

Supplementary Table 10 Metabolic model statistics

Function	Reactions	Orphan reactions <sup>1</sup>	Genomic orphans <sup>2</sup>
<b>C-COMPOUNDS METABOLISM</b>			
Stereochemical-conversions	5	0	0
<b>Gluconeogenesis &amp; Glycolysis</b>			
Embden-Meyerhoff-Parnas Pathway	17	0	0
Pentose-Phosphate Shunt	8	0	0
Tricarboxylic Acid Cycle	16	0	0
<b>Anaplerotic reactions (besides Gluconeogenesis)</b>			
Glyoxylate Shunt	2	0	0
Oxidation of malate to pyruvate	2	0	0
TCA intermediates metabolism	3	0	0
Oxalic acid	2	0	0
Methanol	1	0	0
Formic acid	2	0	0
Pyruvate metabolism	6	0	1
Methylcitrate pathway	6	0	1
4-aminobutyrate (GABA) shunt	3	0	0
<b>One carbon metabolism</b>			
Folate biosynthesis	11	1	1
Folate one-carbon pool	8	0	0
<b>C2 metabolism</b>			
Acetate/Acetaldehyde/Ethanol metabolism	10	0	0
<b>C3 metabolism</b>			
Glycerol metabolism	11	0	0
Glycerate metabolism	1	0	0
L-lactate	1	0	0
<b>C5 metabolism</b>			
L-Arabinose/Arabitol metabolism	3	0	0
D-Xylose/D,L-Xylulose/Xylitol metabolism	5	0	0
D-arabinose metabolism	4	0	0
Ribose	5	0	0
Ribulose	2	0	1
<b>C6 metabolism</b>			
Gluconic acid/Gluconate metabolism	9	0	2
Galactose/Galactitol metabolism	7	0	0
Mannose/Mannitol, Fructose and Sorbose/Sorbitol metabolism	14	0	3
<b>Disaccharides metabolism</b>			
Trehalose	3	0	0
Maltose	2	0	0
Lactose	2	0	0

<b>CELL WALL COMPONENTS</b>			
Glucan Biosynthesis	4	0	0
Chitin	10	0	0
<b>OTHER POLYMERS</b>			
Glycogen	2	0	0
Sucrose degradation	3	0	0
<b>ENERGY METABOLISM</b>			
Electron transport chain	20	0	0
Oxygen metabolism	2	0	0
<b>AMINO ACID METABOLISM</b>			
Alanine, aspartate and asparagine biosynthesis	7	0	1
Arginine metabolism	16	2	2
Cysteine biosynthesis	2	0	0
Glutamate and glutamine metabolism	8	0	1
Glycine, serine and threonine metabolism	17	0	0
Histidine biosynthesis	10	0	0
Branched amino acid biosynthesis	14	0	0
Lysine biosynthesis	14	1	2
Methionine metabolism	13	0	0
Phenylalanine, tyrosine and tryptophan biosynthesis	19	0	1
Proline biosynthesis	6	0	0
Cyanoamino acid metabolism	2	0	0
Glutathione biosynthesis	4	0	0
<b>NUCLEOTIDE METABOLISM</b>			
Purine Biosynthesis	26	1	1
Purine conversions	1	0	0
Purine degradation	28	0	1
Pyrimidine biosynthesis	23	0	0
Pyrimidine conversions	8	0	0
Pyrimidine degradation	12	1	1
Salvage pathways for nucleotides	22	2	1
<b>FATTY ACIDS METABOLISM</b>			
Formation of saturated cytosolic fatty acids	64	0	0
Formation of unsaturated cytosolic fatty acids	8	0	1
Transfer of ACP-Acyls to CoA for transport and biosynthesis	20	0	0
Transfer of Acyls to CoA for transport and biosynthesis	20	0	0
Fatty acids conversions	2	0	0
Carnitine shuttle	63	0	0
Oxidation of fatty acids	58	0	0
<b>PHOSPHOLIPID BIOSYNTHESIS</b>			
Phosphatidylserine	6	0	0
Phosphatidylethanolamine	7	0	0
Phosphatidylcholine	10	0	0
Cardiolipin	6	0	1

<b>GLYCOSPHINGOLIPID METABOLISM</b>			
Biosynthesis of precursors	13	0	0
Biosynthesis of lanosterol	11	0	0
Biosynthesis of zymosterol and ergosterol	12	0	0
Synthesis of ergosterol esters	4	0	0
<b>METABOLISM OF COMPLEX LIPIDS</b>			
Glycerolipid biosynthesis	3	0	0
<b>SECONDARY METABOLISM</b>			
Sulfur metabolism	7	0	1
Nitrogen metabolism	7	1	1
Summed	785	9	24

1 Orphan reactions are reactions with neither an assigned ORF or a literature reference.

2 Genomic orphans are enzymes in the pathway without an assigned ORF.