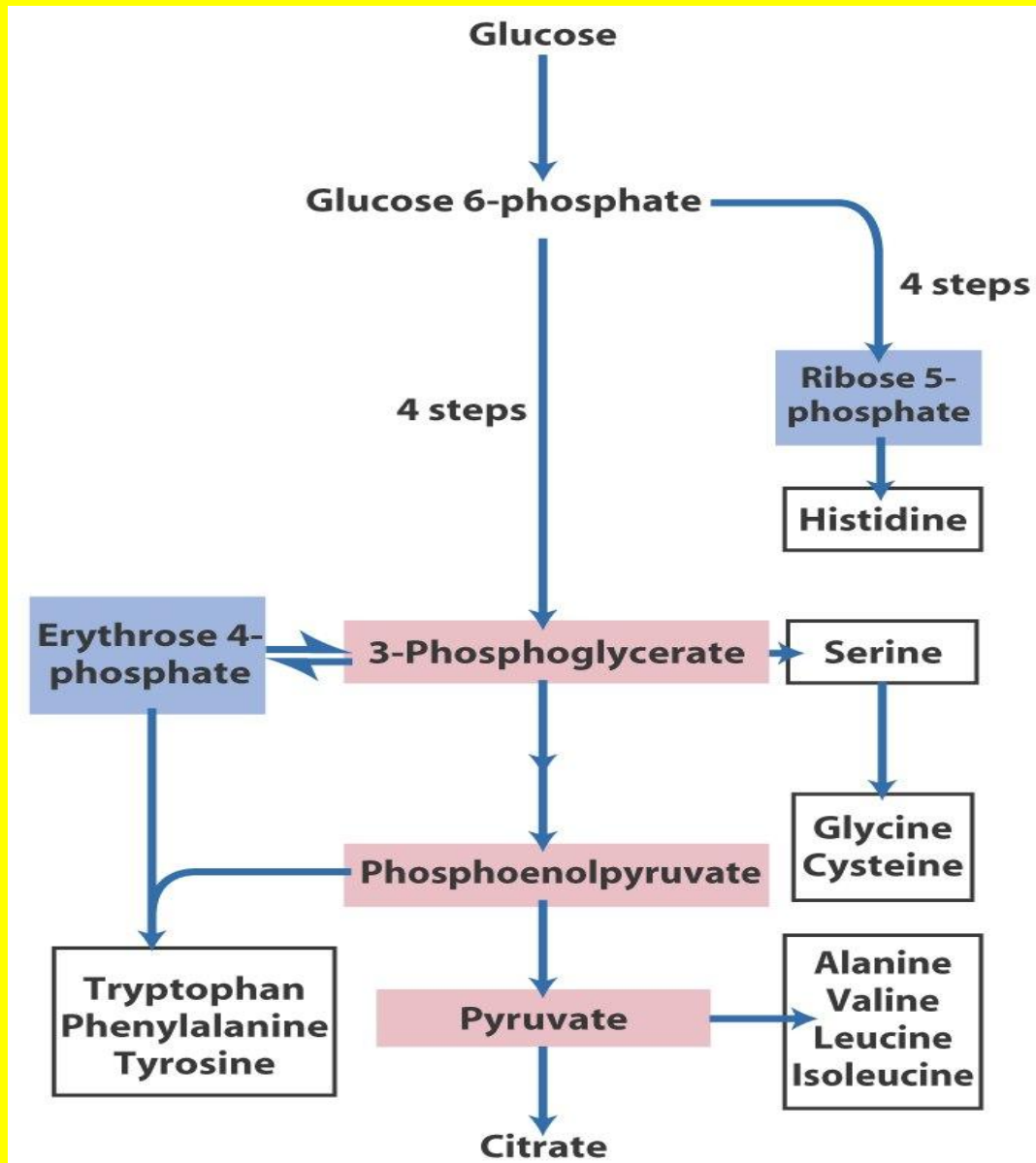
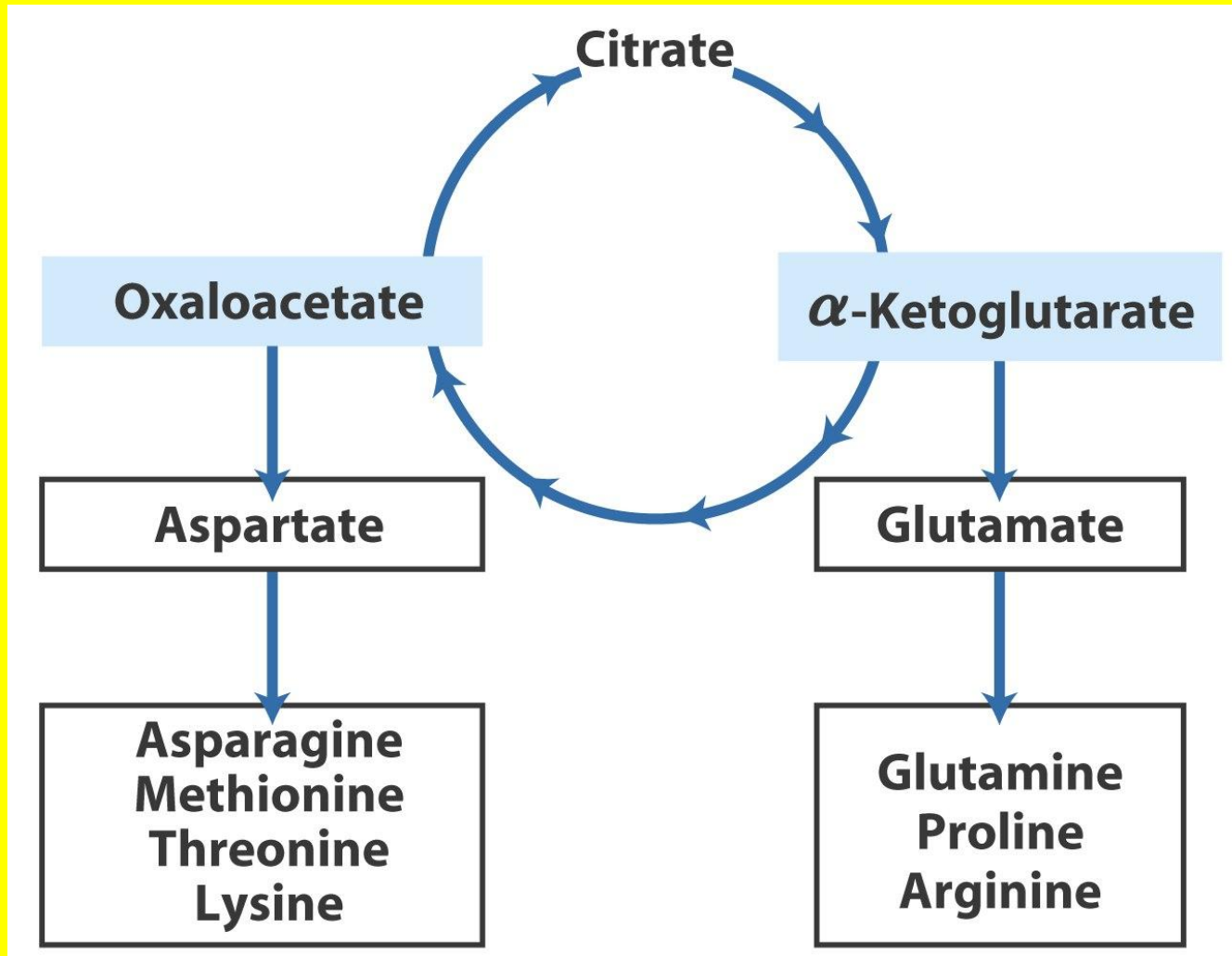


Biosynthesis of Amino Acids

Overview



Overview (cont)



Biosynthetic Families

Metabolic Precursors

α -ketoglutarate

3-Phosphoglycerate

Amino Acids

Glutamate

Glutamine

Proline

Arginine

Serine

Glycine

Cysteine

Biosynthetic Families (cont)

Metabolic Precursors

Amino Acids

Oxaloacetate

Aspartate, Asparagine

Methionine, Threonine,
Lysine

Pyruvate

Alanine, Valine, Leucine
Isoleucine

Biosynthetic Families (cont)

Metabolic Precursors

Phosphoenolpyruvate
and erythrose 4-phosphate

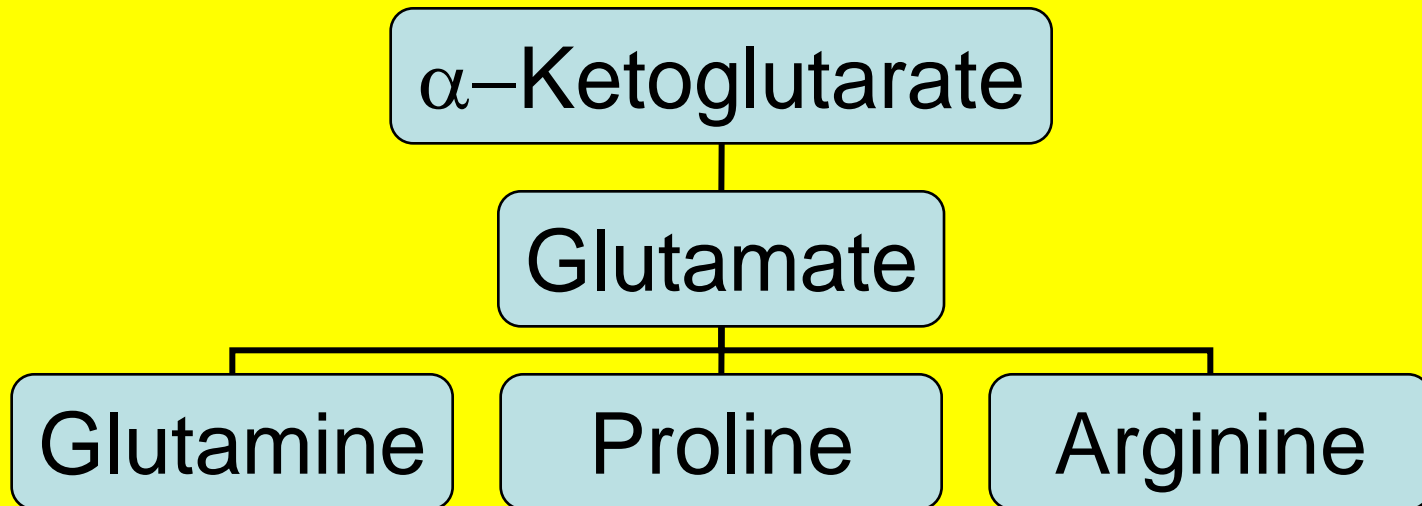
Ribose 5-phosphate

Amino Acids

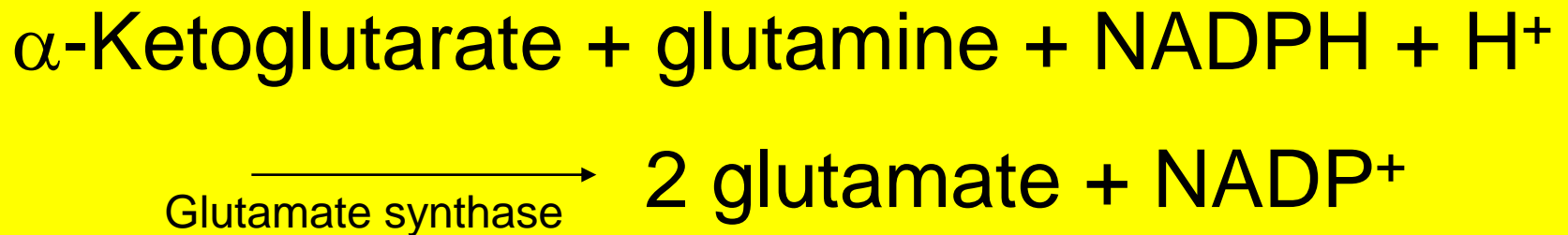
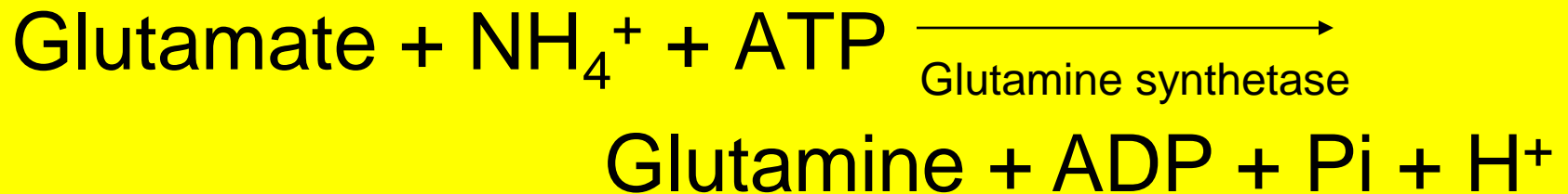
Tryptophan
Phenylalanine
Tyrosine

Histidine

α -Ketoglutarate Family



α -Ketoglutarate to glutamate/glutamine

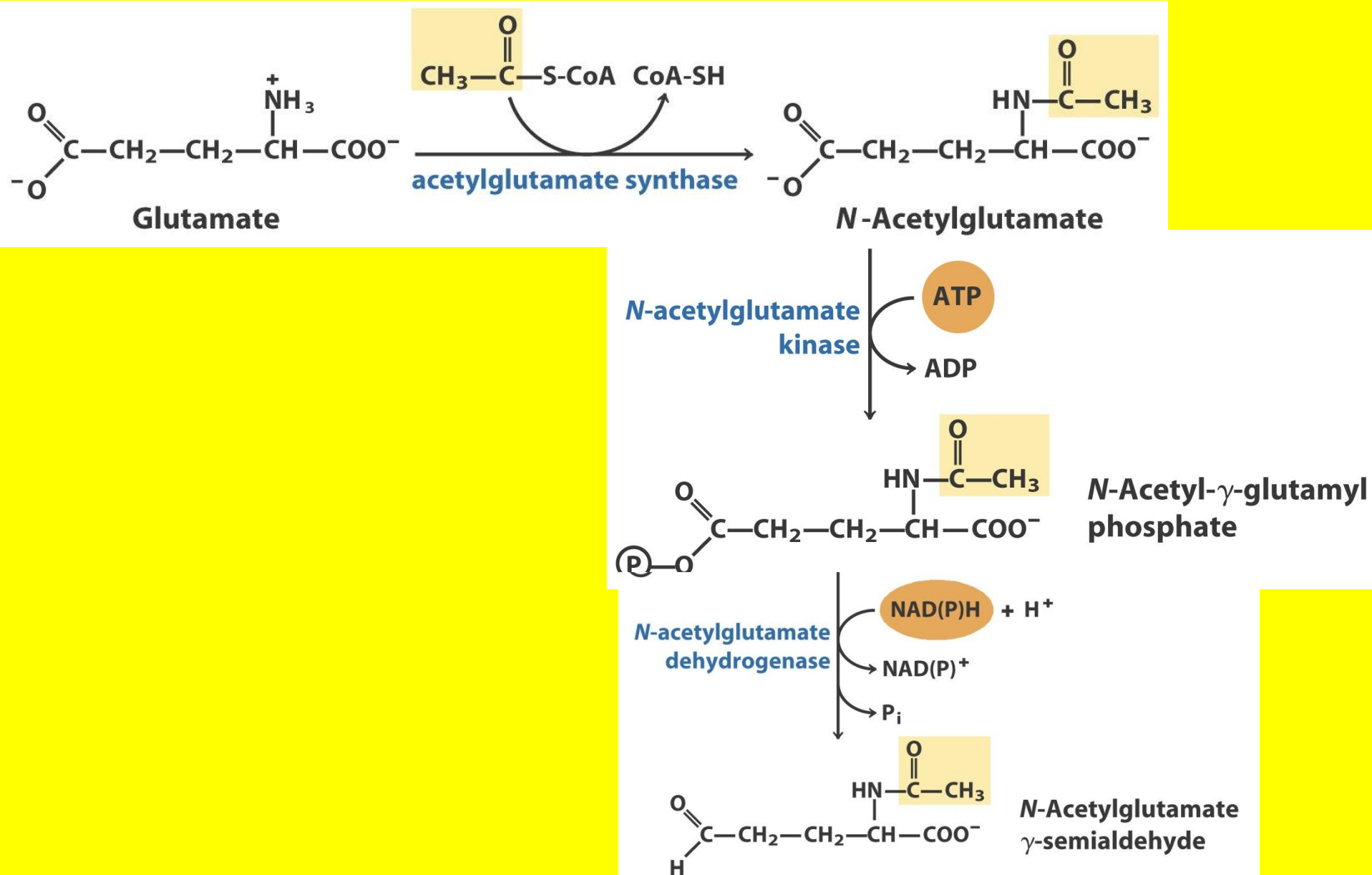


α -Ketoglutarate to glutamate/glutamine

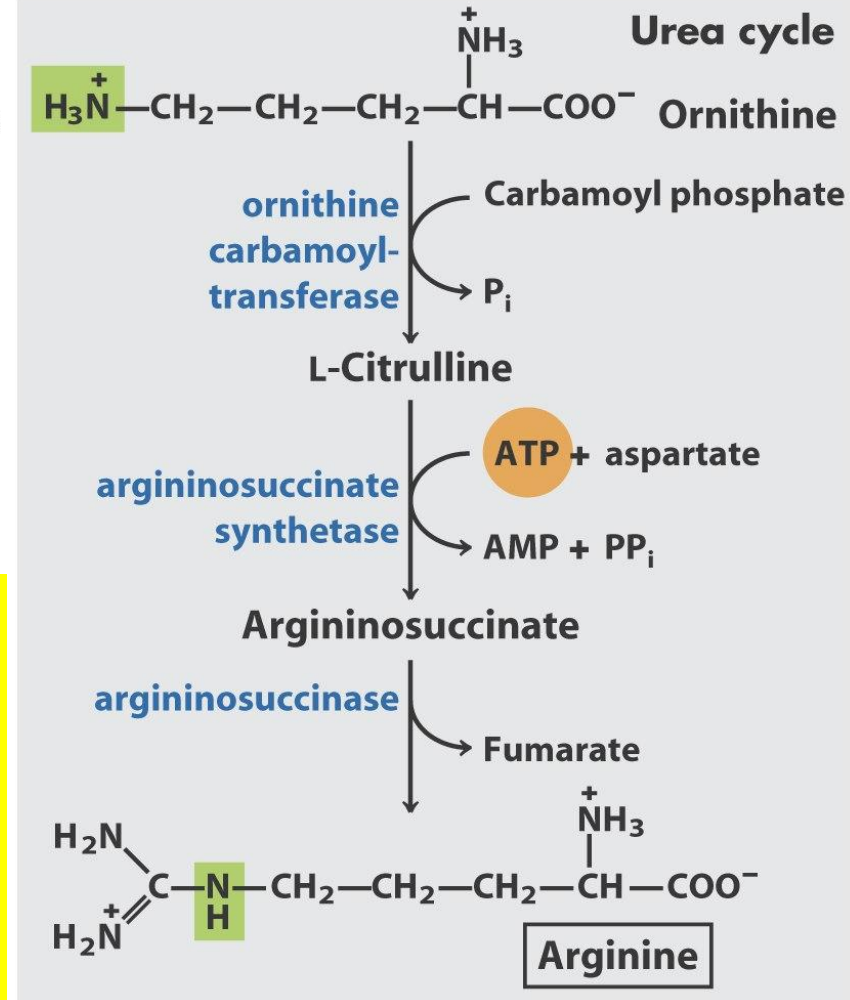
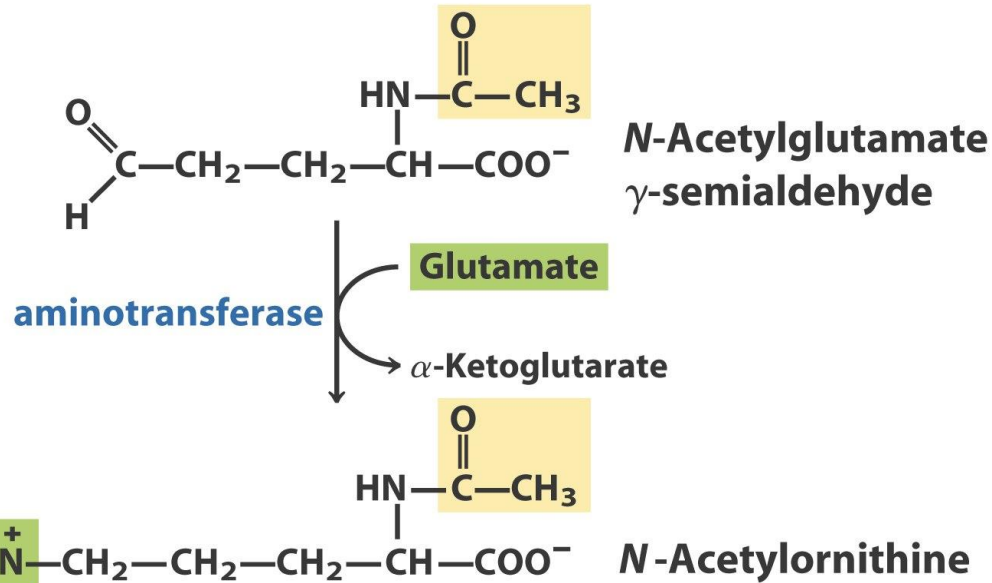
Net Reaction:

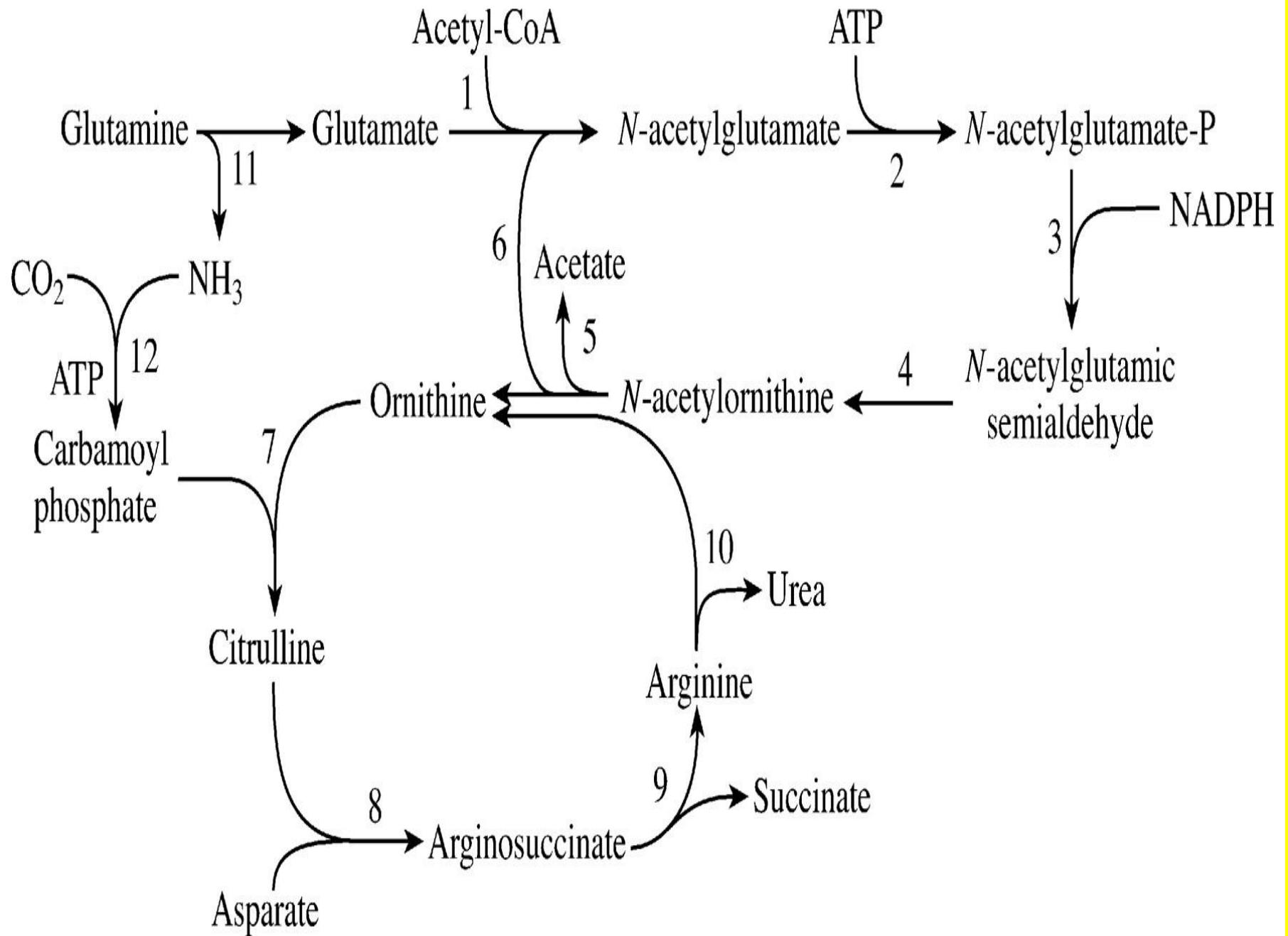


Synthesis of Arginine

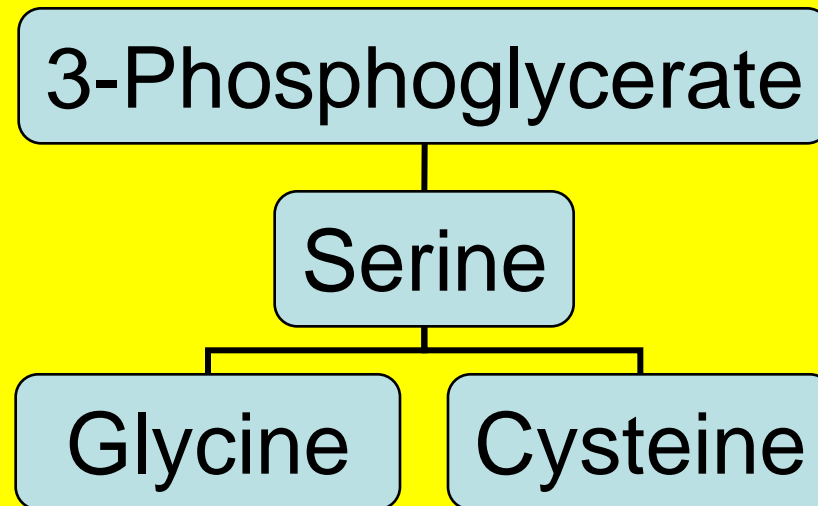


Synthesis of Arginine

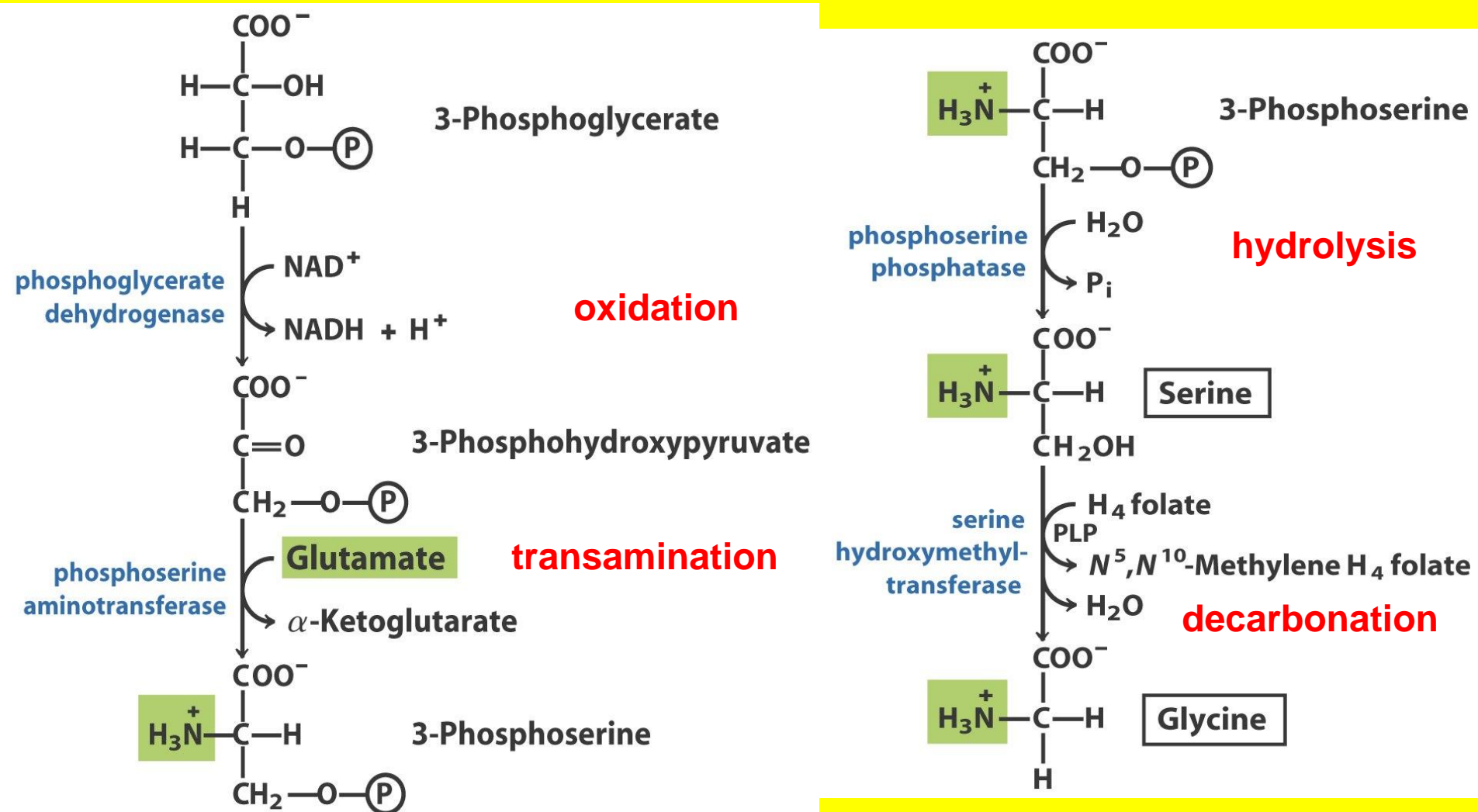




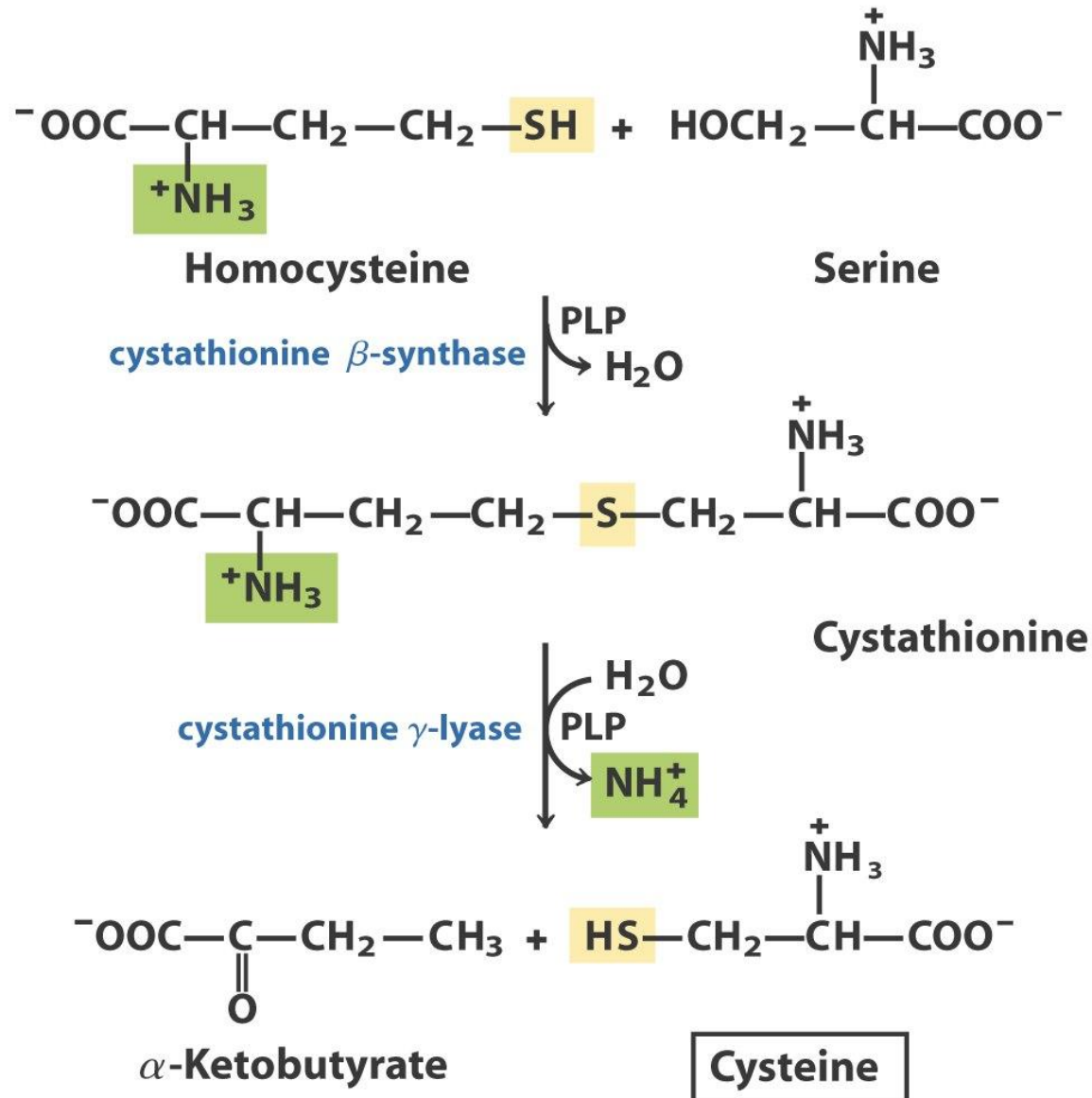
3-Phosphoglycerate Family



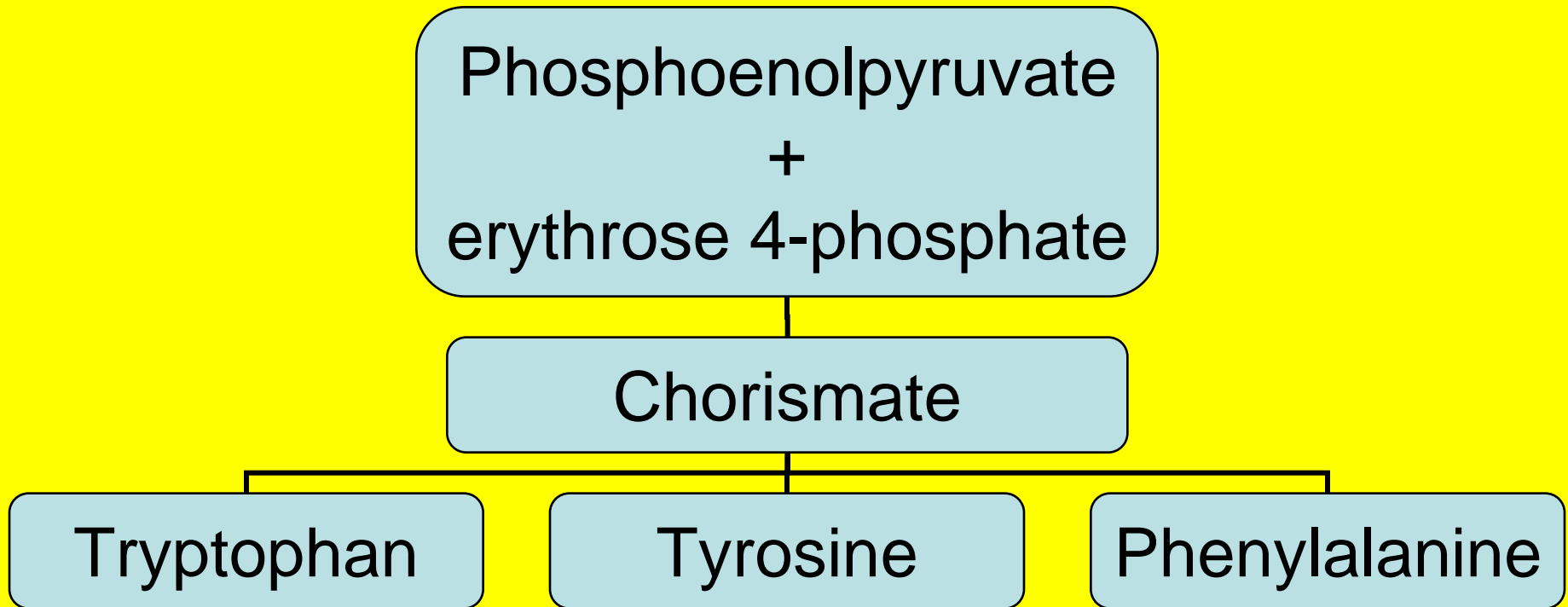
Synthesis of Serine and Glycine



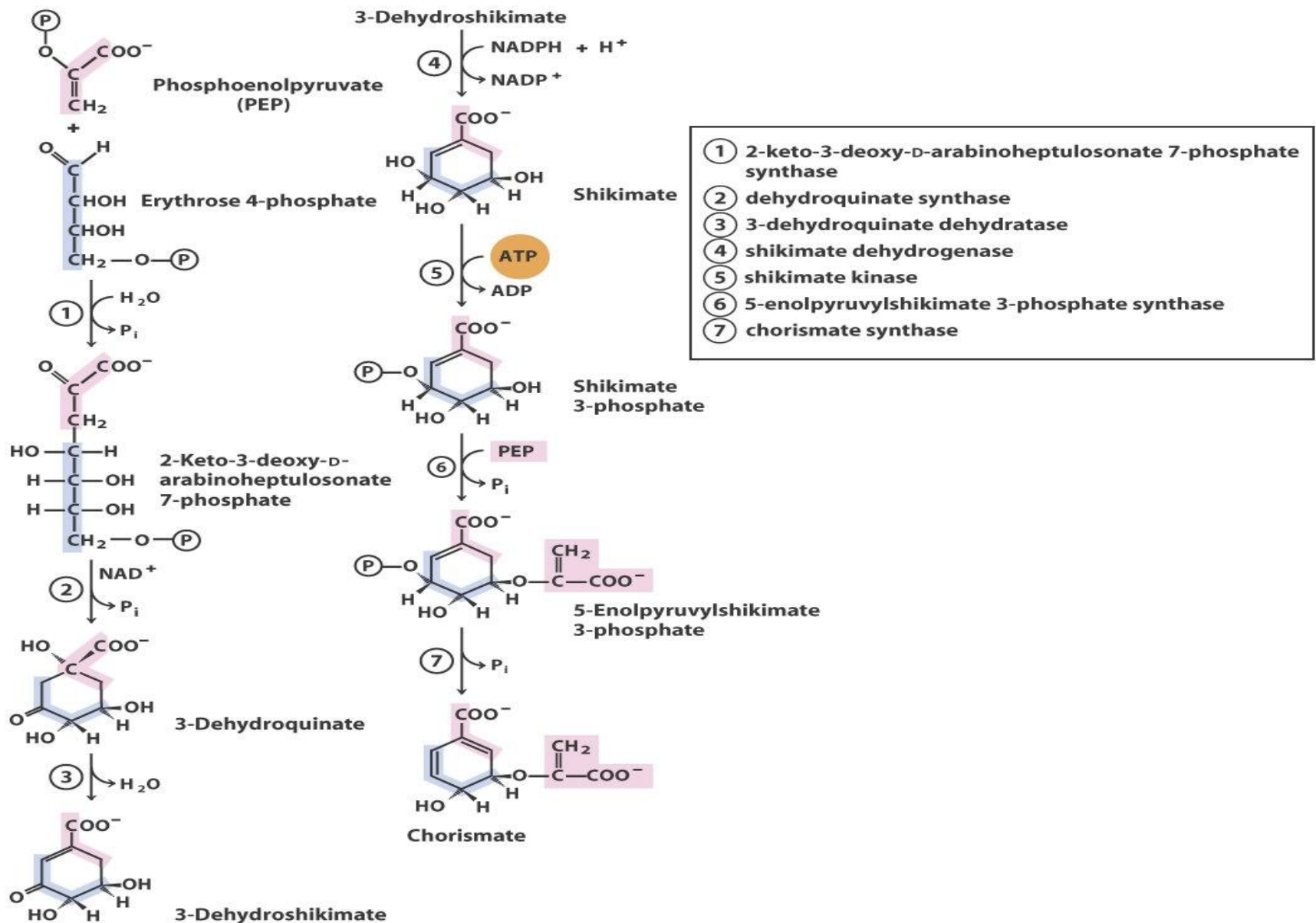
Synthesis of Cysteine



Phosphoenolpyruvate and erythrose 4-phosphate Family



Synthesis of Chorismate



Synthesis of Tryptophan

