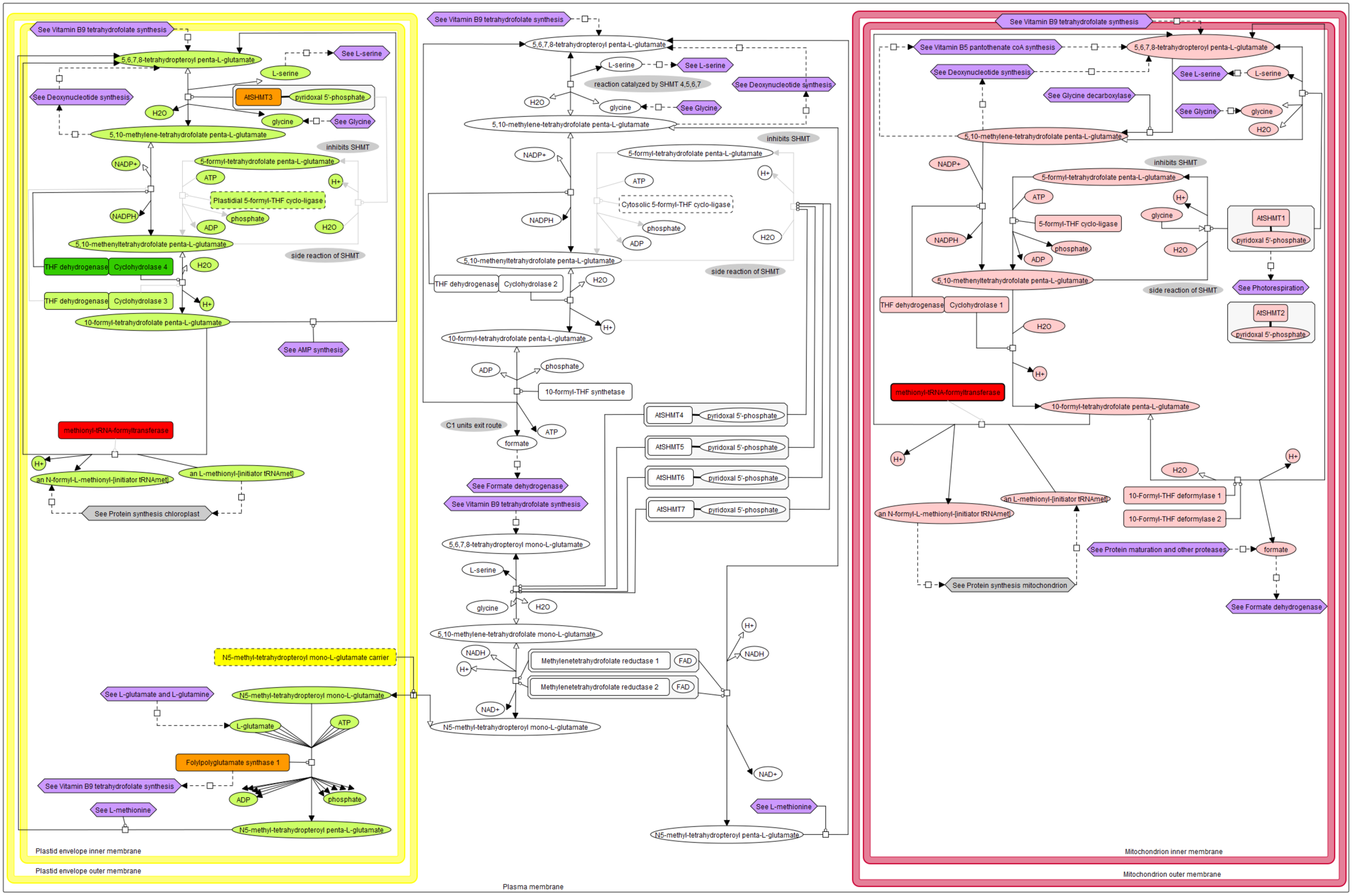
See Vitamin B9 tetrahydrofolate synthesis
5,6,7,8-tetrahydropteroyl penta-L-glutamate
See L-serine
L-serine
See Deoxynucleotide synthesis
AtSHMT3
pyridoxal 5'-phosphate
H2O
glycine
See Glycine
5,10-methylene-tetrahydrofolate penta-L-glutamate
inhibits SHMT
NADP+
5-formyl-tetrahydrofolate penta-L-glutamate
ATP
H+
Plastidial 5-formyl-THF cyclo-ligase
NADPH
phosphate
ADP
H2O
5,10-methenyltetrahydrofolate penta-L-glutamate
side reaction of SHMT
THF dehydrogenase
Cyclohydrolase 4
H2O
THF dehydrogenase
Cyclohydrolase 3
H+
10-formyl-tetrahydrofolate penta-L-glutamate
See AMP synthesis
methionyl-tRNA-formyltransferase
H+
an N-formyl-L-methionyl-[initiator tRNAmet]
an L-methionyl-[initiator tRNAmet]
See Protein synthesis chloroplast
N5-methyl-tetrahydropteroyl mono-L-glutamate carrier
See L-glutamate and L-glutamine
N5-methyl-tetrahydropteroyl mono-L-glutamate
L-glutamate
ATP
Folylpolyglutamate synthase 1
See Vitamin B9 tetrahydrofolate synthesis
ADP
phosphate
See L-methionine
N5-methyl-tetrahydropteroyl penta-L-glutamate
Plastid envelope inner membrane
Plastid envelope outer membrane
See Vitamin B9 tetrahydrofolate synthesis
5,6,7,8-tetrahydropteroyl penta-L-glutamate
L-serine
See L-serine
reaction catalyzed by SHMT 4,5,6,7
See Deoxynucleotide synthesis
H2O
glycine
See Glycine
5,10-methylene-tetrahydrofolate penta-L-glutamate
inhibits SHMT
NADP+
5-formyl-tetrahydrofolate penta-L-glutamate
H+
ATP
Cytosolic 5-formyl-THF cyclo-ligase
NADPH
phosphate
ADP
H2O
5,10-methenyltetrahydrofolate penta-L-glutamate
side reaction of SHMT
THF dehydrogenase
Cyclohydrolase 2
H2O
H+
10-formyl-tetrahydrofolate penta-L-glutamate
ADP
phosphate
10-formyl-THF synthetase
C1 units exit route
ATP
formate
See Formate dehydrogenase
See Vitamin B9 tetrahydrofolate synthesis
5,6,7,8-tetrahydropteroyl mono-L-glutamate
L-serine
glycine
H2O
5,10-methylene-tetrahydrofolate mono-L-glutamate
NADH
H+
Methylenetetrahydrofolate reductase 1
FAD
Methylenetetrahydrofolate reductase 2
FAD
NAD+
N5-methyl-tetrahydropteroyl mono-L-glutamate
AtSHMT4
pyridoxal 5'-phosphate
AtSHMT5
pyridoxal 5'-phosphate
AtSHMT6
pyridoxal 5'-phosphate
AtSHMT7
pyridoxal 5'-phosphate
H+
NADH
NAD+
See L-methionine
N5-methyl-tetrahydropteroyl penta-L-glutamate
Plasma membrane
See Vitamin B9 tetrahydrofolate synthesis
See Vitamin B5 pantothenate coA synthesis
5,6,7,8-tetrahydropteroyl penta-L-glutamate
See Deoxynucleotide synthesis
See L-serine
L-serine
See Glycine decarboxylase
See Glycine
glycine
H2O
5,10-methylene-tetrahydrofolate penta-L-glutamate
NADP+
inhibits SHMT
5-formyl-tetrahydrofolate penta-L-glutamate
ATP
H+
glycine
5-formyl-THF cyclo-ligase
AtSHMT1
pyridoxal 5'-phosphate
NADPH
phosphate
ADP
H2O
5,10-methenyltetrahydrofolate penta-L-glutamate
side reaction of SHMT
See Photorespiration
THF dehydrogenase
Cyclohydrolase 1
AtSHMT2
pyridoxal 5'-phosphate
H2O
H+
methionyl-tRNA-formyltransferase
10-formyl-tetrahydrofolate penta-L-glutamate
H+
H2O
H+
an L-methionyl-[initiator tRNAmet]
10-Formyl-THF deformylase 1
an N-formyl-L-methionyl-[initiator tRNAmet]
10-Formyl-THF deformylase 2
See Protein maturation and other proteases
formate
See Protein synthesis mitochondrion
See Formate dehydrogenase
Mitochondrion inner membrane
Mitochondrion outer membrane