

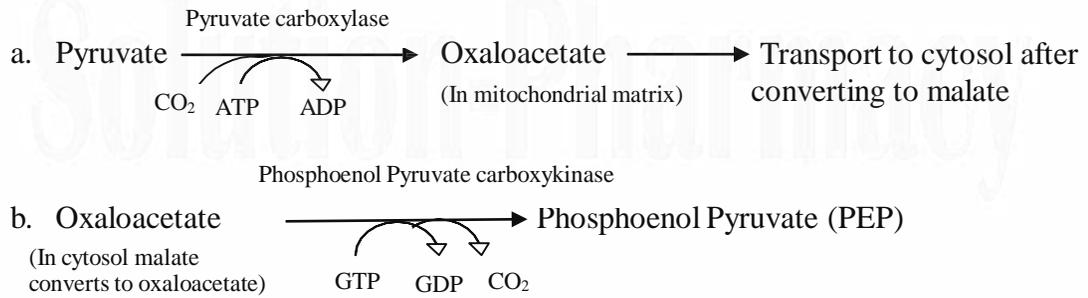
GLUCONEOGENESIS

Definition: Gluconeogenesis is the synthesis of glucose from Pyruvate and other non-carbohydrate compounds (lactate, glycogenic amino acid, propionate and glycerol).

Location: Gluconeogenesis occurs in the in the cytosol and partly in the mitochondria of the cell of liver, kidney cortex and epithelial cells of the small intestine.

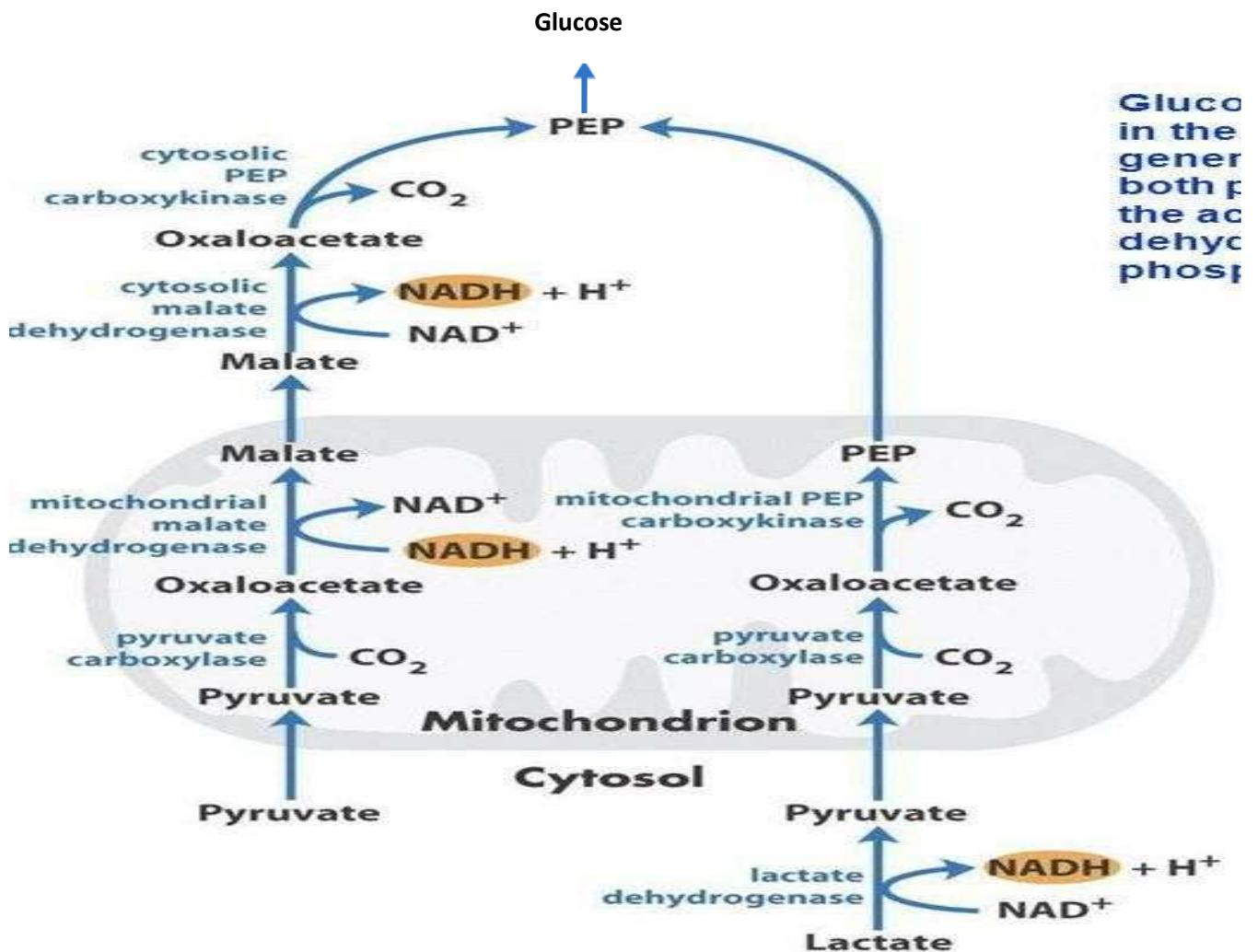
A. Reaction of Gluconeogenesis from Pyruvate

1. Conversion of Pyruvate to Phosphoenol pyruvate



2. Conversion of fructose 1,6 biphosphate to fructose-6-phosphate

3. Conversion of glucose-6-Phosphate to glucose



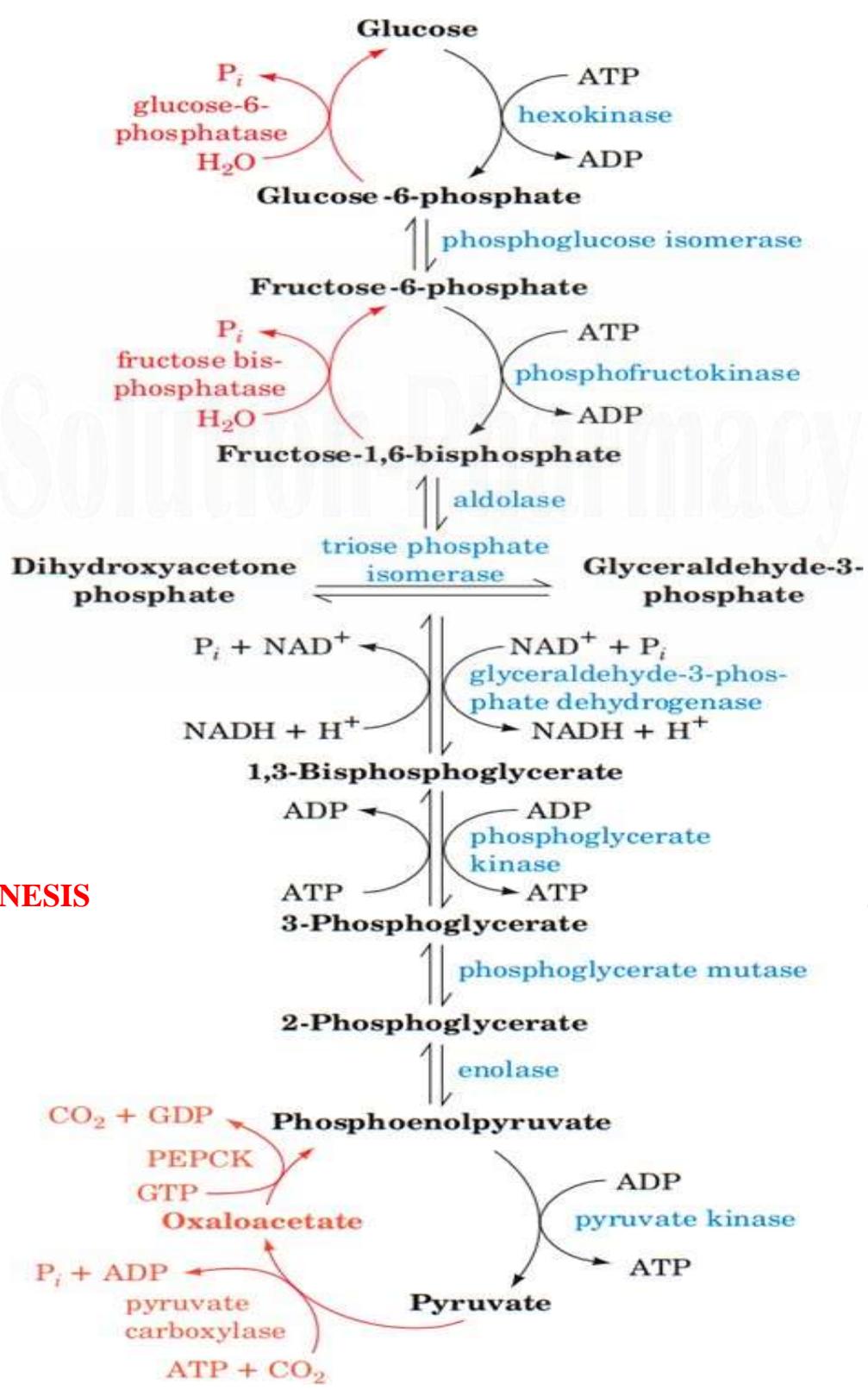
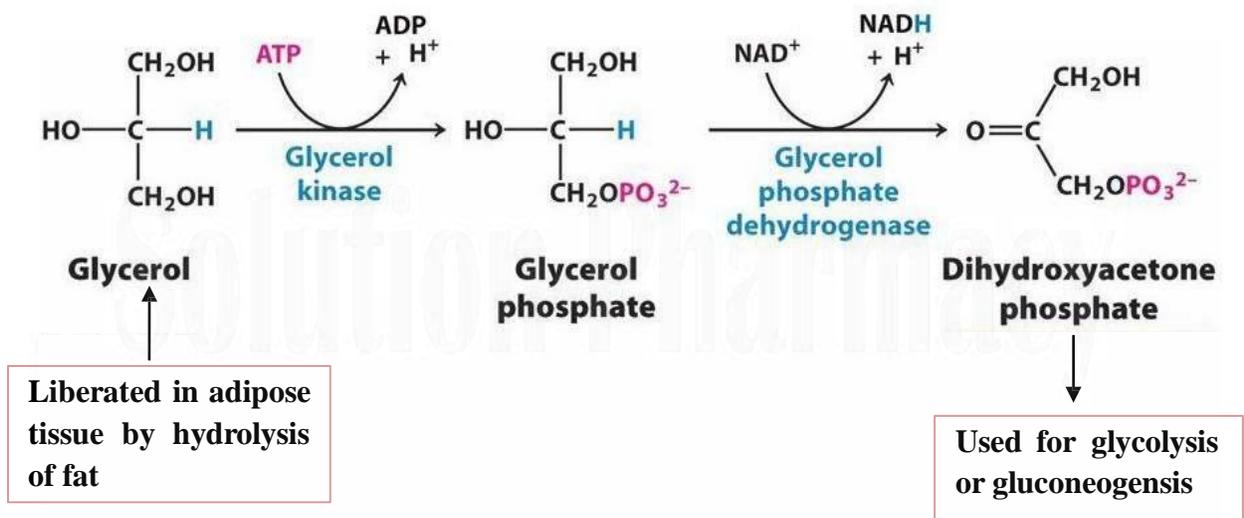


Figure 2: GLUCONEOGENESIS

B. Gluconeogenesis from Glycerol



C. Gluconeogenesis from Amino Acid

The carbon skeleton of glucogenic amino acid result in the formation of pyruvate or inyermediates of citric acid cycle

Significance of Gluconeogenesis

1. **Replenishment of glucose and maintenance of normal blood glucose** levels especially under the condition of starvation, prolong fasting and in diabetes mellitus.
2. **Replenishment of liver glycogen.**
3. Important role in **blood sugar Homeostasis.**
4. Regulation of **acid base balance.**
5. It **clears the blood lactate** produced by muscle & RBC and **glycerol** produced by adipose tissue.