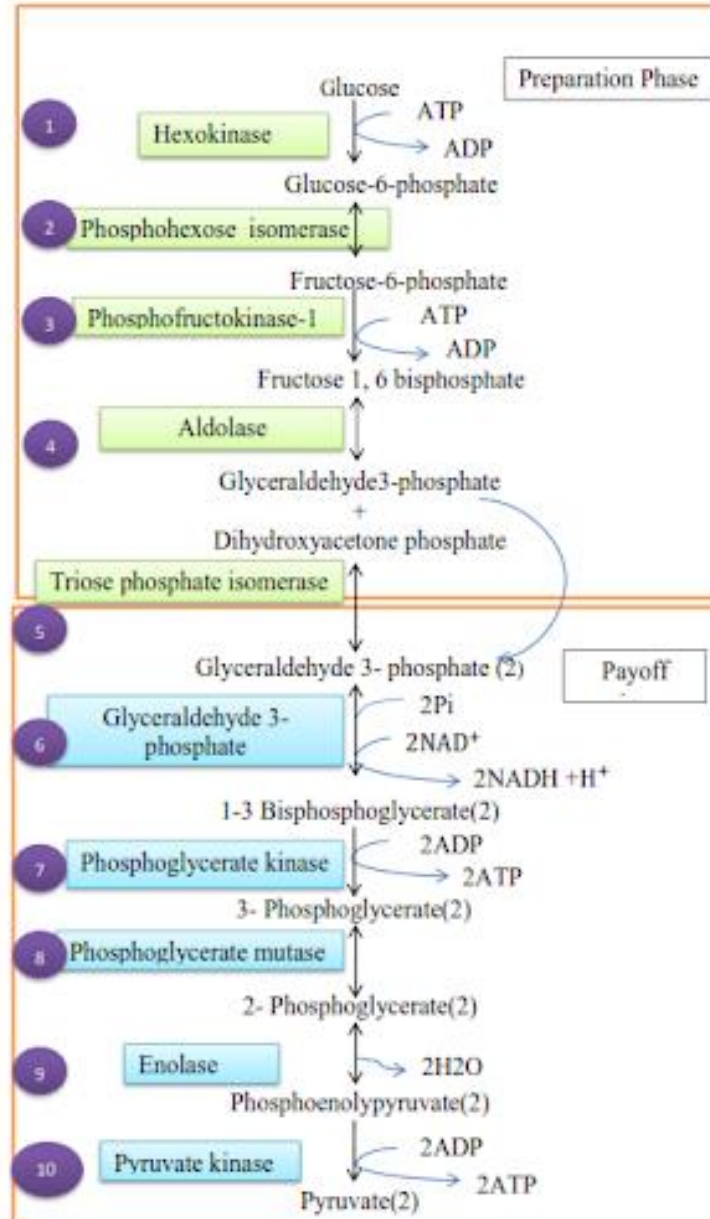


# **Metabolism of Carbohydrates**

# Glycolysis

- **Glycolysis** refers to a metabolic **pathway** by which organisms extract energy in the form of ATP during the conversion of glucose into pyruvate.
- The preparatory **phase** is where energy as ATP is put in, and the **payoff phase** is where net ATP and NADH molecules are created.
- A total of 2 ATP is put in the investment **phase**, and a total of 4 ATP is made in the **payoff phase**; thus, there is a net total of 2 ATP.

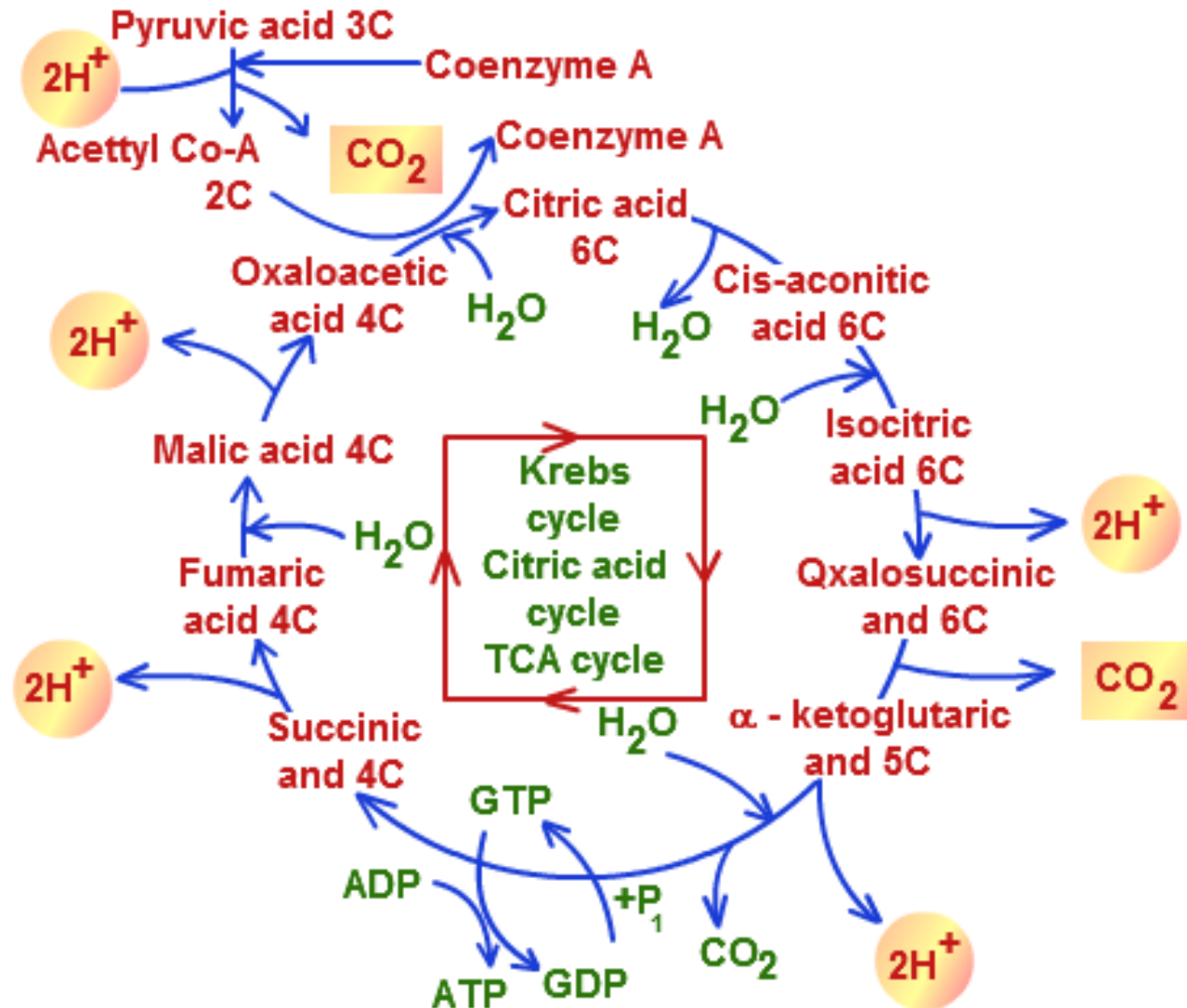
# Flow sheet of glycolysis



# Krebs cycle

The **Krebs cycle** (named after Hans **Krebs**) is a part of cellular respiration. Its other names are the citric acid **cycle** and the tricarboxylic acid **cycle** (TCA **cycle**). It consists of a series of chemical reactions used by all aerobic organisms to release stored energy through the oxidation of acetyl-CoA derived from carbohydrates, fats, and proteins, into adenosine triphosphate and carbon dioxide.

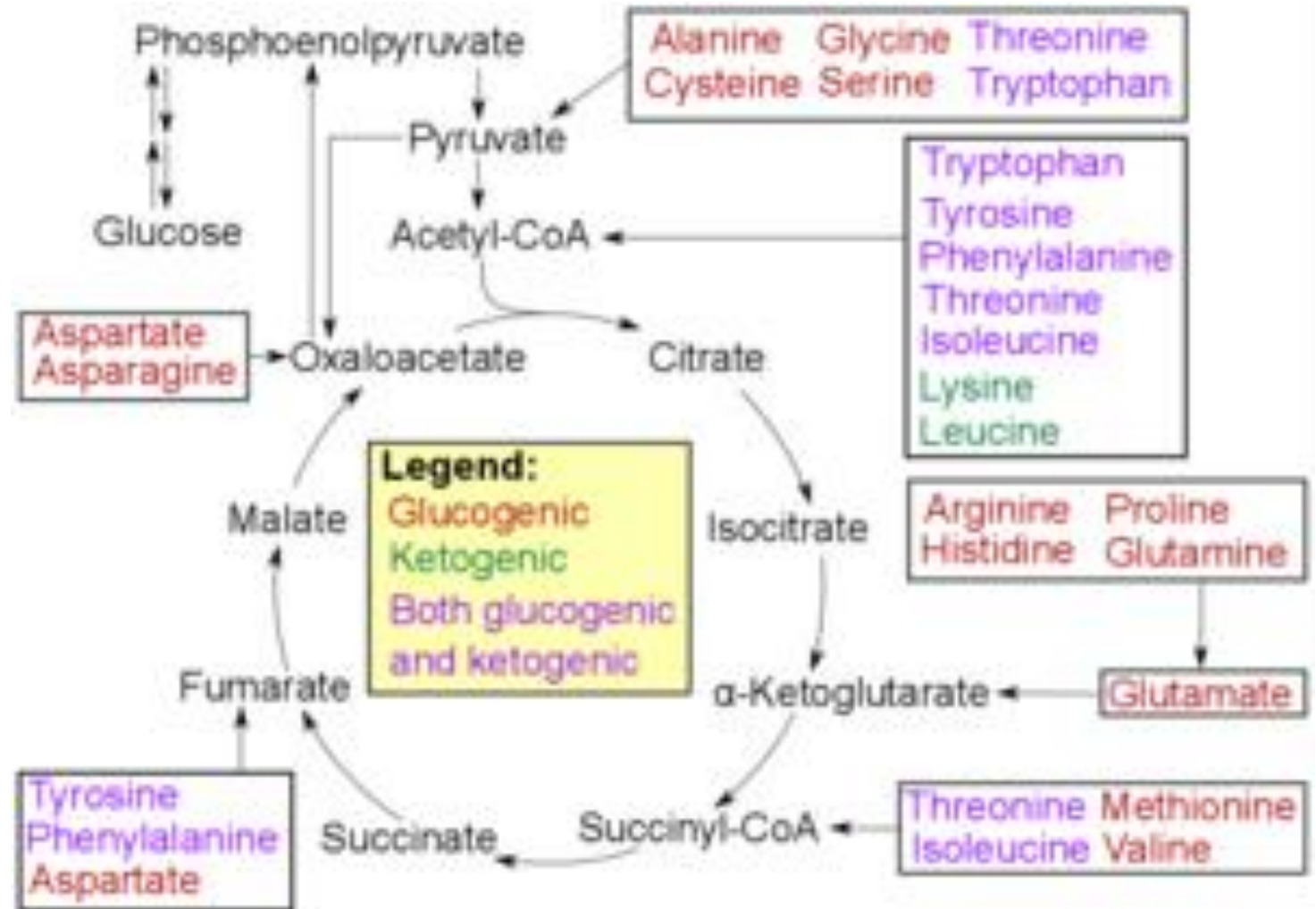
# Flow-sheet of Krebs cycle



# Gluconeogenesis

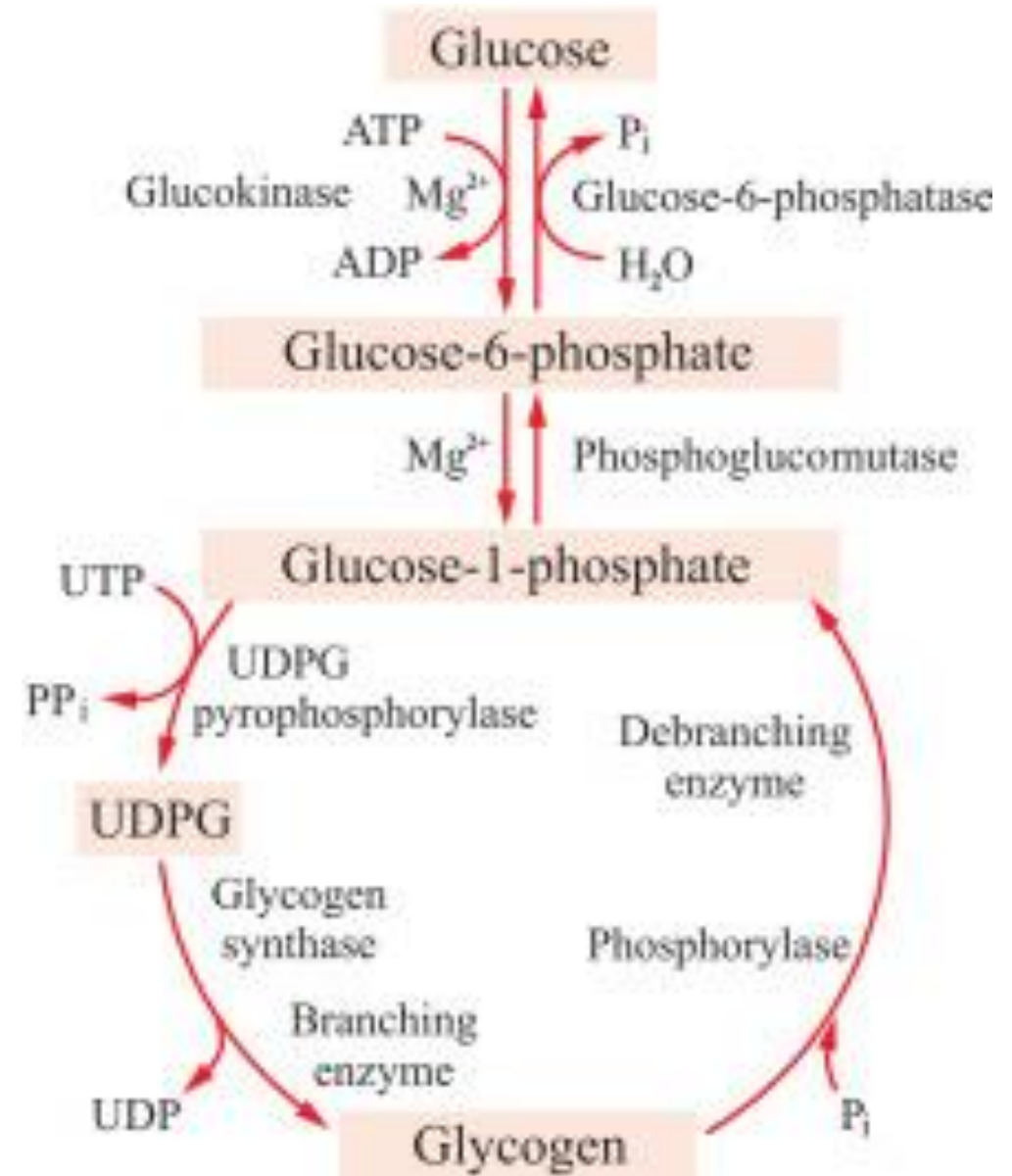
## Gluconeogenesis

(abbreviated GNG) is a metabolic pathway that results in the generation of glucose from non-carbohydrate carbon substrates such as lactate, glycerol, and glucogenic amino acids.



# Glycogenolysis

**Glycogenolysis** is the breakdown of glycogen (n) to glucose-1-phosphate and glycogen (n-1). Glycogen branches are catabolized by the sequential removal of glucose monomers via phosphorolysis, by the enzyme glycogen phosphorylase.



# Glycogenesis

**Glycogenesis** is the process of **glycogen** synthesis, in which glucose molecules are added to chains of **glycogen** for storage. This process is activated during rest periods following the Cori cycle, in the liver, and also activated by insulin in response to high glucose levels.

