

Table 1 Intracellular metabolite concentrations in glucose-fed, exponentially growing *E. coli*

Metabolite	mol l ⁻¹	Metabolite	mol l ⁻¹	Metabolite	mol l ⁻¹
Glutamate	9.6 × 10 ⁻²	UDP-glucuronate (51)	5.7 × 10 ⁻⁴	<i>N</i> -Acetyl-ornithine (79)	4.3 × 10 ⁻⁵
Glutathione	1.7 × 10 ⁻²	ADP	5.6 × 10 ⁻⁴	Gluconate (80)	4.2 × 10 ⁻⁵
Fructose-1,6-bisphosphate	1.5 × 10 ⁻²	Asparagine (52)	5.1 × 10 ⁻⁴	Malonyl-CoA (81)	3.5 × 10 ⁻⁵
ATP	9.6 × 10 ⁻³	α-Ketoglutarate	4.4 × 10 ⁻⁴	Cyclic AMP (82)	3.5 × 10 ⁻⁵
UDP- <i>N</i> -acetylglucosamine (29)	9.2 × 10 ⁻³	Lysine (53)	4.1 × 10 ⁻⁴	dCTP (83)	3.5 × 10 ⁻⁵
Hexose-P ^a	8.8 × 10 ⁻³	Proline (54)	3.9 × 10 ⁻⁴	Tyrosine (84)	2.9 × 10 ⁻⁵
UTP (30)	8.3 × 10 ⁻³	dTDP (55)	3.8 × 10 ⁻⁴	Inosine diphosphate (85)	2.4 × 10 ⁻⁵
GTP (31)	4.9 × 10 ⁻³	Dihydroxyacetone phosphate	3.7 × 10 ⁻⁴	GMP (86)	2.4 × 10 ⁻⁵
dTTP	4.6 × 10 ⁻³	Homocysteine (56)	3.7 × 10 ⁻⁴	Acetoacetyl-CoA (87)	2.2 × 10 ⁻⁵
Aspartate	4.2 × 10 ⁻³	CMP (57)	3.6 × 10 ⁻⁴	Riboflavin (88)	1.9 × 10 ⁻⁵
Valine (32)	4.0 × 10 ⁻³	Deoxyribose-5-P (58)	3.0 × 10 ⁻⁴	Phenylalanine (89)	1.8 × 10 ⁻⁵
Glutamine	3.8 × 10 ⁻³	Isoleucine (59)+leucine (60)	3.0 × 10 ⁻⁴	<i>Cis</i> -aconitate (90)	1.6 × 10 ⁻⁵
6-Phosphogluconate	3.8 × 10 ⁻³	AMP	2.8 × 10 ⁻⁴	dATP (91)	1.6 × 10 ⁻⁵
CTP (33)	2.7 × 10 ⁻³	Inosine monophosphate (61)	2.7 × 10 ⁻⁴	Cytosine	1.4 × 10 ⁻⁵
Alanine (34)	2.6 × 10 ⁻³	PRPP (62)	2.6 × 10 ⁻⁴	Shikimate (92)	1.4 × 10 ⁻⁵
NAD ⁺	2.6 × 10 ⁻³	Succinyl-CoA (63)	2.3 × 10 ⁻⁴	Histidinol (93)	1.3 × 10 ⁻⁵
UDP-glucose (35)	2.5 × 10 ⁻³	Inosine triphosphate (64)	2.1 × 10 ⁻⁴	Tryptophan (94)	1.2 × 10 ⁻⁵
Glutathione disulfide (36)	2.4 × 10 ⁻³	Guanine (65)	1.9 × 10 ⁻⁴	Dihydroorotate (95)	1.2 × 10 ⁻⁵
Uridine (37)	2.1 × 10 ⁻³	Phosphoenolpyruvate	1.8 × 10 ⁻⁴	Quinolinate (96)	1.2 × 10 ⁻⁵
Citrate	2.0 × 10 ⁻³	S-Adenosyl-L-methionine (66)	1.8 × 10 ⁻⁴	Ornithine (97)	1.0 × 10 ⁻⁵
UDP (38)	1.8 × 10 ⁻³	Threonine (67)	1.8 × 10 ⁻⁴	dAMP (98)	8.8 × 10 ⁻⁶
Malate (39)	1.7 × 10 ⁻³	FAD (68)	1.7 × 10 ⁻⁴	Adenosine phosphosulfate (99)	6.6 × 10 ⁻⁶
3-Phosphoglycerate ^b	1.5 × 10 ⁻³	Methionine (69)	1.5 × 10 ⁻⁴	Myo-inositol (100)	5.7 × 10 ⁻⁶
Glycerate (40)	1.4 × 10 ⁻³	2,3-Dihydroxybenzoic acid (70)	1.4 × 10 ⁻⁴	Propionyl-CoA (101)	5.3 × 10 ⁻⁶
Coenzyme A (41)	1.4 × 10 ⁻³	NADPH	1.2 × 10 ⁻⁴	ADP-glucose (102)	4.3 × 10 ⁻⁶
Citrulline (42)	1.4 × 10 ⁻³	Fumarate (71)	1.2 × 10 ⁻⁴	Anthranilate (103)	3.5 × 10 ⁻⁶
Pentose-P ^c	1.3 × 10 ⁻³	Phenylpyruvate (72)	9.0 × 10 ⁻⁵	Deoxyadenosine (104)	2.8 × 10 ⁻⁶
Glucosamine-6-phosphate (43)	1.2 × 10 ⁻³	NADH	8.3 × 10 ⁻⁵	Cytidine (105)	2.6 × 10 ⁻⁶
Acetylphosphate (44)	1.1 × 10 ⁻³	<i>N</i> -Acetyl-glucosamine-1P (73)	8.2 × 10 ⁻⁵	NADP ⁺	2.1 × 10 ⁻⁶
Glucosylactone (45)	1.0 × 10 ⁻³	Serine (74)	6.8 × 10 ⁻⁵	Guanosine (106)	1.6 × 10 ⁻⁶
GDP (46)	6.8 × 10 ⁻⁴	Histidine (75)	6.8 × 10 ⁻⁵	Adenine (107)	1.5 × 10 ⁻⁶
Acetyl-CoA (47)	6.1 × 10 ⁻⁴	Flavin mononucleotide (76)	5.4 × 10 ⁻⁵	Deoxyguanosine (108)	5.2 × 10 ⁻⁷
Carbamylaspartate (48)	5.9 × 10 ⁻⁴	4-Hydroxybenzoate (77)	5.2 × 10 ⁻⁵	Adenosine (109)	1.3 × 10 ⁻⁷
Arginine (49)	5.7 × 10 ⁻⁴	dGMP (78)	5.1 × 10 ⁻⁵		
Succinate (50)	5.7 × 10 ⁻⁴	Glycerol-3-phosphate	4.9 × 10 ⁻⁵		

For error estimates and comparable data in glycerol-fed and acetate-fed *E. coli*, see **Supplementary Table 3**.

^aHexose-P denotes the combined pools of fructose-6-phosphate (110), glucose-6-phosphate (111) and glucose-1-phosphate (112). ^b3-Phosphoglycerate concentration may be overestimated due to degradation of 1,3-diphosphoglycerate to 3-phosphoglycerate during sample handling. ^cPentose-P denotes the combined pools of ribose-5-phosphate (113), ribulose-5-phosphate (114) and xylulose-5-phosphate (115).