
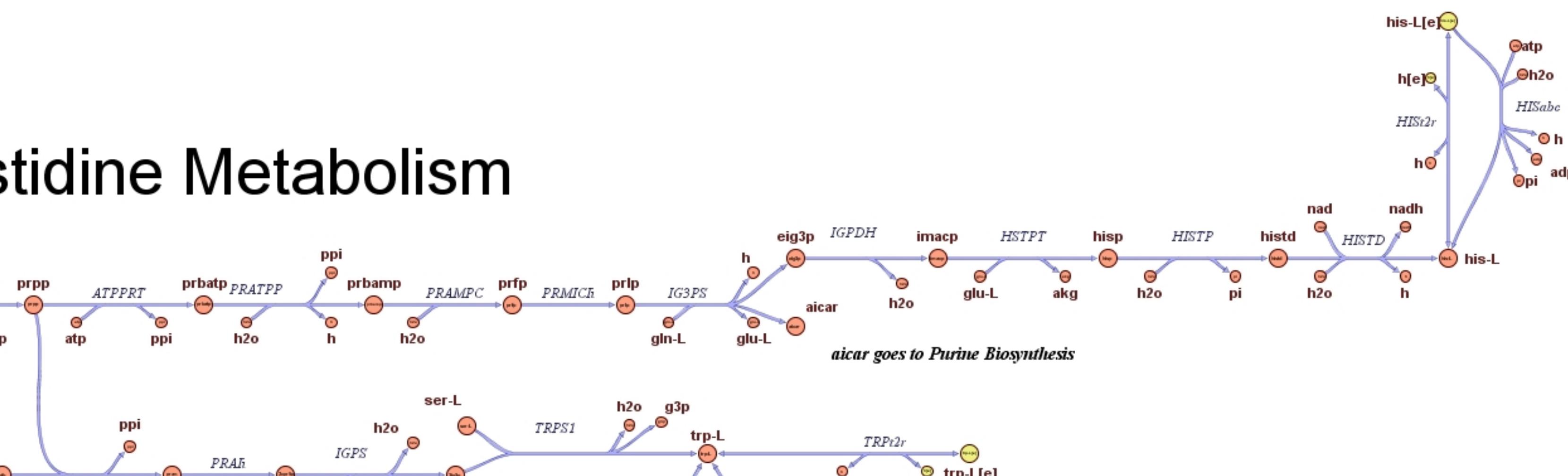


Alternate Carbon Sources

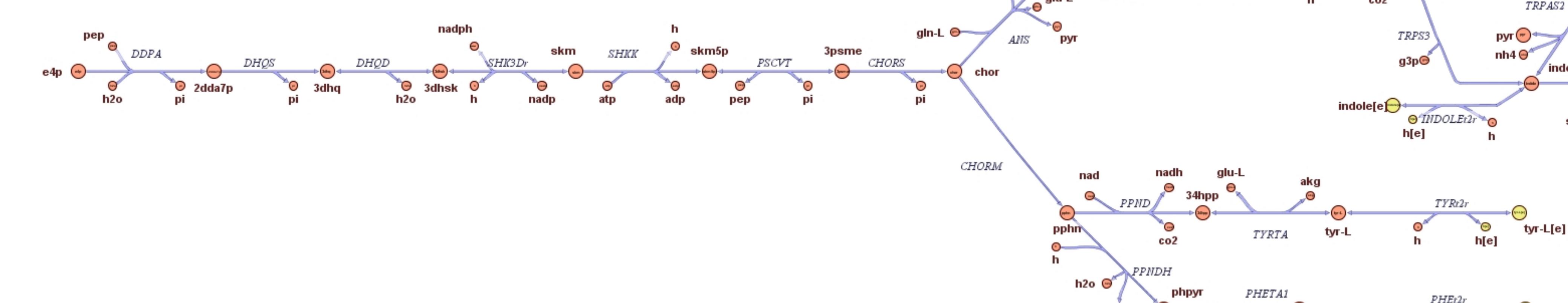


AMINO ACID METABOLISM

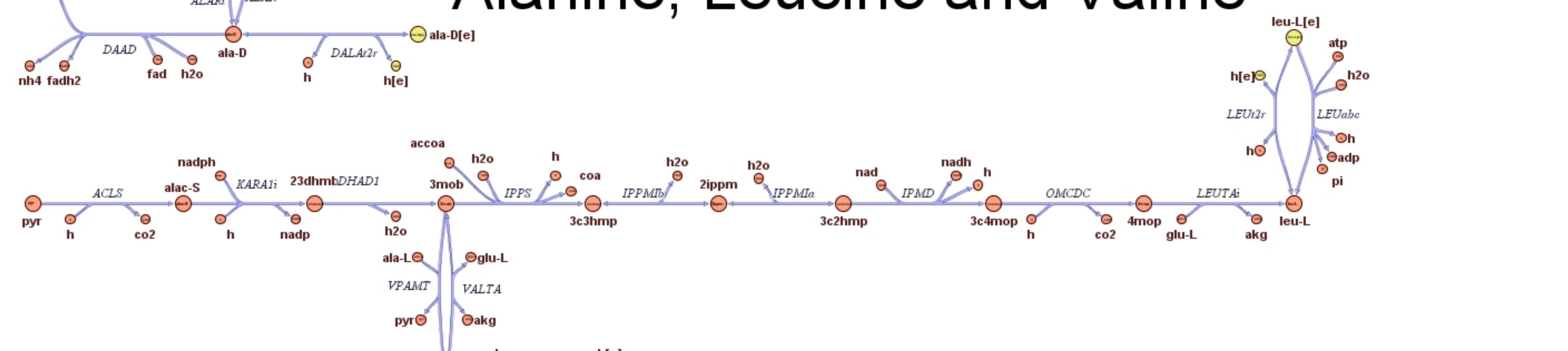
Histidine Metabolism



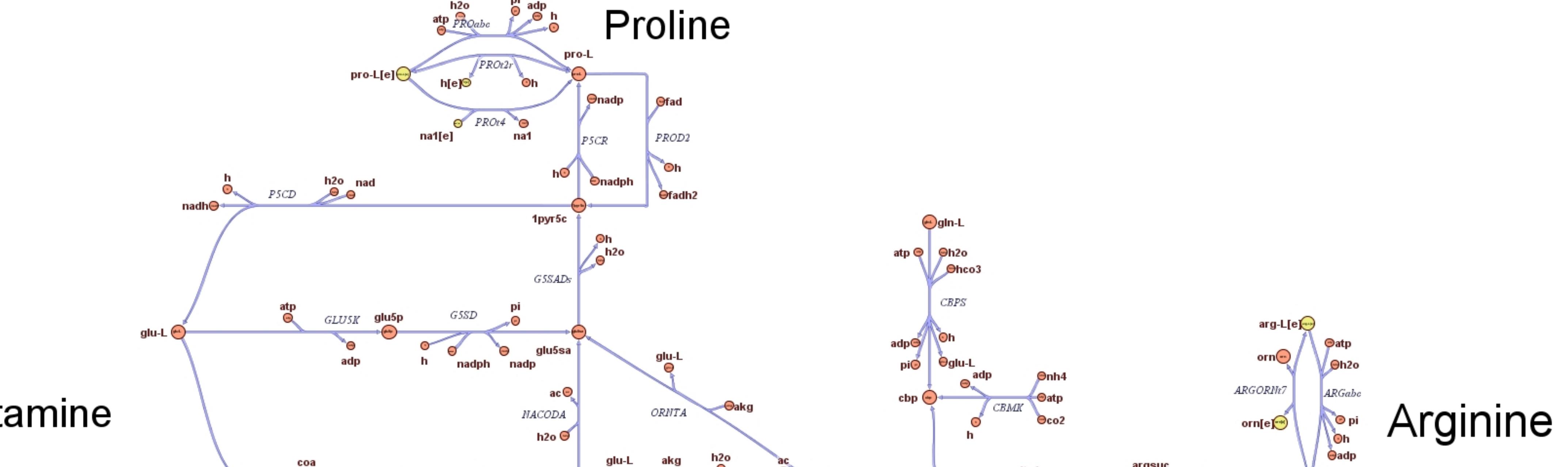
Tyrosine, Tryptophan, Phenylalanine



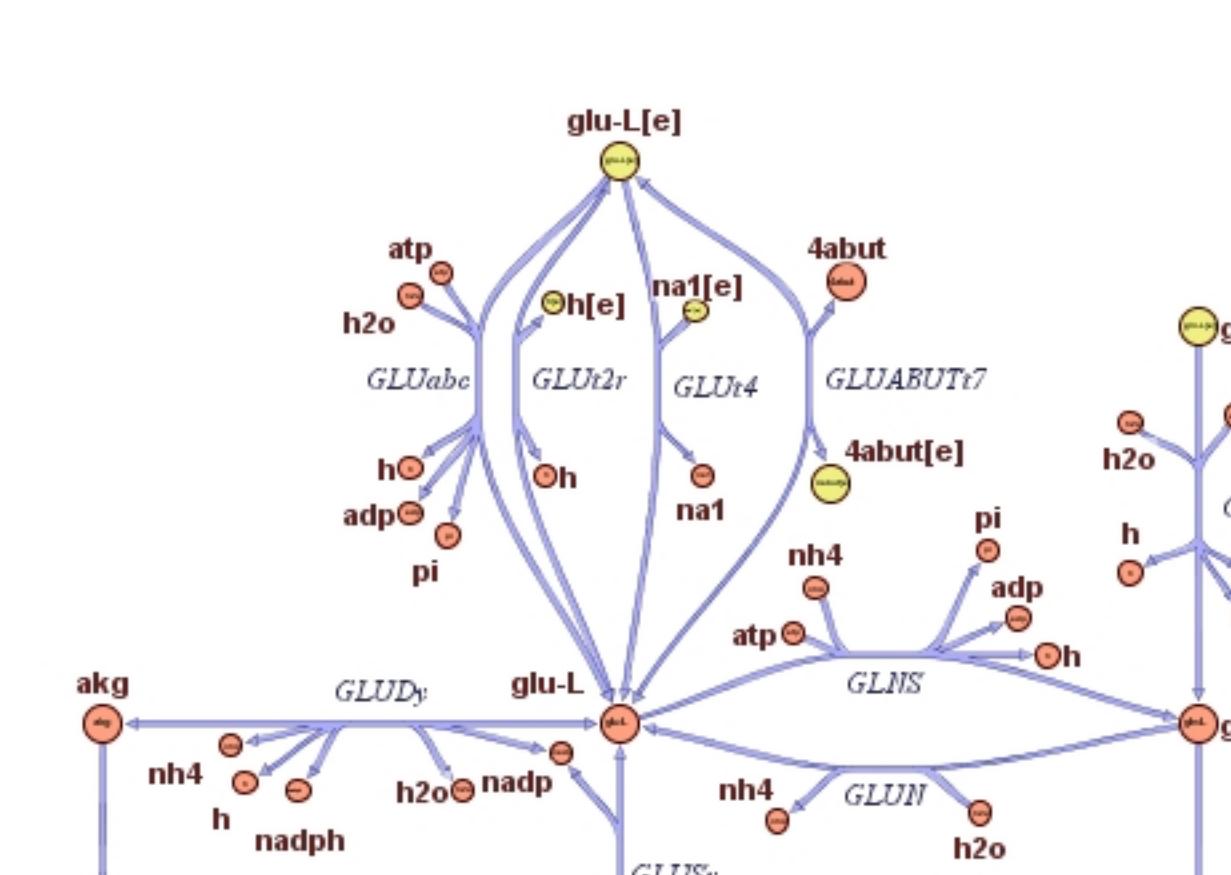
Alanine, Leucine and Valine



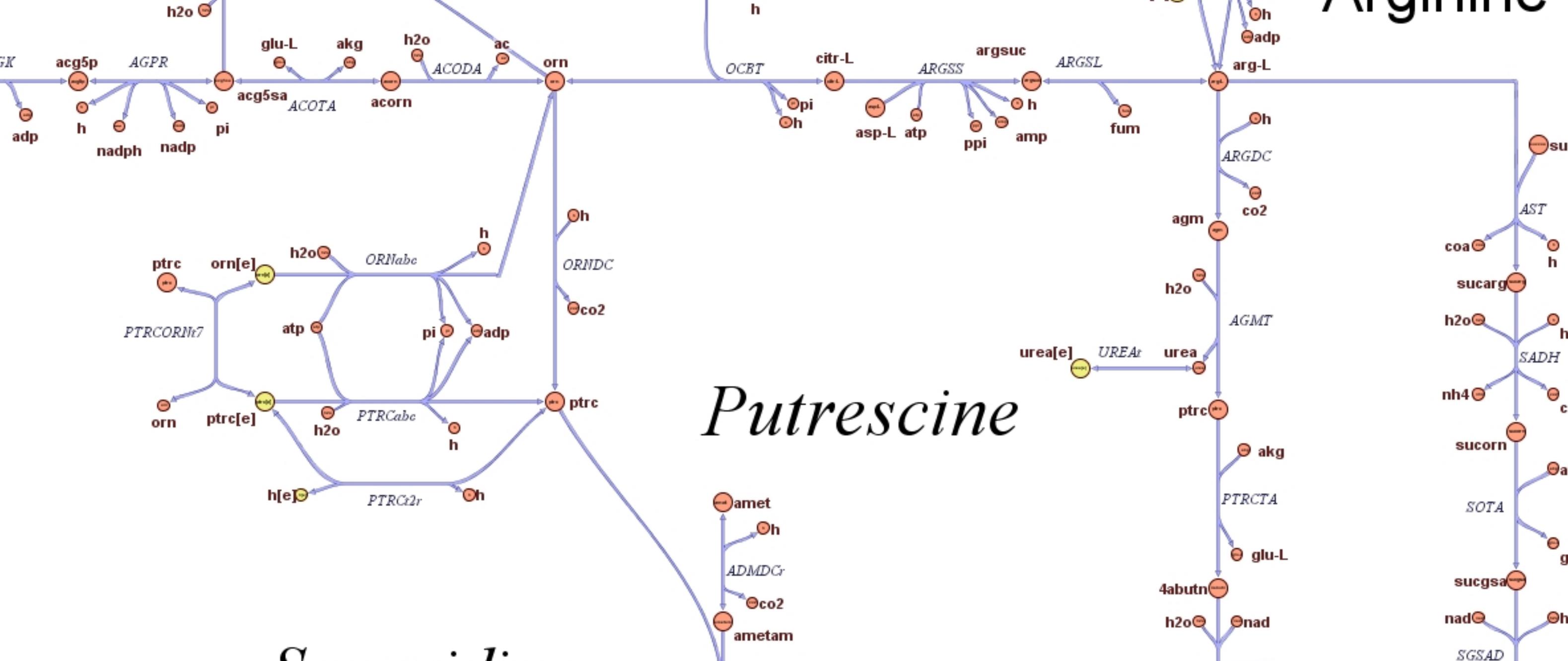
Proline



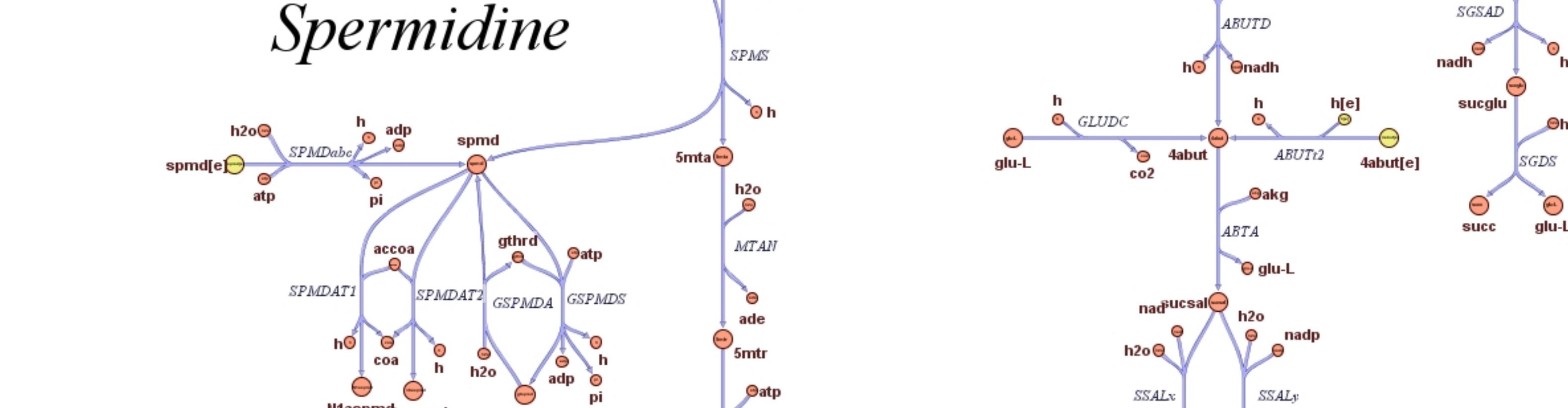
Glutamate and Glutamine



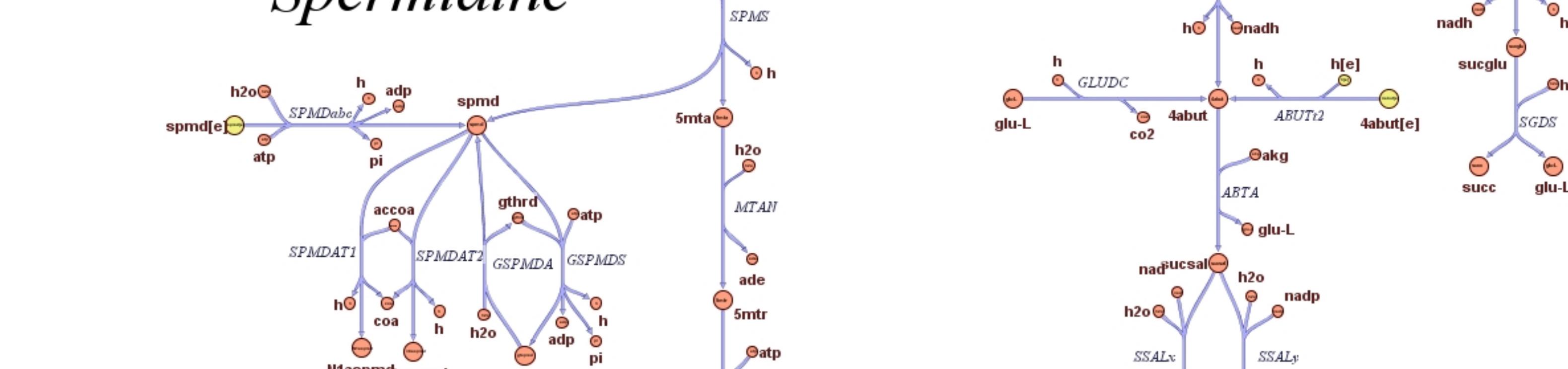
Arginine



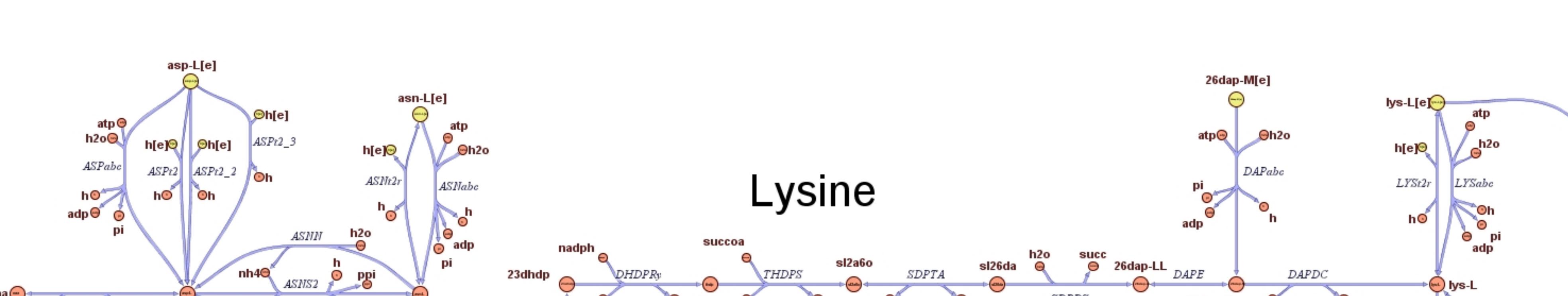
Putrescine



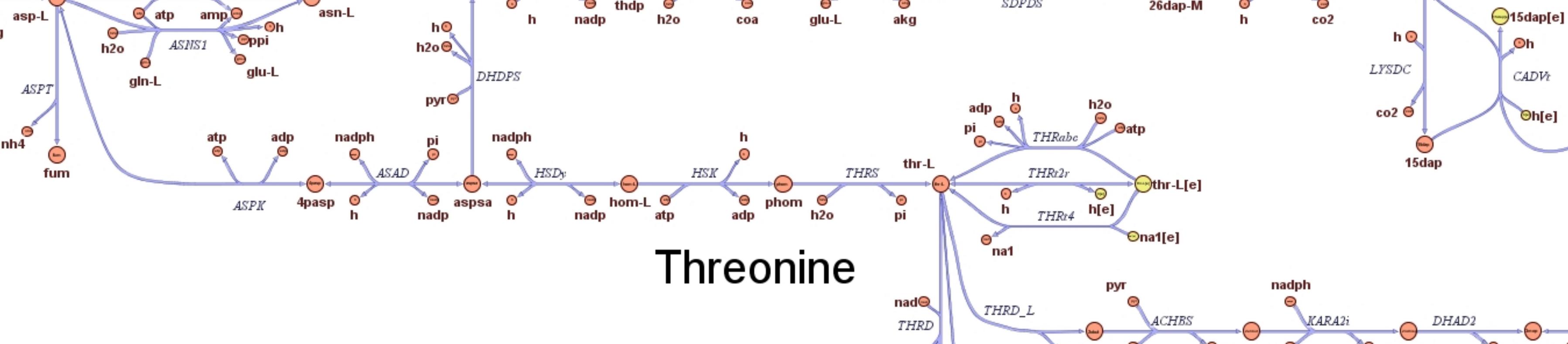
Spermidine



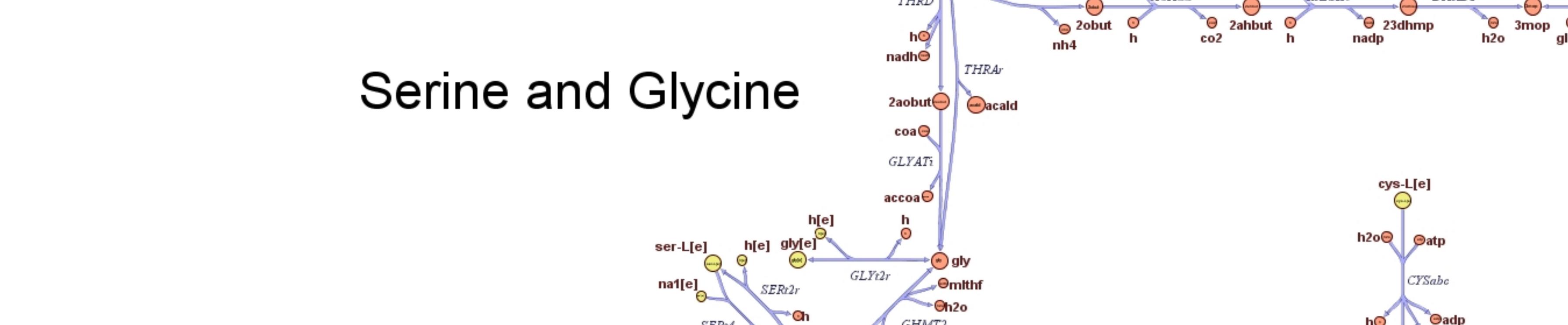
Aspartate and Asparagine



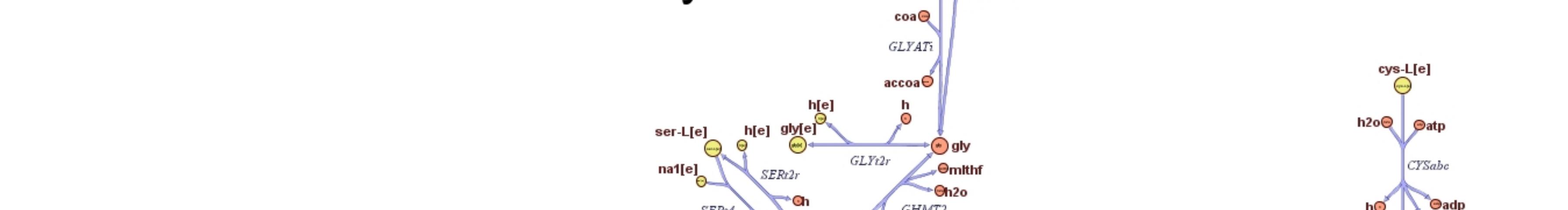
Lysine



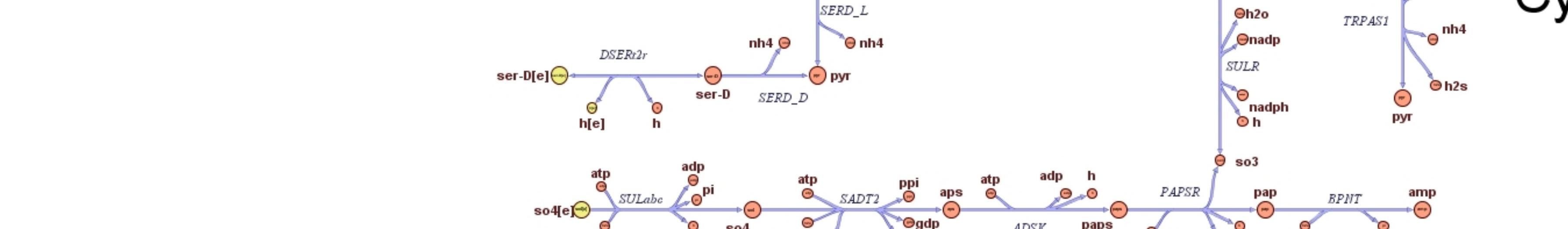
Threonine



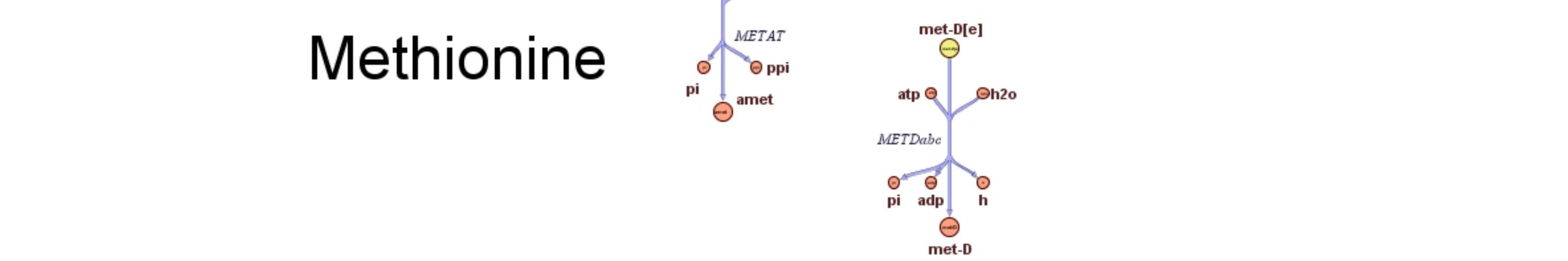
Serine and Glycine



Cysteine




Methionine



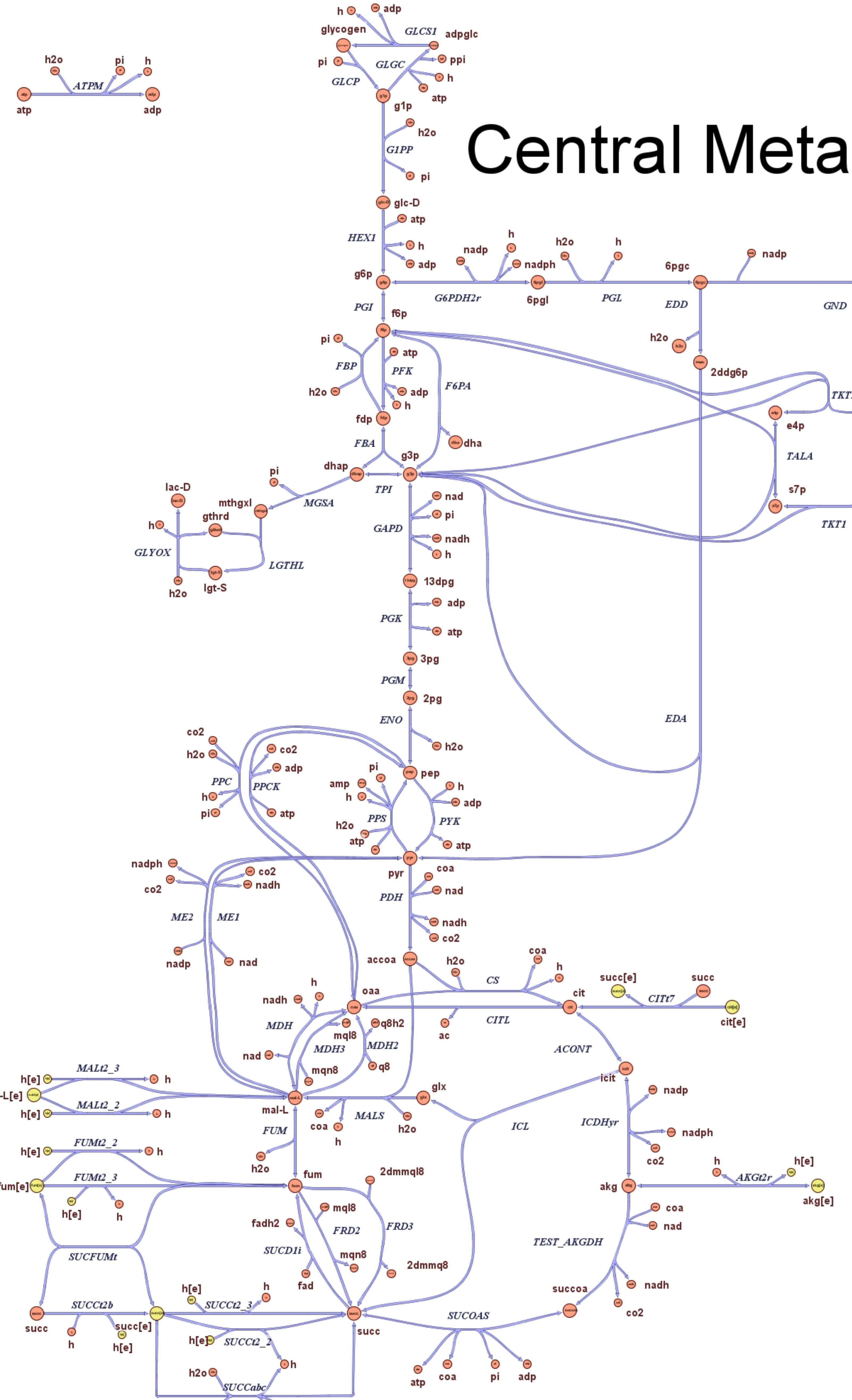
Cell Membrane Constituents

Fatty Acid Biosynthesis

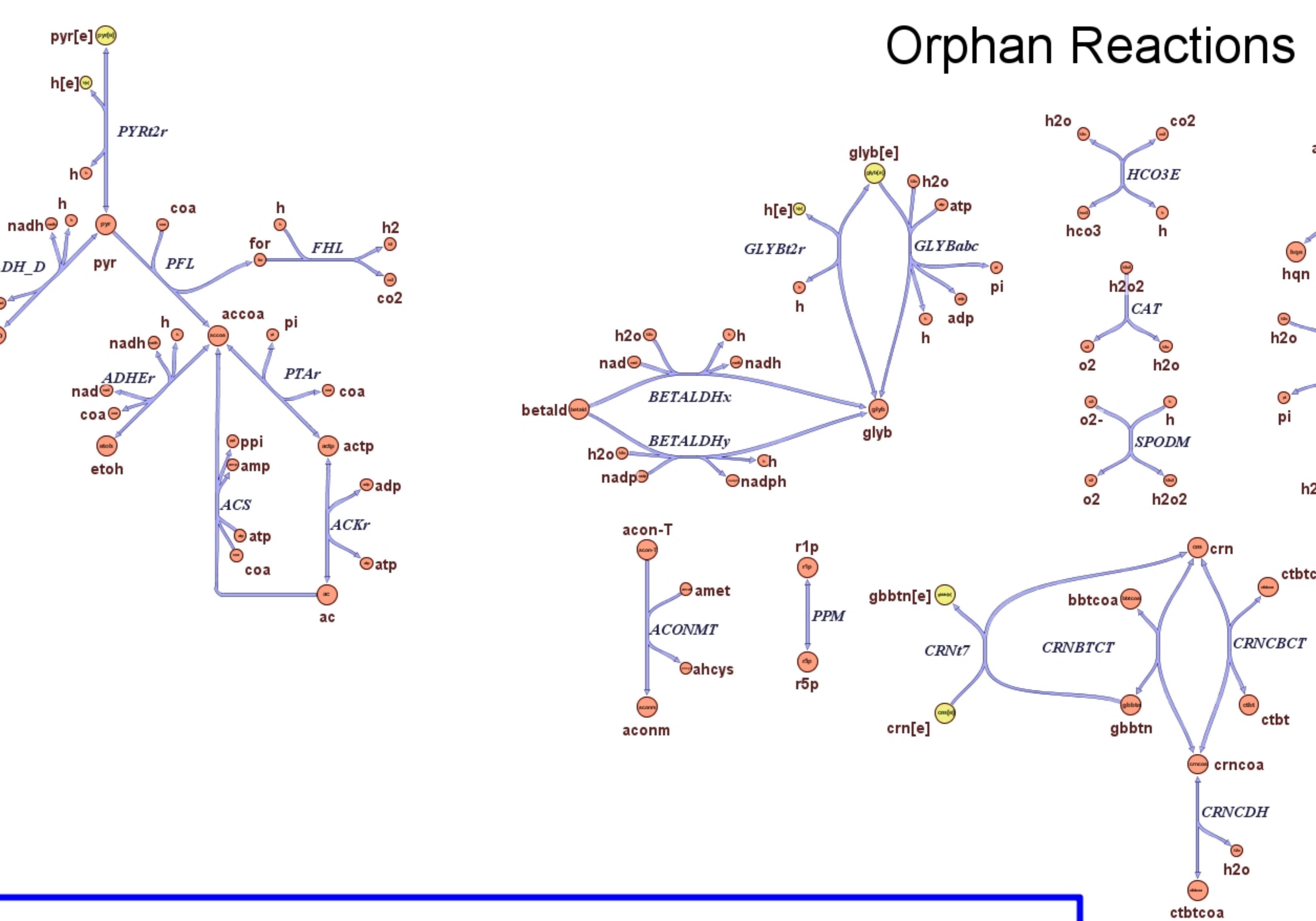


Misc Transporters

Central Metabolism

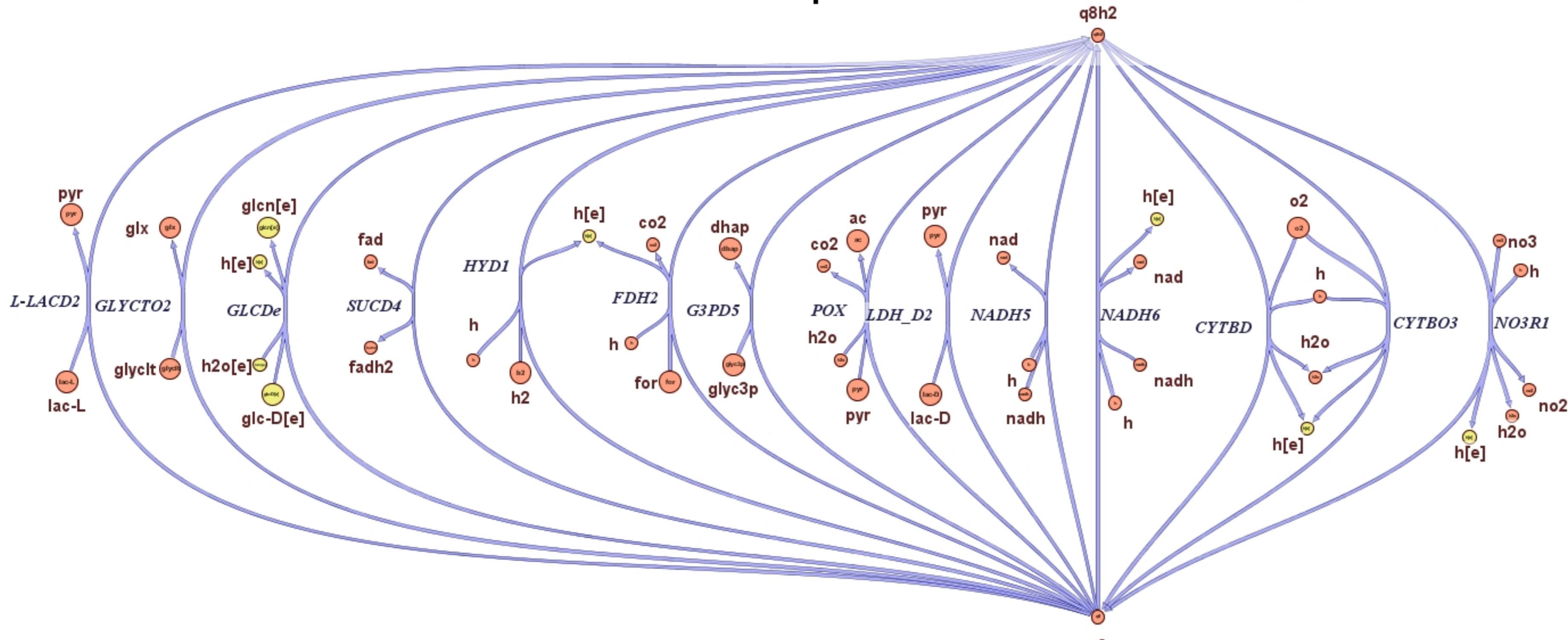


Pyruvate Metabolism

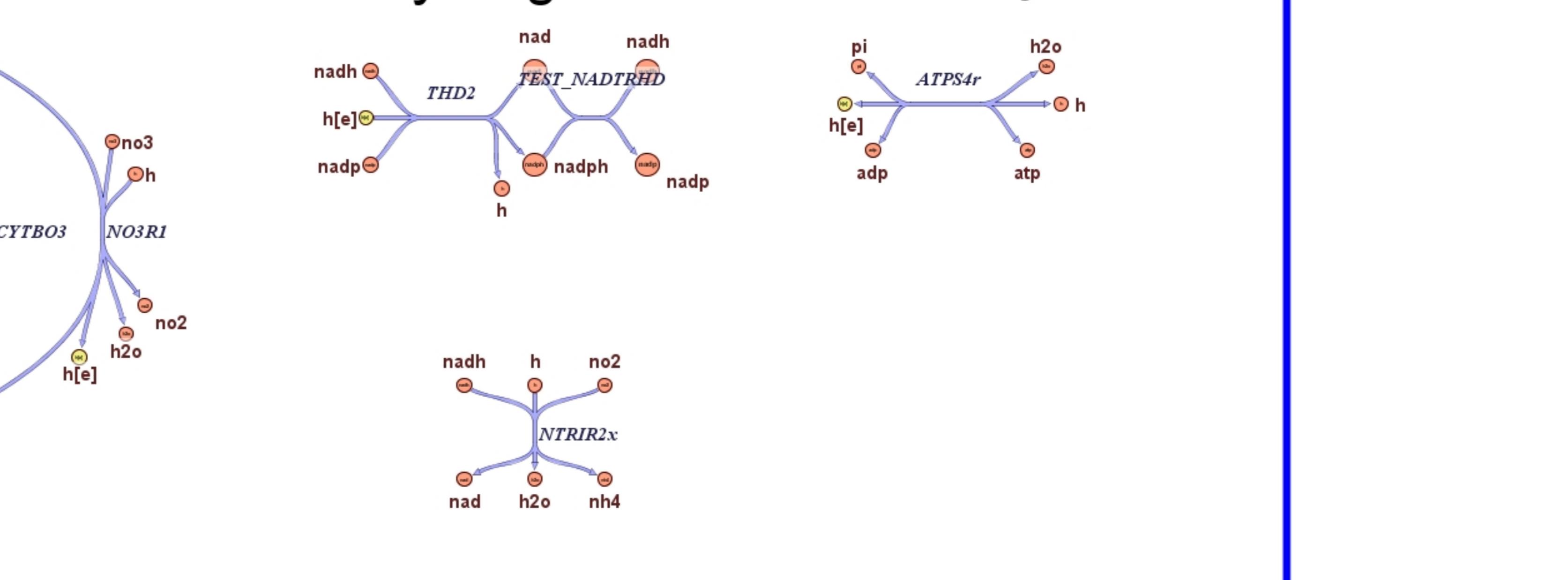


Orphan Reactions

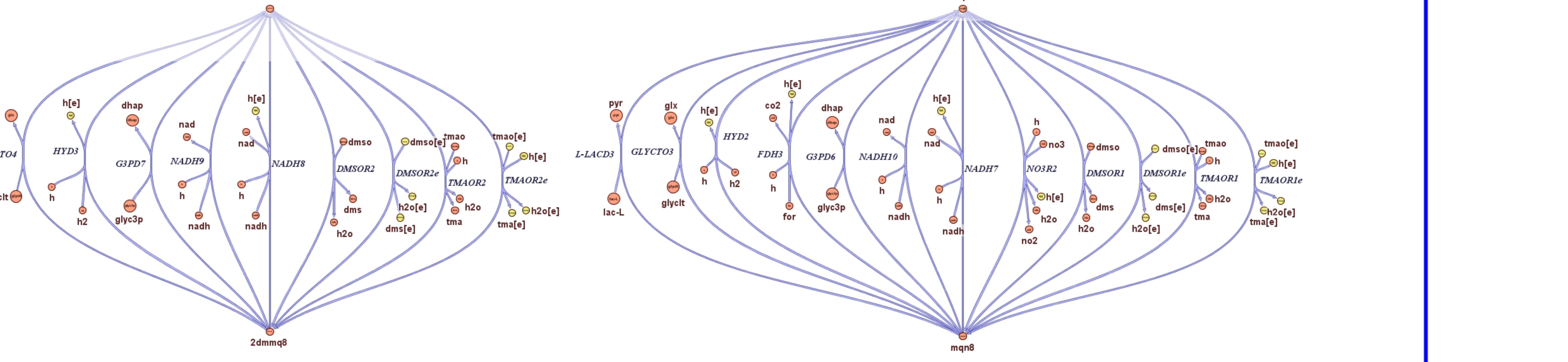
Ubiquinone Reduction/Oxidation



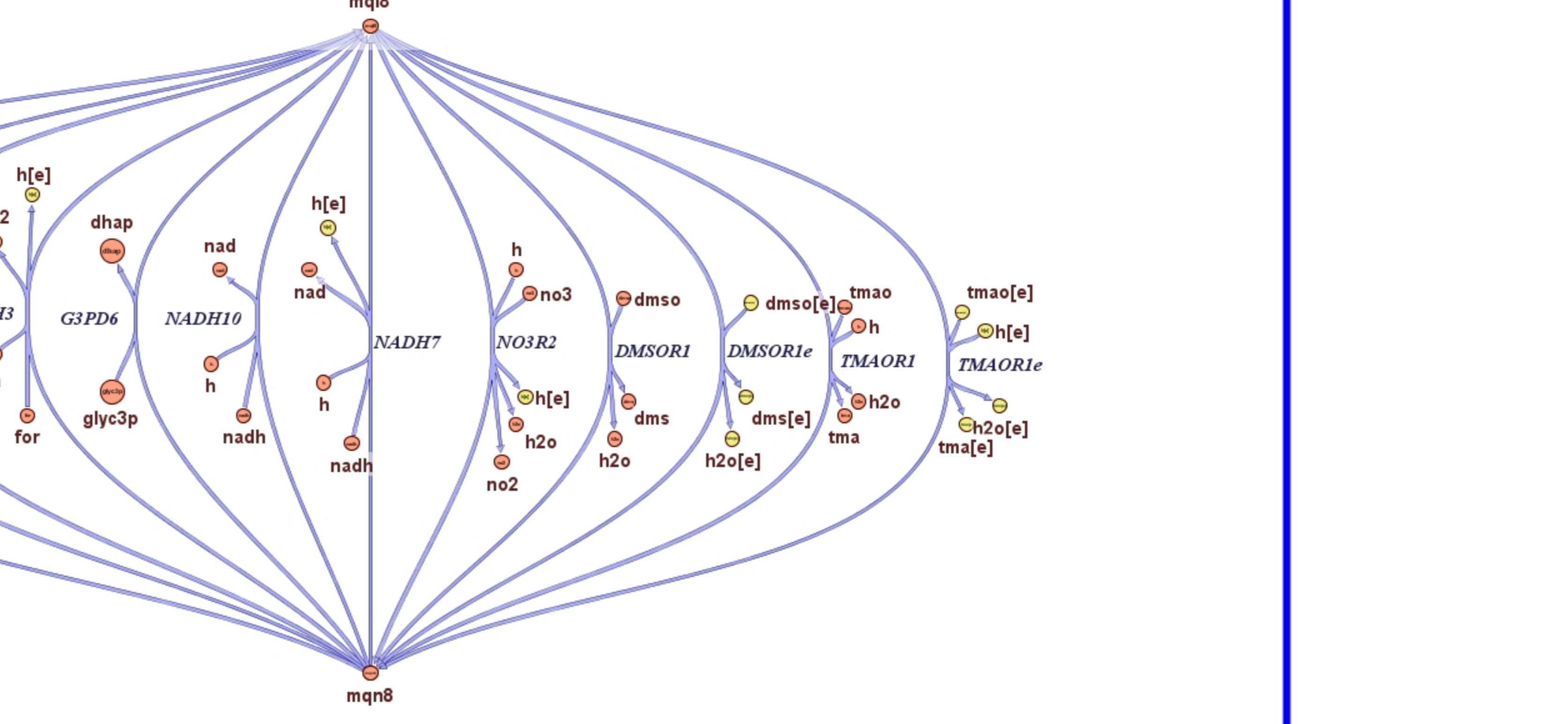
Transhydrogenase



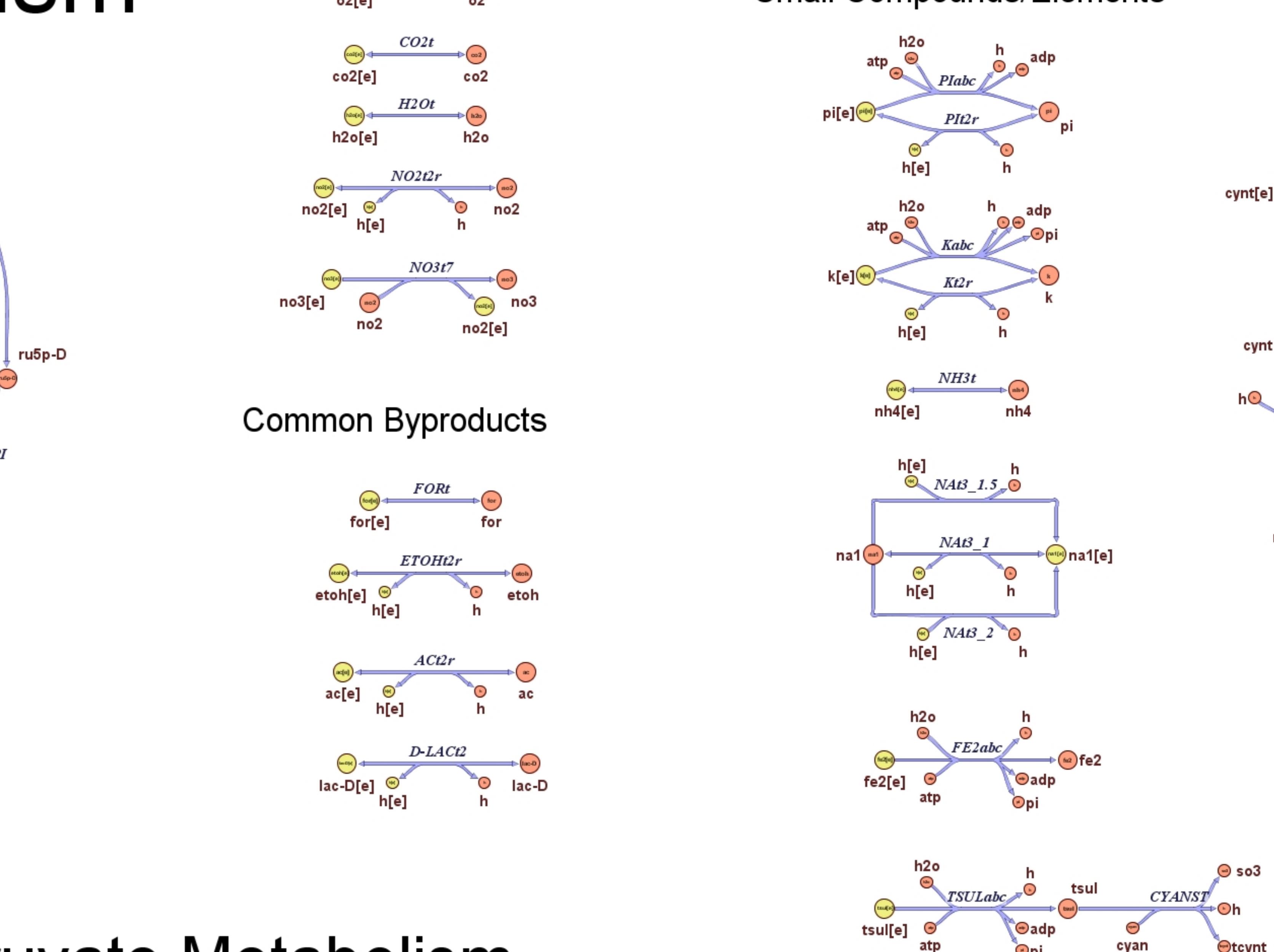
Demethylenquinone Reduction/Oxidation




Menaquinone Reduction/Oxidation



Small Compounds/Elements

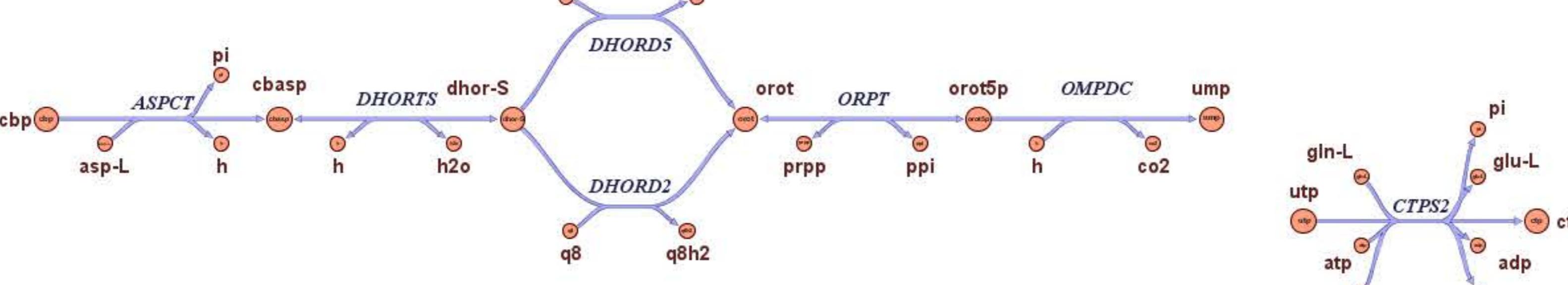


Cofactor Biosynthesis

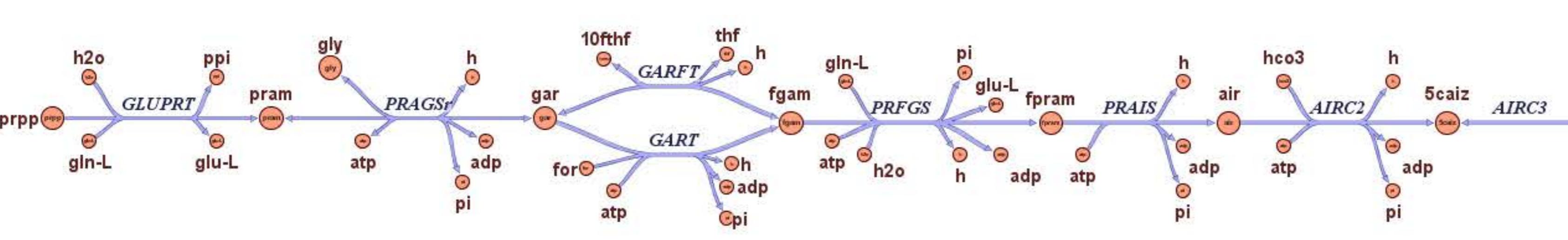


Nucleotide Metabolism

Pyrimidine Biosynthesis



Purine Biosynthesis



Nucleotide Salvage

