

OXIDOREDUCTASES

1.1.1.1	Alcohol dehydrogenase
1.1.1.3	Homoserine dehydrogenase
1.1.1.8	Glycerol-3-phosphate dehydrogenase
1.1.1.9	D-Xylulose reductase
1.1.1.10	L-Xylulose reductase
1.1.1.14	L-Iditol dehydrogenase
1.1.1.19	Glucuronate reductase
1.1.1.21	Aldehyde reductase
1.1.1.22	UDPglucose dehydrogenase
1.1.1.23	Histidinol dehydrogenase
1.1.1.25	Shikimate dehydrogenase
1.1.1.27	Lactate dehydrogenase
1.1.1.29	Glycerate dehydrogenase
1.1.1.30	3-Hydroxybutyrate dehydrogenase
1.1.1.31	3-Hydroxyisobutyrate dehydrogenase
1.1.1.32	Mevaldate reductase
1.1.1.34	Hydroxymethylglutaryl-CoA reductase (NADPH)
1.1.1.35	3-Hydroxyacyl-CoA dehydrogenase
1.1.1.37	Malate dehydrogenase
1.1.1.39	Malate dehydrogenase (decarboxylating)
1.1.1.41	Isocitrate dehydrogenase (NAD ⁺)
1.1.1.44	Phosphogluconate dehydrogenase (decarboxylating)
1.1.1.45	L-Gulonate dehydrogenase
1.1.1.49	Glucose-6-phosphate dehydrogenase
1.1.1.56	Ribitol dehydrogenase
1.1.1.79	Glyoxylate reductase (NADP ⁺)
1.1.1.81	Hydroxypyruvate reductase
1.1.1.82	Malate dehydrogenase (NADP ⁺)
1.1.1.85	3-Isopropylmalate dehydrogenase
1.1.1.86	Ketol-acid reductoisomerase
1.1.1.95	Phosphoglycerate dehydrogenase
1.1.1.100	3-Oxoacyl-[acyl-carrier-protein] reductase
1.1.1.102	3-Dehydrosphinganine reductase
1.1.1.105	Retinol dehydrogenase
1.1.1.130	3-Dehydro-L-gulonate 2-dehydrogenase
1.1.1.157	3-Hydroxybutyryl-CoA dehydrogenase
1.1.1.158	UDP-N-acetylmuramate dehydrogenase
1.1.1.169	2-Dehydropantoate 2-reductase
1.1.1.204	Xanthine dehydrogenase
1.1.1.205	IMP-dehydrogenase
1.1.3.8	L-Gulonolactone oxidase
1.1.3.22	Xanthine oxidase
1.1.99.1	Choline dehydrogenase
1.1.99.5	Glycerol-3-phosphate dehydrogenase

1.2.1.3	Aldehyde dehydrogenase (NAD ⁺)
1.2.1.7	Benzaldehyde dehydrogenase (NADP ⁺)
1.2.1.8	Betaine-aldehyde dehydrogenase
1.2.1.11	Aspartate-semialdehyde dehydrogenase
1.2.1.12	Glyceraldehyde-3-phosphate dehydrogenase
1.2.1.13	Glyceraldehyde-3-phosphate dehydrogenase
1.2.1.16	Succinate-semialdehyde dehydrogenase (NAD(P) ⁺)
1.2.1.18	Malonate semialdehyde dehydrogenase (acetylating)
1.2.1.21	Glycolaldehyde dehydrogenase
1.2.1.23	2-Oxoaldehyde dehydrogenase (NAD ⁺)
1.2.1.24	Succinate-semialdehyde dehydrogenase
1.2.1.25	2-Oxoisovalerate dehydrogenase (acylating)
1.2.1.27	Methylmalonate-semialdehyde dehydrogenase (acylating)
1.2.1.31	L-Aminoadipate-semialdehyde dehydrogenase
1.2.1.32	Aminomuconate-semialdehyde dehydrogenase
1.2.1.36	Retinal dehydrogenase
1.2.1.41	Glutamate-5-semialdehyde dehydrogenase
1.2.1.52	Oxoglutarate dehydrogenase
1.2.3.5	Glyoxylate oxidase
1.2.3.7	Indole-3-acetaldehyde oxidase
1.2.4.1	Pyruvate dehydrogenase (lipoamide)
1.2.4.2	Oxoglutarate dehydrogenase (lipoamide)
1.2.7.1	Pyruvate synthase
1.2.7.2	2-Oxobutyrate synthase
1.3.1.1	Dihydrouracil dehydrogenase (NAD ⁺)
1.3.1.2	Dihydropyrimidine dehydrogenase (NADP ⁺)
1.3.1.8	Acyl-CoA dehydrogenase (NADP ⁺)
1.3.1.9	Enoyl-[acyl-carrier-protein] reductase (NADH)
1.3.1.10	Enoyl-[acyl-carrier-protein] reductase (NADPH, B-specific)
1.3.1.13	Prephenate dehydrogenase (NADP ⁺)
1.3.1.14	Orotate reductase (NADH)
1.3.1.26	Dihydrodipicolinate reductase
1.3.1.35	Phosphatidylcholine desaturase
1.3.3.3	Coproporphyrinogen oxidase
1.3.3.4	Protoporphyrinogen oxidase
1.3.5.1	Succinate dehydrogenase (ubiquinone)
1.3.99.1	Succinate dehydrogenase
1.3.99.2	Butyryl-CoA dehydrogenase
1.3.99.3	Acyl-CoA dehydrogenase
1.3.99.7	Glutaryl-CoA dehydrogenase
1.3.99.10	Isovaleryl-CoA dehydrogenase
1.4.1.1	Alanine dehydrogenase
1.4.1.2	Glutamate dehydrogenase
1.4.1.7	Serine dehydrogenase
1.4.1.8	Valine dehydrogenase (NADP ⁺)

1.4.1.9	Leucine dehydrogenase
1.4.1.10	Glycine dehydrogenase
1.4.1.14	Glutamate synthase (NADH)
1.4.1.19	Tryptophan dehydrogenase
1.4.3.1	d-Aspartate oxidase
1.4.3.2	L-Amino-acid oxidase
1.4.3.4	Amine oxidase (flavin-containing)
1.4.3.8	Ethanolamine oxidase
1.4.4.2	Glycine dehydrogenase (decarboxylating)
1.5.1.2	Pyrroline-5-carboxylate reductase
1.5.1.3	Dihydrofolate reductase
1.5.1.5	Methylenetetrahydrofolate reductase (NADP+)
1.5.1.6	Formyltetrahydrofolate dehydrogenase
1.5.1.7	Saccharopine dehydrogenase (NAD+, L-lysine-forming)
1.5.1.8	Saccharopine dehydrogenase (NADP+, L-lysine-forming)
1.5.1.9	Saccharopine dehydrogenase (NAD+, L-glutamate-forming)
1.5.1.10	Saccharopine dehydrogenase (NADP+, L-glutamate-forming)
1.5.1.12	1-Pyrroline-5-carboxylate dehydrogenase
1.5.3.1	Sarcosine oxidase
1.5.99.1	Sarcosine dehydrogenase
1.5.99.2	Dimethylglycine dehydrogenase
1.5.99.8	Proline dehydrogenase
1.6.4.1	Cystine reductase (NADH)
1.6.5.3	NADH dehydrogenase (ubiquinone)
1.6.6.1	Nitrate reductase (NADH)
1.6.6.2	Nitrate reductase [NAD(P)H]
1.6.6.3	Nitrate reductase (NADPH)
1.6.6.4	Nitrite reductase [NAD(P)H]
1.6.6.8	GMP reductase
1.7.3.3	Urate oxidase
1.7.7.1	Ferredoxin—nitrate reductase
1.7.99.4	Nitrate reductase
1.8.1.3	Hypotaurine dehydrogenase
1.8.1.4	Dihydrolipoamide dehydrogenase
1.8.2.1	Sulfite dehydrogenase
1.8.3.1	Sulfite oxidase
1.8.7.1	Sulfite reductase (ferredoxin)
1.8.99.1	Sulfite reductase
1.8.99.2	Adenylylsulphate reductase
1.9.3.1	Cytochrome-c oxidase
1.10.2.1	L-Ascorbate—cytochrome-b5 reductase
1.10.2.2	Ubiquinol—cytochrome-c reductase
1.10.3.3	L-Ascorbate oxidase
1.10.99.1	Plastoquinol—plastocyanin reductase
1.13.11.1	Catechol 1,2-dioxygenase

1.13.11.2	Catechol 2,3-dioxygenase
1.13.11.5	Homogentisate 1,2-dioxygenase
1.13.11.6	3-Hydroxyanthranilate 3,4-dioxygenase
1.13.11.11	Tryptophan 2,3-dioxygenase
1.13.11.20	Cysteine dioxygenase
1.13.11.21	_ -Carotene 15,154-dioxygenase
1.13.11.27	4-Hydroxyphenylpyruvate dioxygenase
1.13.11.34	Arachidonate 5-lipoxygenase
1.13.99.1	myo-Inositol oxygenase
1.14.11.1	g-Butyrobetaine dioxygenase
1.14.11.2	Procollagen-proline dioxygenase
1.14.11.8	Trimethyllysine dioxygenase
1.14.12.1	Anthranilate 1,2-dioxygenase (deaminating, decarboxylating)
1.14.13.5	Imidazoleacetate 4-monooxygenase
1.14.13.9	Kynurenine 3-monooxygenase
1.14.13.11	trans-Cinnamate 4-monooxygenase
1.14.13.12	Benzoate 4-monooxygenase
1.14.13.39	Nitric oxide synthase
1.14.16.1	Phenylalanine 4-monooxygenase
1.14.16.2	Tyrosine 3-monooxygenase
1.14.16.4	Tryptophan 5-monooxygenase
1.14.17.1	Dopamine _ -monooxygenase
1.14.18.1	Monophenol monooxygenase
1 14.99.1	Prostaglandin synthase
1 14.99.5	Stearoyl-CoA desaturase
1.14.99.7	Squalene monooxygenase
1.14.99.25	Linoleoyl-CoA desaturase
1.17.4.1	Ribonucleoside-diphosphate reductase
1.18.6.1	Nitrogenase

TRANSFERASES

2.1.1.1	Nicotinamide N-methyltransferase
2.1.1.2	Guanidinoacetate N-methyltransferase
2.1.1.3	Thetin—homocysteine S-methyltransferase
2.1.1.4	Acetylserotonin N-methyltransferase
2.1.1.5	Betaine—homocysteine S-methyltransferase
2.1.1.6	Catechol O-methyl transferase
2.1.1.10	Homocysteine S-methyltransferase
2.1.1.13	5-Methyltetrahydrofolate—homocysteine S-methyl transferase
2.1.1.14	5-Methyltetrahydropteroyltriglutamate homocysteine S-methyltrar
2.1.1.17	Phosphatidylethanolamine N-methyltransferase
2.1.1.20	Glycine N-methyltransferase
2.1.1.28	Phenylethanolamine N-methyltransferase
2.1.1.45	Thymidylate synthase
2.1.1.71	Phosphatidyl-N-methylethanolamine N-methyltransferase
2.1.2.1	Glycine hydroxymethyltransferase

2.1.2.2	Phosphoribosylglycinamide formyltransferase
2.1.2.3	Phosphoribosylaminoimidazole carboxamide formyltransferase
2.1.2.5	Glutamate formiminotransferase
2.1.2.10	Aminomethyl transferase
2.1.3.1	Methylmalonyl-CoA carboxyltransferase
2.1.3.2	Aspartate carbamoyltransferase
2.1.3.3	Ornithine carbamoyltransferase
2.1.4.1	Glycine amidinotransferase
2.2.1.1	Transketolase
2.2.1.2	Transaldolase
2.3.1.1	Amino-acid N-acetyltransferase
2.3.1.4	Glucosamine-phosphate N-acetyltransferase
2.3.1.5	Arylamine N-acetyltransferase
2.3.1.6	Choline O-acetyltransferase
2.3.1.7	Carnitine O-acetyltransferase
2.3.1.8	Phosphate acetyltransferase
2.3.1.9	Acetyl-CoA C-acetyltransferase
2.3.1.12	Dihydrolipoamide S-acetyltransferase
2.3.1.15	Glycerol-3-phosphate O-acyltransferase
2.3.1.16	Acetyl-CoA C-acyltransferase
2.3.1.20	Diacylglycerol O-acyltransferase
2.3.1.23	Lysolecithin acyltransferase
2.3.1.24	Sphingosine N-acyltransferase
2.3.1.30	Serine O-acetyltransferase
2.3.1.37	5-Aminolevulinate synthase
2.3.1.38	[Acyl-carrier-protein] S-acetyltransferase
2.3.1.39	[Acyl-carrier-protein] S-malonytransferase
2.3.1.41	3-Oxoacyl-[acyl-carrier-protein] synthase
2.3.1.46	Homoserine O-succinyltransferase
2.3.1.50	Serine C-palmitoyltransferase
2.3.1.51	1-Acylglycerol-3-phosphate O-acyltransferase
2.3.1.76	Retinol O-fatty-acyltransferase
2.4.1.1	Phosphorylase
2.4.1.9	Inulosucrase
2.4.1.11	Glycogen (starch) synthase
2.4.1.13	Sucrose synthase
2.4.1.16	Chitin synthase
2.4.1.17	Glucuronosyltransferase
2.4.1.21	Starch synthase
2.4.1.22	Lactose synthase
2.4.1.23	Sphingosine β -galactosyltransferase
2.4.1.29	Cellulose synthase (GDP-forming)
2.4.1.32	Glucomannan 4- β -mannosyltransferase
2.4.1.33	Alginate synthase
2.4.1.47	Acylsphingosine galactosyltransferase

2.4.1.62	Ganglioside galactosyltransferase
2.4.1.68	Glycoprotein 6-a-L-fucosyltransferase
2.4.1.69	Galactoside 2-a-L-fucosyltransferase
2.4.2.1	Purine-nucleoside phosphorylase
2.4.2.2	Pyrimidine-nucleoside phosphorylase
2.4.2.4	Thymidine phosphorylase
2.4.2.8	Hypoxanthine phosphoribosyltransferase
2.4.2.9	Uracil phosphoribosyltransferase
2.4.2.10	Orotate phosphoribosyltransferase
2.4.2.11	Nicotinate phosphoribosyltransferase
2.4.2.14	Amidophosphoribosyltransferase
2.4.2.15	Guanosine phosphorylase
2.4.2.17	ATP phosphoribosyltransferase
2.4.2.18	Anthranilate phosphoribosyltransferase
2.4.2.19	Nicotinate-nucleotide pyrophosphorylase (carboxylating)
2.4.99.1-11	Sialyltransferases
2.4.99.7	Sialyltransferase
2.5.1.1	Dimethylallyltranstransferase
2.5.1.6	Methionine adenosyltransferase
2.5.1.10	Geranyltranstransferase
2.5.1.16	Spermidine synthase
2.5.1.19	3-Phosphoshikimate 1-carboxyvinyl-transferase
2.5.1.21	Farnesyltransferase
2.5.1.22	Spermine synthase
2.5.1.29	Farnesyltranstransferase
2.5.1.32	Geranylgeranyl-diphosphate geranylgeranyl transferase

TRANSAMINASES

2.6.1.1	Aspartate transaminase
2.6.1.2	Alanine transaminase
2.6.1.4	Glycine transaminase
2.6.1.5	Tyrosine transaminase
2.6.1.6	Leucine transaminase
2.6.1.9	Histidinol-phosphate transaminase
2.6.1.13	Ornithine—oxo-acid transaminase
2.6.1.16	Glutamine—fructose-6-phosphate transaminase
2.6.1.17	Succinyldiaminopimelate transaminase
2.6.1.18	_ -Alanine—pyruvate transaminase
2.6.1.19	4-Aminobutyrate transaminase
2.6.1.22	l-3-Aminoisobutyrate transaminase
2.6.1.23	4-Hydroxyglutamate transaminase
2.6.1.27	Tryptophan transaminase
2.6.1.32	Valine—3-methyl-2-oxovalerate transaminase
2.6.1.36	l-Lysine 6-transaminase
2.6.1.39	2-Amino adipate transaminase
2.6.1.42	Branched-chain-amino-acid transaminase

2.6.1.44	Alanine-glyoxylate transaminase
2.6.1.51	Serine—pyruvate transaminase
2.6.1.52	Phosphoserine transaminase
2.6.1.66	Valine—pyruvate transaminase

PHOSPHOTRANSFERASES

2.7.1.1	Hexokinase
2.7.1.2	Glucokinase
2.7.1.3	Ketohexokinase
2.7.1.4	Fructokinase
2.7.1.6	Galactokinase
2.7.1.7	Mannokinase
2.7.1.11	6-Phosphofructokinase
2.7.1.15	Ribokinase
2.7.1.16	Ribulokinase
2.7.1.17	Xylulokinase
2.7.1.19	Phosphoribulokinase
2.7.1.24	Dephospho-CoA kinase
2.7.1.25	Adenylylsulfate kinase
2.7.1.28	Triokinase
2.7.1.30	Glycerol kinase
2.7.1.31	Glycerate kinase
2.7.1.32	Choline kinase
2.7.1.33	Pantothenate kinase
2.7.1.34	Pantetheine kinase
2.7.1.36	Mevalonate kinase
2.7.1.39	Homoserine kinase
2.7.1.40	Pyruvate kinase
2.7.1.47	D-Ribulokinase
2.7.1.53	L-Xylulokinase
2.7.1.60	N-Acylmannosamine kinase
2.7.1.71	Shikimate kinase
2.7.1.80	Pyrophosphate—serine phosphotransferase
2.7.1.82	Ethanolamine kinase
2.7.1.107	Diacylglycerol kinase
2.7.2.3	Phosphoglycerate kinase
2.7.2.4	Aspartate kinase
2.7.2.6	Formate kinase
2.7.2.11	Glutamate 5-kinase
2.7.3.2	Creatine kinase
2.7.4.2	Phosphomevalonate kinase
2.7.4.3	Adenylate kinase
2.7.4.4	Nucleoside-phosphate kinase
2.7.4.6	Nucleoside-diphosphate kinase
2.7.4.8	Guanylate kinase
2.7.4.9	dtmp kinase

2.7.4.14	Cytidylate kinase
2.7.6.1	Ribose-phosphate pyrophosphokinase
2.7.7.3	Pantetheine-phosphate adenylyltransferase
2.7.7.4	Sulfate adenylyl transferase
2.7.7.6	RNA nucleotidyltransferase (DNA-directed)
2.7.7.7	DNA nucleotidyltransferase (DNA-directed)
2.7.7.9	UTP—glucose-1-phosphate uridylyltransferase
2.7.7.10	UTP—hexose-1-phosphate uridylyltransferase
2.7.7.12	UDP glucose—hexose-1-phosphate uridylyltransferase
2.7.7.13	Mannose-1-phosphate guanylyltransferase
2.7.7.14	Ethanolamine-phosphate cytidylyltransferase
2.7.7.15	Choline-phosphate cytidylyltransferase
2.7.7.18	Nicotinate-nucleotide adenylyltransferase
2.7.7.23	UDP-N-acetylglucosamine pyrophosphorylase
2.7.7.24	Glucose-1-phosphate thymidylyltransferase
2.7.7.27	Glucose-1-phosphate adenylyltransferase
2.7.7.34	Glucose-1-phosphate guanylyltransferase
2.7.7.41	Phosphatidate cytidylyltransferase
2.7.7.43	N-Acylneuraminate cytidylyltransferase
2.7.8.1	Ethanolamine phosphotransferase
2.7.8.2	Diacylglycerol cholinephosphotransferase
2.7.8.3	Ceramide cholinephosphotransferase
2.7.8.5	CDPdiacylglycerol—glycerol-3-phosphate 3-phosphatidyltransferase
2.7.8.8	CDPdiacylglycerol—serine O-phosphatidyltransferase
2.7.8.11	CDPdiacylglycerol—inositol 3-phosphatidyltransferase

CoA-TRANSFERASES

2.8.3.5	3-Oxoacid CoA-transferase
2.8.3.6	3-Oxoadipate CoA-transferase

HYDROLASES

3.1.1.3	Triacylglycerol lipase
3.1.1.4	Phospholipase A2
3.1.1.5	Lysophospholipase
3.1.1.7	Acetylcholinesterase
3.1.1.17	Gluconolactonase
3.1.1.21	Retinyl-palmitate esterase
3.1.1.28	Acylcarnitine hydrolase
3.1.1.31	6-Phosphogluconolactonase
3.1.1.32	Phospholipase A1
3.1.2.1	Acetyl-CoA hydrolase
3.1.2.3	Succinyl-CoA hydrolase
3.1.2.4	3-Hydroxyisobutyryl-CoA hydrolase
3.1.2.11	Acetoacetyl-CoA hydrolase
3.1.2.20	Acyl-CoA hydrolase
3.1.3.2	Acid phosphatase

3.1.3.3 Phosphoserine phosphatase
3.1.3.4 Phosphatidate phosphatase
3.1.3.5 54-Nucleotidase
3.1.3.9 Glucose-6-phosphatase
3.1.3.11 Fructose-bisphosphatase
3.1.3.15 Histidinol-phosphatase
3.1.3.25 myo-Inositol-1(or 4)-monophosphatase
3.1.3.27 Phosphatidylglycerophosphatase
3.1.3.29 N-Acylneuraminate-9-phosphatase
3.1.3.31 Nucleotidase
3.1.4.2 Glycerophosphocholine phosphodiesterase
3.1.4.3 Phospholipase C
3.1.4.4 Phospholipase D
3.1.4.10 1-Phosphatidylinositol phosphodieterase
3.1.4.12 Sphingomyelin phosphodiesterase
3.2.1.21 _-Glucosidase
3.2.1.23 _-Galactosidase
3.2.1.26 _-Fructofuranosidase
3.2.1.45 Glucosylceramidase
3.2.1.46 Galactosylceramidase
3.2.1.48 Sucrose a-glucosidase
3.2.2.2 Inosine nucleosidase
3.3.1.1 Adenosylhomocysteinase
3.5.1.1 Asparaginase
3.5.1.2 Glutaminase
3.5.1.6 _-Ureidopropionase
3.5.1.9 Arylformamidase
3.5.1.18 Succinyl-diaminopimelate desuccinylase
3.5.1.22 Pantothenase
3.5.1.23 Ceramidase
3.5.2.2 Dihydropyrimidinase
3.5.2.3 Dihydroorotase
3.5.2.5 Allantoinase
3.5.2.7 Imidazolonepropionase
3.5.2.10 Creatininase
3.5.3.1 Arginase
3.5.3.4 Allantoicase
3.5.3.6 Arginine deiminase
3.5.4.1 Cytosine deaminase
3.5.4.3 Guanine deaminase
3.5.4.6 AMP deaminase
3.5.4.10 IMP cyclohydrolase
3.5.4.12 dCMP deaminase
3.5.4.19 Phosphoribosyl-AMP cyclohydrolase
3.6.1.3 Adenosinetriphosphatase

3.6.1.15	Nucleoside-triphosphatase
3.6.1.31	Phosphoribosyl-ATP pyrophosphatase
3.6.1.34	H ⁺ -transporting ATP synthase
3.7.1.2	Fumarylacetoacetase
3.7.1.3	Kynureninase
3.9.1.1	Phosphoamidase

LYASES

4.1.1.1	Pyruvate decarboxylase
4.1.1.3	Oxaloacetate decarboxylase
4.1.1.4	Acetoacetate decarboxylase
4.1.1.9	Malonyl-CoA decarboxylase
4.1.1.11	Aspartate 1-decarboxylase
4.1.1.12	Aspartate 4-decarboxylase
4.1.1.15	Glutamate decarboxylase
4.1.1.17	Ornithine decarboxylase
4.1.1.20	Diaminopimelate decarboxylase
4.1.1.21	Phosphoribosylaminoimidazole carboxylase
4.1.1.22	Histidine decarboxylase
4.1.1.23	Orotidine-5'-phosphate decarboxylase
4.1.1.25	Tyrosine decarboxylase
4.1.1.28	Aromatic-L-amino-acid decarboxylase
4.1.1.29	Sulfoalanine decarboxylase
4.1.1.32	Phosphoenolpyruvate carboxykinase (GTP)
4.1.1.33	Diphosphomevalonate decarboxylase
4.1.1.34	Dehydro-l-gulonate decarboxylase
4.1.1.36	Phosphopantothoenoylcysteine decarboxylase
4.1.1.37	Uroporphyrinogen decarboxylase
4.1.1.39	Ribulose-bisphosphate carboxylase
4.1.1.41	Methylmalonyl-CoA decarboxylase
4.1.1.43	Phenylpyruvate decarboxylase
4.1.1.45	Aminocarboxymuconate-semialdehyde decarboxylase
4.1.1.48	Indole-3-glycerol-phosphate synthase
4.1.1.49	Phosphoenolpyruvate carboxykinase (ATP)
4.1.1.50	Adenosylmethionine decarboxylase
4.1.1.65	Phosphatidylserine decarboxylase
4.1.1.71	2-Oxoglutarate decarboxylase
4.1.2.5	Threonine aldolase
4.1.2.12	Ketopantoaldolase
4.1.2.13	Fructose-bisphosphate aldolase
4.1.2.14	2-Dehydro-3-deoxyphosphogluconate aldolase
4.1.3.1	Isocitrate lyase
4.1.3.2	Malate synthase
4.1.3.4	Hydroxymethylglutaryl-CoA lyase
4.1.3.5	Hydroxymethylglutaryl-CoA synthase
4.1.3.7	Citrate (si)-synthase

4.1.3.8	ATP citrate (pro-S)-lyase
4.1.3.16	4-Hydroxy-2-oxoglutarate aldolase
4.1.3.18	Acetolactate synthase
4.1.3.20	N-Acylneuraminate-9-phosphate synthase
4.1.3.21	Homocitrate synthase
4.1.3.22	Citramalate lyase
4.1.3.27	Anthranilate synthase
4.1.99.1	Tryptophanase
4.2.1.2	Fumarate hydratase
4.2.1.3	Aconitate hydratase
4.2.1.4	Citrate dehydratase
4.2.1.9	Dihydroxy-acid dehydratase
4.2.1.10	3-Dehydroxyquinatate dehydratase
4.2.1.11	Phosphopyruvate hydratase (enolase)
4.2.1.13	L-Serine dehydratase
4.2.1.16	Threonine dehydratase
4.2.1.17	Enoyl-CoA hydratase
4.2.1.18	Methylglutaconyl-CoA hydratase
4.2.1.19	Imidazoleglycerol-phosphate dehydratase
4.2.1.20	Tryptophan synthase
4.2.1.22	Cystathionine B-synthase
4.2.1.24	Porphobilinogen synthase
4.2.1.33	3-Isopropylmalate dehydratase
4.2.1.46	dTDPglucose 4,6-dehydratase
4.2.1.47	GDPmannose 4,6-dehydratase
4.2.1.49	Urocanate hydratase
4.2.1.51	Prephenate dehydratase
4.2.1.52	Dihydrodipicolinate synthase
4.2.1.55	3-Hydroxybutyryl-CoA dehydratase
4.2.1.58	Crotonoyl-[acyl-carrier-protein] hydratase
4.2.1.59	3-Hydroxyoctanoyl-[acyl-carrier protein] dehydratase
4.2.1.60	3-Hydroxydecanoyl-[acyl-carrier protein] dehydratase
4.2.1.61	3-Hydroxypalmitoyl-[acyl-carrier protein]dehydratase
4.2.1.75	Uroporphyrinogen-III synthase
4.2.1.80	2-Oxopent-4-enoate hydratase
4.2.99.2	Threonine synthase
4.2.99.8	Cysteine synthase
4.2.99.9	O-Succinylhomoserine (thiol)-lyase
4.3.1.1	Aspartate ammonia-lyase
4.3.1.2	Methylaspartate ammonia-lyase
4.3.1.3	Histidine ammonia-lyase
4.3.1.5	Phenylalanine ammonia-lyase
4.3.2.1	Argininosuccinate lyase
4.3.2.2	Adenylosuccinate lyase
4.4.1.1	Cystathionine g-lyase

4.4.1.8 Cystathionine γ -lyase
4.4.1.15 D-Cysteine desulfhydrase
4.6.1.1 Adenylate cyclase
4.6.1.3 3-Dehydroquinate synthase
4.6.1.4 Chorismate synthase
4.99.1.1 Ferrochelatase

ISOMERASES

5.1.3.1 Ribulose-phosphate 3-epimerase
5.1.3.2 UDPglucose 4-epimerase
5.1.3.4 L-Ribulose-phosphate 4-epimerase
5.1.3.6 UDPglucuronate 4-epimerase
5.1.3.7 UDP-N-acetylglucosamine 4-epimerase
5.1.3.12 UDPglucuronate 5 α -epimerase
5.1.3.13 dTDP-4-Dehydrorhamnose 3,5-epimerase
5.1.3.14 UDP-N-acetylglucosamine 2-epimerase
5.1.99.1 Methylmalonyl-CoA epimerase
5.2.1.2 Maleylacetoacetate isomerase
5.2.1.3 Retinal isomerase
5.2.1.7 Retinol isomerase
5.3.1.1 Triose-phosphate isomerase
5.3.1.3 Arabinose isomerase
5.3.1.4 L-Arabinose isomerase
5.3.1.5 Xylose isomerase
5.3.1.6 Ribose-5-phosphate isomerase
5.3.1.8 Mannose-6-phosphate isomerase
5.3.1.9 Glucose-6-phosphate isomerase
5.3.1.16 N-(5 α -Phospho-d-ribosylformimino)-5-amino-1-(5 α -phosphoribo-
4-imidazolecarboxamide isomerase
5.3.3.2 Isopentenyl-diphosphate 3-isomerase
5.3.99.3 Prostaglandin-E synthase
5.3.99.5 Thromboxane-A synthase
5.4.2.1 Phosphoglycerate mutase
5.4.2.2 Phosphoglucomutase
5.4.2.3 Phosphoacetylglucosamine mutase
5.4.2.8 Phosphomannomutase
5.4.3.8 Glutamate-1-semialdehyde 2,1-aminomutase
5.4.99.2 Methylmalonyl-CoA mutase
5.4.99.5 Chorismate mutase
5.4.99.7 Lanosterol synthase
5.5.1.4 myo-Inositol- 1-phosphate synthase

LIGASES

6.2.1.3 Long-chain-fatty-acid-CoA ligase
6.3.1.1 Aspartate—ammonia ligase
6.3.1.2 Glutamate—ammonia ligase

- 6.3.1.4 Aspartate—ammonia ligase (ADP-forming)
- 6.3.1.5 NAD⁺ synthetase
- 6.3.2.1 Pantoate—_ -alanine ligase
- 6.3.2.2 Glutamate—cysteine ligase
- 6.3.2.3 Glutathione synthase
- 6.3.2.5 Phosphopantothenate—cysteine ligase
- 6.3.2.6 Phosphoribosylaminoimidazole-succinocarboxamide synthase
- 6.3.2.7 UDP-N-Acetylmuramoyl-l-alanyl-d-glutamate—lysine ligase
- 6.3.2.8 UDP-N-acetylmuramate—alanine ligase
- 6.3.2.9 UDP-N-acetylmuramoylalanine-D-glutamate ligase
- 6.3.2.10 UDP-N-acetylmuramoylalanyl-D-glutamyl-lysine-D-alanyl-D-alani
ligase
- 6.3.2.13 UDP-N-acetylmuramoylalanyl-D-glutamate-2,6-diaminopimelate
ligase
- 6.3.3.1 Phosphoribosylglycinamide cyclo-ligase
- 6.3.4.1 GMP synthase
- 6.3.4.2 CTP synthase
- 6.3.4.3 Formate—tetrahydrofolate ligase
- 6.3.4.4 Adenylosuccinate synthase
- 6.3.4.5 Argininosuccinate synthase
- 6.3.4.7 Ribose-5-phosphate—ammonia ligase
- 6.3.4.13 Phosphoribosylamine—glycine ligase
- 6.3.4.16 Carbamoyl-phosphate synthase (ammonia)
- 6.3.4.17 Formate—dihydrofolate ligase
- 6.3.5.1 NAD⁺ synthetase (glutamine-hydrolysing)
- 6.3.5.2 GMP synthetase (glutamine-hydrolysing)
- 6.3.5.3 Phosphoribosylformylglycinamide synthetase
- 6.3.5.4 Asparagine synthase (glutamine-hydrolysing)
- 6.3.5.5 Carbamoyl-phosphate synthase (glutamine-hydrolysing)
- 6.4.1.1 Pyruvate carboxylase
- 6.4.1.2 Acetyl-CoA carboxylase
- 6.4.1.3 Propionyl-CoA carboxylase
- 6.4.1.4 Methylcrotonoyl-CoA carboxylase