E-4	7.01E-4	9.13E-4	3.06E-3	2.90E-3	3.22E-3	
dihydroxyacetonephosphate[c]*	dhap[c]	C00111	89172	1.63E-3	1.47E-3	1.75E-3	8.23E-4	7.46E-4	9.10E-4	-	-	-	
dTDP	dtdp	C00363	1308	-	-	-	-	-	-	3.78E-4	3.37E-4	4.26E-4	
dTMP	dtmp	C00364	1170	1.18E-5	7.20E-6	1.65E-5	-	-	-	-	-	-	
dTTP	dttp	C00459	1479	-	-	-	-	-	-	4.62E-3	4.21E-3	5.08E-3	
erythrose-4-phosphate[c]*	e4p[c]	C00279	59851	1.03E-5	7.54E-6	1.58E-5	1.46E-5	6.92E-6	1.95E-5	4.90E-5	4.19E-5	5.64E-5	
FAD	fad	C00016	33700	5.60E-6	3.17E-6	8.03E-6	3.53E-5	2.93E-5	4.13E-5	1.73E-4	9.33E-5	3.19E-4	
flavin mononucleotide	fmn	C00061	36301	-	-	-	-	-	-	5.37E-5	3.84E-5	7.51E-5	
fructose-1,6-bisphosphate	fdp	C00354	22767	1.52E-3	1.40E-3	1.63E-3	4.00E-3	3.41E-3	4.59E-3	1.52E-2	1.40E-2	1.64E-2	
fructose-6-phosphate[c]*	f6p[c]	C00085	56501	9.69E-5	8.18E-5	1.27E-4	2.37E-3	1.53E-3	2.92E-3	2.52E-3	2.16E-3	2.89E-3	
fumarate	fum	C00122	19266	3.87E-4	2.83E-4	4.90E-4	1.21E-4	8.05E-5	1.61E-4	1.15E-4	3.00E-6	4.42E-3	
fumarate[c]*	fum[c]	C00122	19266	-	-	-	-	-	-	2.88E-4	2.85E-4	2.93E-4	
fumarate[m]*	fum[m]	C00122	19266	4.85E-4	4.80E-4	4.90E-4	1.24E-4	8.88E-5	1.54E-4	-	-	-	
GDP	gdp	C00035	36200	3.02E-5	1.96E-5	4.08E-5	4.21E-5	2.63E-5	5.79E-5	6.76E-4	4.99E-4	9.16E-4	
gluconate	glcn	C00257	22387	2.11E-4	1.24E-4	2.98E-4	9.51E-5	7.75E-5	1.13E-4	4.16E-5	5.74E-6	3.02E-4	
gluconolactone	C00198	-	-	-	-	-	-	-	-	1.04E-3	6.47E-4	1.68E-3	
glucosamine-6-phosphate	gam6p	C00352	22727	-	-	-	-	-	-	1.15E-3	9.59E-4	1.39E-3	
glucose-6-phosphate[c]*	g6p[c]	C00092	22626	6.75E-4	6.74E-4	1.05E-3	5.31E-3	4.36E-3	6.18E-3	7.88E-3	7.59E-3	8.17E-3	
glutamate	glu-L	C00025	21361	6.38E-2	4.36E-2	8.39E-2	3.91E-2	3.66E-2	4.17E-2	9.60E-2	9.24E-2	9.98E-2	
glutamine	gln-L	C00064	20287	1.72E-2	1.62E-2	1.82E-2	3.55E-2	3.23E-2	3.86E-2	3.81E-3	3.50E-3	4.15E-3	
glutathione	gthrd	C00051	1508	3.09E-3	2.95E-3	3.22E-3	4.30E-3	4.12E-3	4.48E-3	1.66E-2	1.53E-2	1.79E-2	
glutathione disulfide	gthox	C00127	47962	1.80E-5	1.57E-5	2.03E-5	9.73E-5	8.71E-5	1.07E-4	2.37E-3	1.94E-3	2.90E-3	
glyceraldehyde-3-phosphate[c]*	g3p[c]	C00661	59	1.41E-4	1.28E-4	1.52E-4	1.18E-4	1.07E-4	1.30E-4	2.71E-4	2.56E-4	2.89E-4	
glycerate	glyc-R	C00258	28971	-	-	-	-	-	-	1.41E-3	6.44E-4	3.08E-3	
glycine	gly	C00037	15491	3.71E-3	3.61E-3	3.81E-3	-	-	-	-	-	-	
GMP	gmp	C00144	1070	1.81E-5	1.12E-5	2.49E-5	1.02E-5	6.30E-6	1.41E-5	2.37E-5	1.66E-5	3.38E-5	
GTP	gtp	C00044	32483	6.77E-4	6.52E-4	7.03E-4	2.47E-4	1.72E-4	3.22E-4	4.87E-3	1.57E-3	1.51E-2	
guanine	gua	C00242	20891	-	-	-	-	-	-	1.88E-4	1.32E-4	2.69E-4	
guanosine	gsn	C00387	85516	1.35E-6	1.19E-6	1.51E-6	-	-	-	1.62E-6	1.22E-6	2.17E-6	
hexose-phosphate***	-	-	-	1.07E-3	7.55E-4	1.39E-3	5.86E-3	4.87E-3	6.84E-3	8.75E-3	8.43E-3	9.08E-3	

histidine	his-L	C00135	23731	4.10E-4	3.86E-4	4.34E-4	-	-	-	6.76E-5	4.58E-5	9.97E-5
histidinol	histd	C00860	-	-	-	-	-	-	-	1.28E-5	1.26E-5	1.30E-5
homocysteine	hcys-L	C00155	84645	-	-	-	-	-	-	3.70E-4	3.65E-4	3.75E-4
hydroxylisocaproic acid		C03467	-	-	-	2.68E-5	2.23E-5	3.12E-5	-	-	-	-
IDP	idp	C00104	1009	-	-	-	-	-	-	2.98E-5	1.76E-5	3.22E-5
IMP	imp	C00130	1203	1.23E-5	9.06E-6	1.55E-5	3.80E-5	2.32E-5	5.28E-5	2.72E-4	1.73E-4	4.26E-4
inosine	ins	C00294	645	1.33E-6	5.38E-7	2.11E-6	6.12E-6	4.94E-6	7.31E-6	-	-	-
isocitrate[c]*	icit[c]	C00311	23698	-	-	-	-	-	-	3.67E-5	4.68E-6	4.29E-5
isocitrate[m]*	icit[m]	C00311	23698	3.21E-5	2.10E-5	3.38E-5	5.79E-6	1.90E-6	9.79E-6	-	-	-
isoleucine (assumed 1/2 ile+leu)	ile-L	C00407	22459	1.76E-3	1.66E-3	1.86E-3	3.53E-4	3.00E-4	4.05E-4	1.52E-4	1.49E-4	1.54E-4
isoleucine+leucine				3.52E-3	3.31E-3	3.72E-3	7.05E-4	6.00E-4	8.10E-4	3.03E-4	2.98E-4	3.08E-4
ITP	itp	C00081	1200	-	-	-	-	-	-	2.05E-4	1.38E-4	3.03E-4
leucine (assumed 1/2 ile+leu)	leu-L	C00123	22465	1.76E-3	1.66E-3	1.86E-3	3.53E-4	3.00E-4	4.05E-4	1.52E-4	1.49E-4	1.54E-4
lysine	lys-L	C00047	22685	5.06E-4	4.58E-4	5.54E-4	5.16E-3	2.89E-3	7.44E-3	4.05E-4	3.27E-4	5.02E-4
malate	mal-L	C00149	19469	1.39E-3	1.06E-3	1.72E-3	9.25E-4	6.82E-4	1.17E-3	1.68E-3	1.66E-3	1.70E-3
malonyl-CoA	malcoa	C00083	13046	4.95E-6	4.76E-6	5.13E-6	-	-	-	3.54E-5	4.05E-7	3.09E-3
methionine	met-L	C00073	20519	6.39E-4	6.19E-4	6.59E-4	1.91E-4	1.49E-4	2.33E-4	1.45E-4	1.31E-4	1.61E-4
methylmalonic acid		C02170	-	7.26E-5	3.76E-5	1.08E-4	-	-	-	-	-	-
myo-inositol	inost	C00137	82786	-	-	-	-	-	-	5.72E-6	4.22E-6	7.75E-6
N-acetyl-glucosamine-1/6-phosphate	acgam1p	C04256	26142	7.47E-6	4.38E-6	1.05E-5	1.50E-4	1.36E-4	1.65E-4	8.19E-5	7.25E-5	9.26E-5
N-acetyl-glutamine			24082	6.24E-6	5.60E-6	6.87E-6	6.49E-5	5.14E-5	7.84E-5	-	-	-
N-Acetyl-L-alanine			21296	1.03E-5	8.77E-6	1.19E-5	8.08E-6	6.38E-6	9.77E-6	-	-	-
N-Acetyl-L-aspartic acid	Nacasp	C01042	23785	2.90E-3	2.77E-3	3.03E-3	-	-	-	-	-	-
N-acetyl-ornithine	acorn	C00437	24348	-	-	-	2.29E-4	1.93E-4	2.65E-4	4.33E-5	2.71E-5	6.94E-5
NAD+	nad	C00003	11259	5.02E-4	4.72E-4	5.32E-4	2.44E-3	2.29E-3	2.60E-3	2.55E-3	2.32E-3	2.80E-3
NADH	nadh	C00004	11384	7.50E-5	6.36E-5	8.82E-5	1.07E-4	9.32E-5	1.22E-4	8.36E-5	5.45E-5	1.27E-4
NADP+	nadp	C00006	48210	2.84E-5	2.55E-5	3.14E-5	1.83E-4	1.61E-4	2.04E-4	2.08E-6	1.40E-7	3.11E-5
NADPH	nadph	C00005	48213	6.54E-5	5.87E-5	7.21E-5	2.21E-4	1.93E-4	2.50E-4	1.21E-4	1.10E-4	1.34E-4
ornithine	orn	C00077	20623	-	-	-	4.49E-3	4.04E-3	4.94E-3	1.01E-5	6.81E-6	1.51E-5
orotate	orot	C00295	20827	8.41E-6	2.19E-6	1.46E-5	-	-	-	-	-	-
oxaloacetate[c]*	oaa[c]	C00036	19271	-	1.18E-6	3.31E-6	5.01E-7	1.32E-7	9.86E-7	-	4.87E-7	2.81E-7
oxaloacetate[m]*	oaa[m]	C00036	19271	2.01E-6	1.18E-6	3.31E-6	5.01E-7	1.32E-7	9.86E-7	-	-	-
pentose-phosphate***				-	-	-	-	-	-	1.32E-3	9.83E-4	1.77E-3
phenylalanine	phe-L	C00079	27187	8.40E-4	7.97E-4	8.84E-4	2.73E-4	2.15E-4	3.31E-4	1.82E-5	1.77E-5	1.87E-5
phenylpyruvate	phppyr	C00166	28296	1.77E-3	1.71E-3	1.82E-3	-	-	-	8.98E-5	5.01E-5	1.61E-4
phosphate (orthophosphate)[c]**	pi[c]	C00009	92038	5.83E-3	4.00E-3	6.00E-3	4.93E-2	4.00E-2	6.00E-2	2.39E-2	1.60E-2	2.40E-2
phosphoenolpyruvate	pep	C00074	17779	1.16E-5	6.86E-6	1.98E-5	2.91E-5	2.33E-5	3.48E-5	1.84E-4	1.46E-4	2.31E-4
proline	pro-L	C00148	21286	1.23E-3	1.13E-3	1.34E-3	1.36E-3	8.38E-4	1.87E-3	3.85E-4	3.72E-4	3.99E-4
propionyl-CoA	ppcoa	C00100	36287	-	-	-	-	-	-	5.32E-6	3.88E-6	7.29E-6
PRPP	prpp	C00119	20749	-	-	-	4.70E-5	3.67E-5	5.73E-5	2.58E-4	1.36E-4	4.92E-4
pyruvate	pyr	C00022	17694	5.88E-3	5.40E-3	6.35E-3	9.40E-3	8.51E-3	1.04E-2	3.66E-3	3.13E-3	4.20E-3
quinolinate	quin	C03722	24851	-	-	-	-	-	-	1.15E-5	2.41E-6	5.49E-5
riboflavin	ribflv	C00255	7793	-	-	-	-	-	-	1.90E-5	1.72E-5	2.11E-5
ribose-5-phosphate	r5p	C00117	34575	7.83E-5	2.84E-5	1.28E-4	1.52E-4	1.14E-4	1.90E-4	-	-	-
ribose-5-phosphate[c]*	r5p[c]	C00117	34575	2.84E-5	2.84E-5	4.01E-5	-	-	-	7.87E-4	7.86E-4	8.36E-4
ribulose-5-phosphate[c]*	ru5p-D[c]	C00199	20587	5.27E-6	4.10E-6	5.85E-6	1.22E-4	7.73E-5	1.95E-4	1.12E-4	1.12E-4	1.27E-4
S-adenosyl-L-homocysteine	ahcys	C00021	5433	5.71E-7	-1.61E-7	1.30E-6	-	-	-	-	-	-
S-adenosyl-L-methionine	amet	C00019	6347	-	-	-	-	-	-	1.84E-4	1.19E-4	2.84E-4
sedoheptulose-7-phosphate	s7p	C05382	24563	1.51E-5	1.21E-5	1.81E-5	3.61E-4	3.29E-4	3.92E-4	8.82E-4	8.40E-4	9.24E-4
sedoheptulose-7-phosphate[c]*	s7p[c]	C05382	24563	1.81E-5	1.28E-5	1.81E-5	-	-	-	-	-	-
serine	ser-L	C00065	17936	4.86E-3	4.75E-3	4.97E-3	3.87E-3	2.35E-3	5.38E-3	1.13E-3	1.06E-3	1.20E-3
shikimate	skm	C00493	23975	-	-	-	-	-	-	1.41E-5	7.02E-6	2.81E-5
sn-glycerol 3-phosphate	glyc3p	C00093	18111	-	-	-	2.81E-4	2.54E-4	3.08E-4	4.90E-5	1.29E-5	1.87E-4
succinate	succ	C00042	19270	3.52E-4	2.87E-4	4.30E-4	6.35E-4	5.66E-4	7.05E-4	5.69E-4	3.41E-4	9.49E-4
succinyl-CoA	succoa	C00091	55439	-	-	-	-	-	-	2.33E-4	1.42E-4	3.83E-4
succinyl-CoA[m]*	succoa[m]	C00091	55439	6.80E-6	3.49E-7	3.16E-3	-	-	-	-	-	-
taurine	taur	C00245	15566	-	-	-	5.64E-6	5.21E-6	6.06E-6	-	-	-
threonine	thr-L	C00188	19816	6.69E-3	6.44E-3	6.94E-3	6.69E-3	4.52E-3	8.86E-3	1.26E-3	1.22E-3	1.29E-3
thymidine	thymd	C00214	991	2.64E-6	1.88E-6	3.40E-6	3.45E-6	2.65E-6	4.24E-6	-	-	-
trehalose	tre	C01083	39582	-	-	-	8.40E-3	6.53E-3	1.03E-2	-	-	-
tryptophan	trp-L	C00078	2198	1.80E-4	1.72E-4	1.89E-4	5.55E-5	4.63E-5	6.46E-5	1.21E-5	1.14E-5	1.29E-5
tyrosine	tyr-L	C00082	27212	9.38E-4	8.88E-4	9.88E-4	2.48E-4	2.29E-4	2.68E-4	2.89E-5	1.87E-5	4.47E-5
UDP	udp	C00015	27564	1.33E-4	1.25E-4	1.42E-4	3.68E-5	2.90E-5	4.47E-5	1.79E-3	1.18E-3	2.72E-3
UDP-glucose	udpg	C00029	6433	1.53E-3	1.28E-3	1.77E-3	2.68E-4	2.50E-4	2.86E-4	2.50E-3	1.23E-3	5.11E-3
UDP-glucuronate	udpglcur	C00167	36564	9.75E-5	8.45E-5	1.11E-4	-	-	-	5.66E-4	1.20E-4	2.67E-3
UDP-N-acetyl-glucosamine	uacgam	C00043	8030	8.97E-3	8.80E-3	9.14E-3	1.02E-3	9.28E-4	1.11E-3	9.24E-3	6.79E-3	1.26E-2
UMP	ump	C00105	27452	1.45E-5	1.33E-5	1.57E-5	1.45E-5	8.69E-6	2.04E-5	-	-	-
uridine	uri	C00299	27316	-	-	-	-	-	-	2.09E-3	1.96E-3	2.24E-3
UTP	utp	C00075	27658	1.76E-3	1.55E-3	1.98E-3	4.94E-4	4.28E-4	5.59E-4	8.29E-3	7.76E-3	8.86E-3
valine	val-L	C00183	20495	1.51E-3	1.44E-3	1.58E-3	2.50E-3	2.37E-3	2.63E-3	4.02E-3	3.53E-3	4.58E-3
xylulose-5-phosphate	xu5p-D	C00231	29847	3.15E-5	2.33E-5	3.95E-5	-	-	-	-	-	-
xylulose-5-phosphate[c]*	xu5p-D[c]	C00231	29847	2.99E-5	2.34E-5	3.31E-5	2.46E-4	1.59E-4	3.93E-4	1.81E-4	1.80E-4	2.03E-4

* Concentrations satisfy both measured 95% confidence interval and thermodynamic constraints. [c] and [m] denote values consistent with reaction free energies in cytosol and mitochondria, respectively.

** CO2 concentration was calculated using Henry's law at the respective culture conditions. Coenzyme A and phosphate concentrations were taken from literature.

*** Hexose-phosphate includes glucose-6-phosphate and fructose-6-phosphate. Pentose-phosphate includes ribose-5-phosphate, ribulose-6-phosphate, and xylulose-5-phosphate.