

Gluconeogenesis

Suggested Reading:

Lippincot's Illustrated reviews: Biochemistry

Glucose Synthesis is Required for Survival

- Brain is dependent on glucose 120g/day
- Body glucose reserve is limited
 - ≈ 20 g (extra cellular fluid)
 - ≈ 75 g (liver glycogen); enough for 16 hours
 - ≈ 400 g (muscle glycogen)
- 70 Kg man has ≈ 15 Kg fat
 - Fatty acids can not be converted to glucose
 - Main source of energy for resting muscle in postabsorptive state
 - Utilization of FA is increased 4-5 X in prolonged fasting
 - In prolonged fasting FA → ketone bodies at high rate

Gluconeogenesis occurs mainly in the liver

Tissues that do not
oxidize glc. completely
e.g RBC
Exercising muscle

Muscle
A.Acids

Adipose
tissue

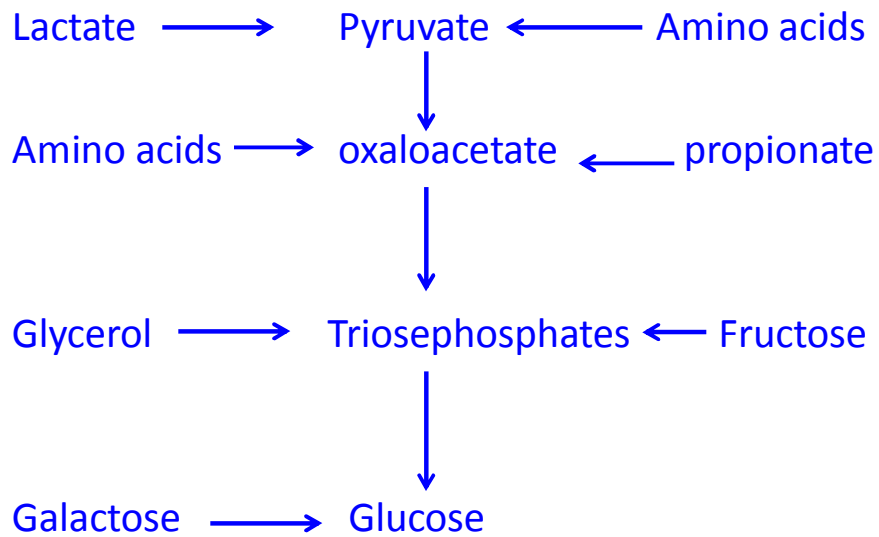
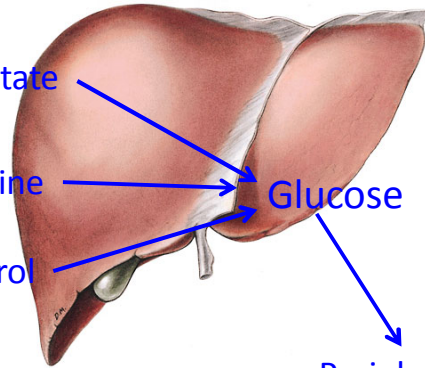
Lactate

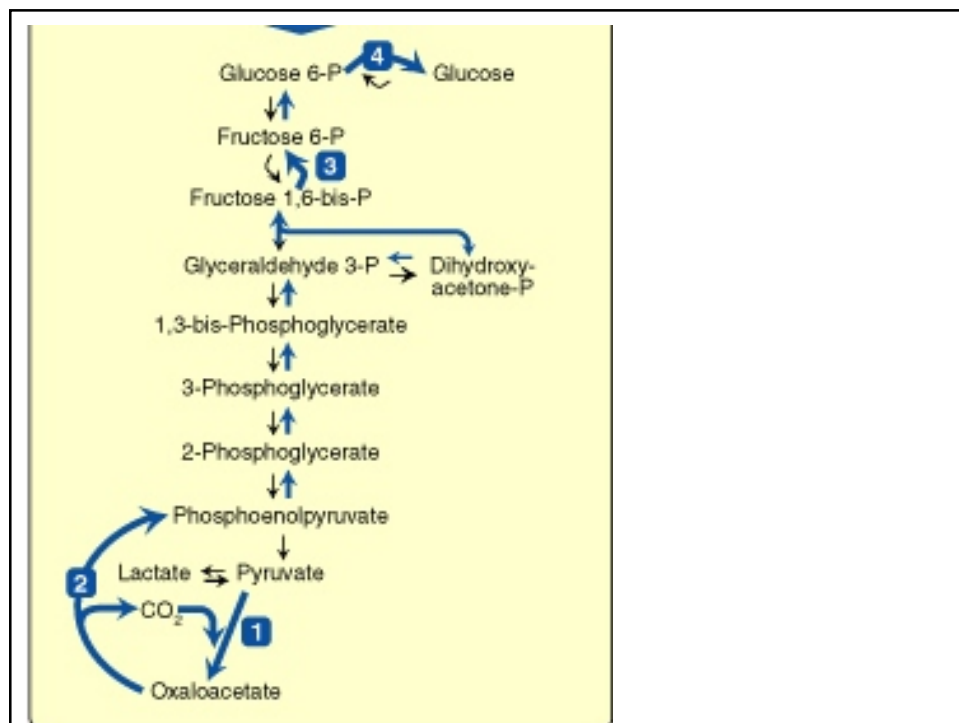
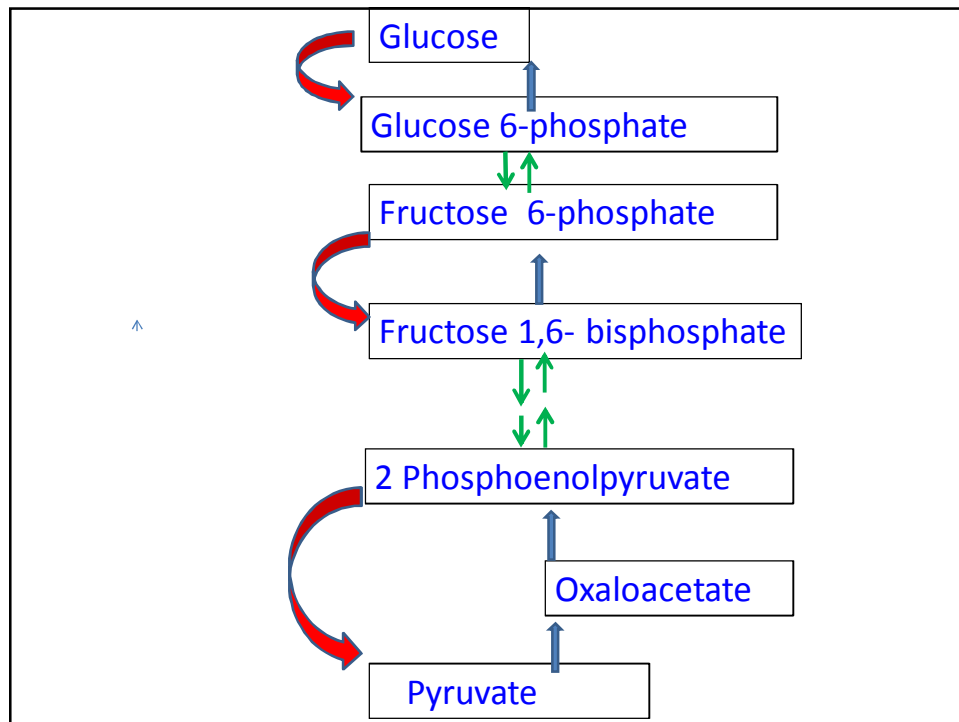
alanine

glycerol

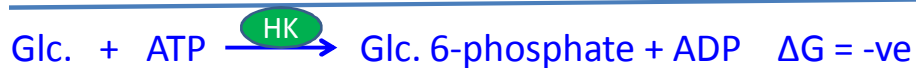
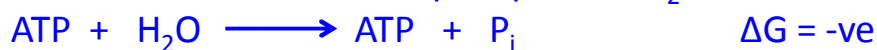
Glucose

Peripheral
tissues

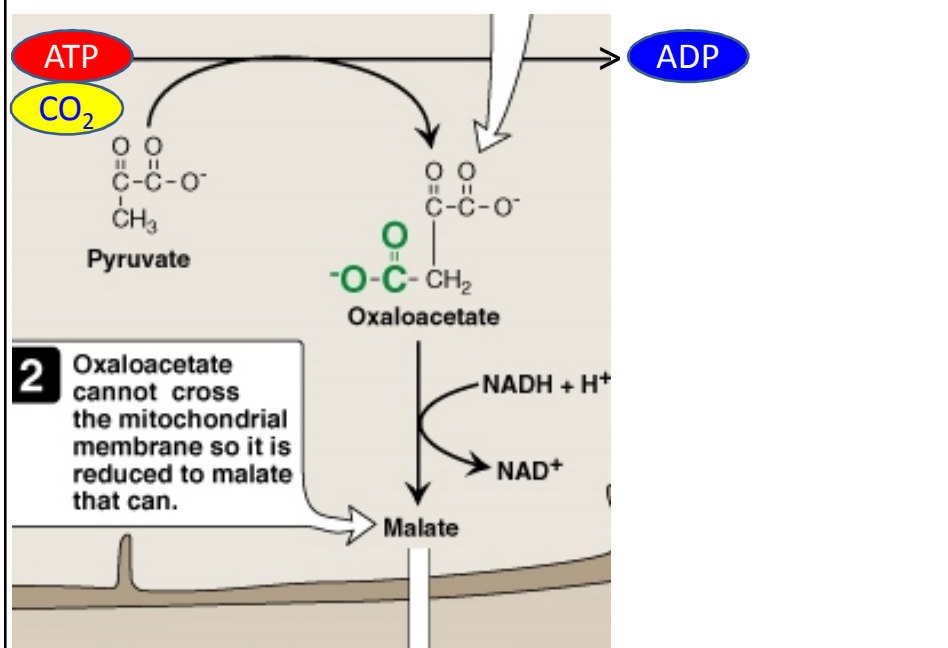


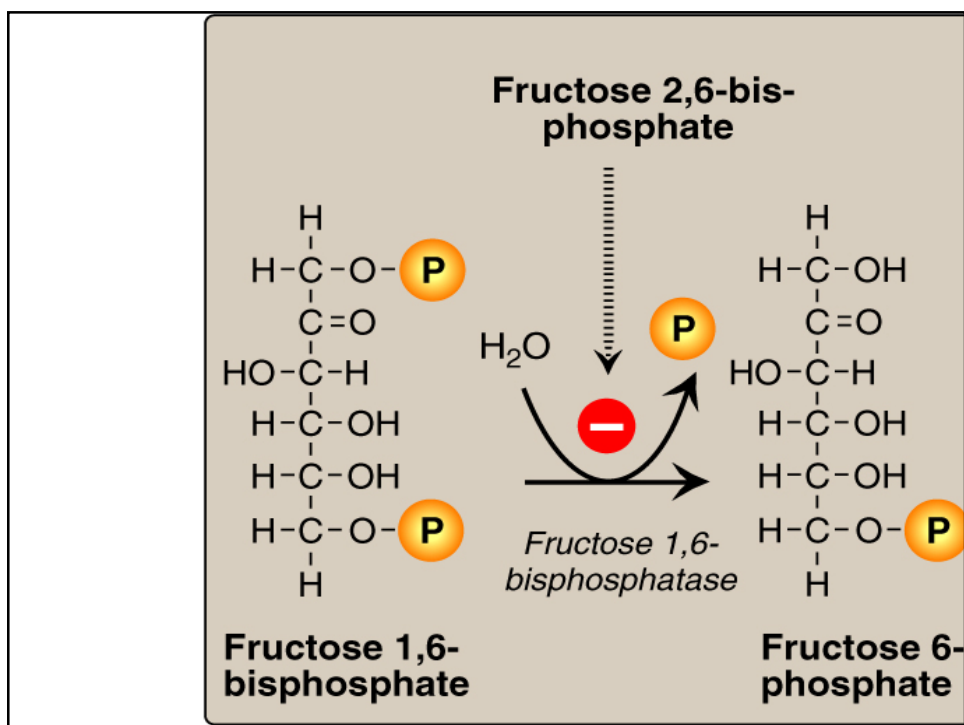
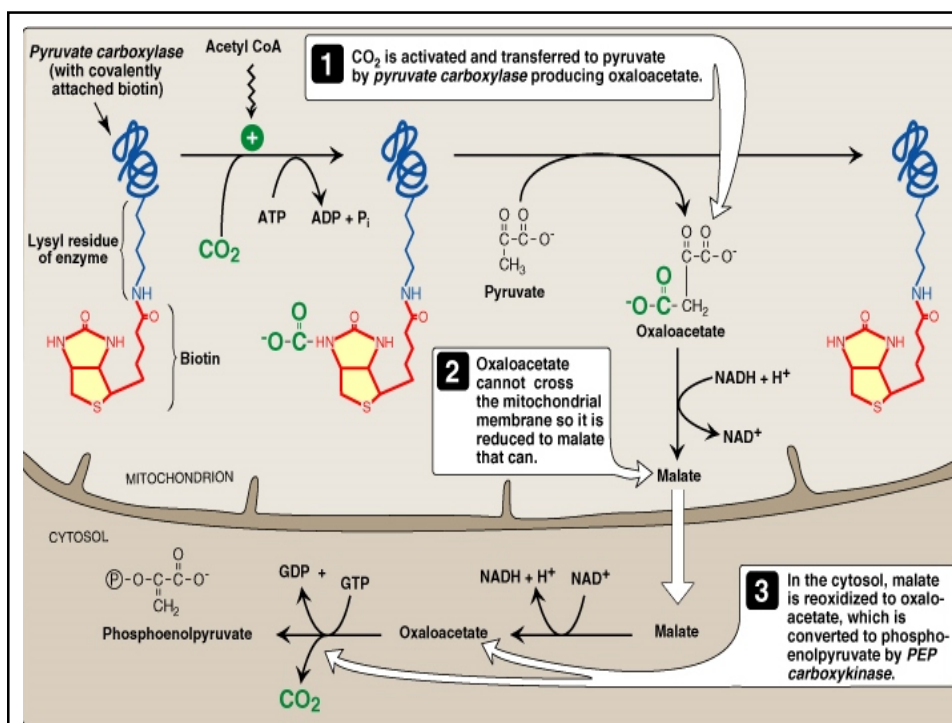


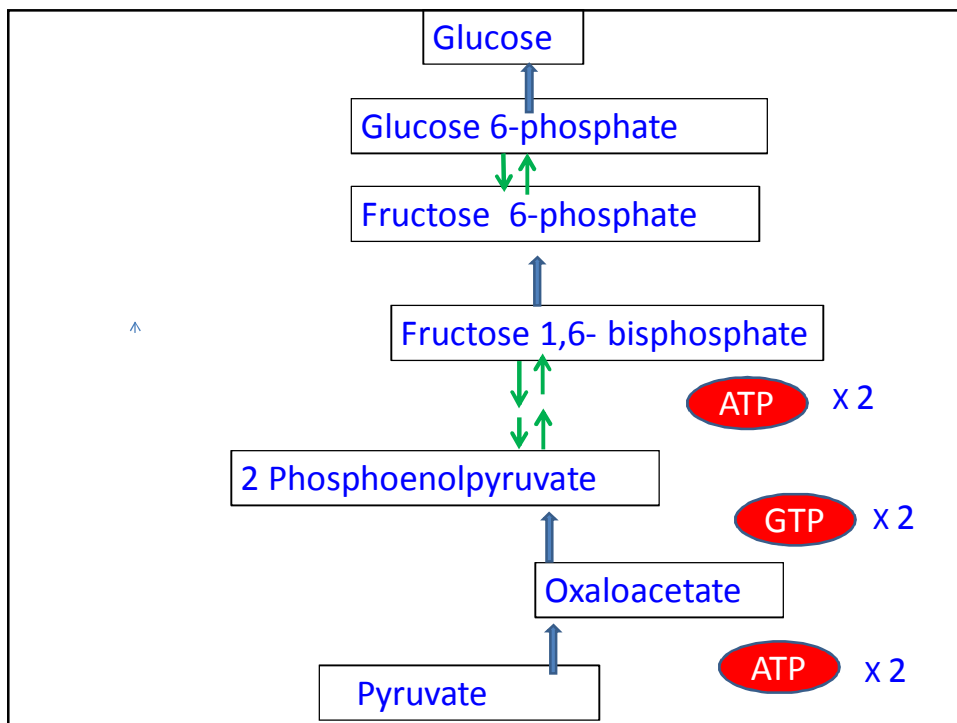
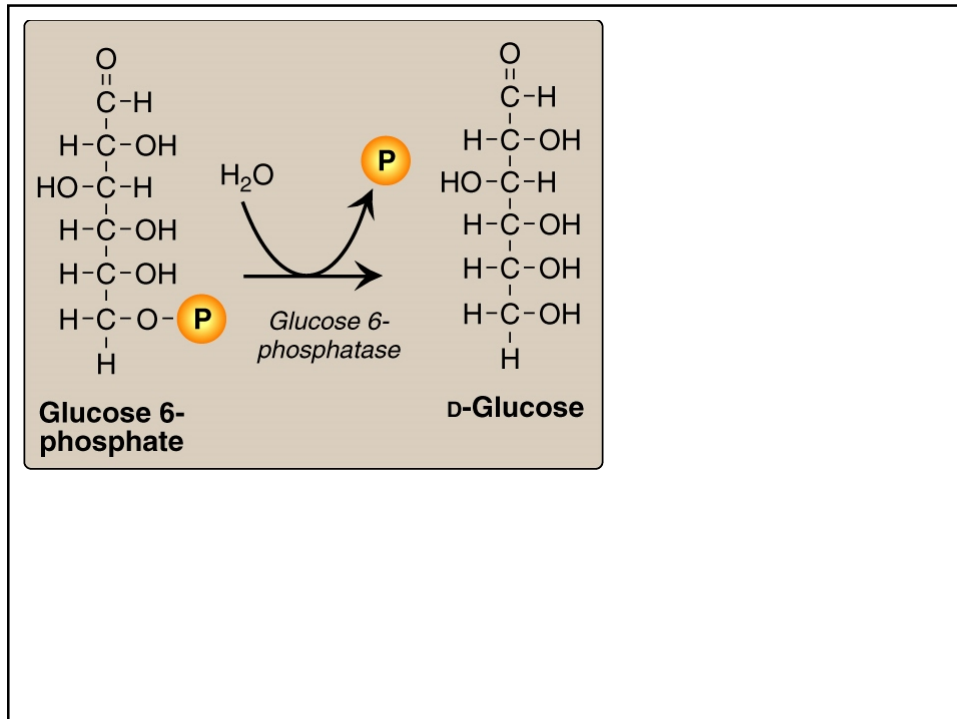
Formation and Hydrolysis of Glucose 6-phosphate

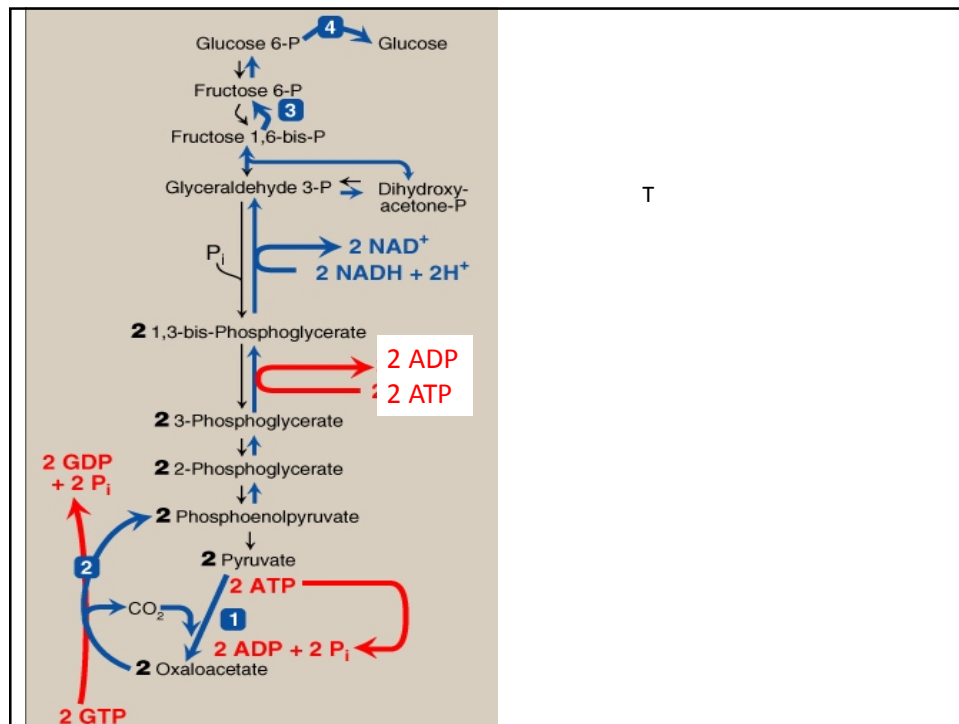


Carboxylation of Pyruvate Produces Oxaloacetate

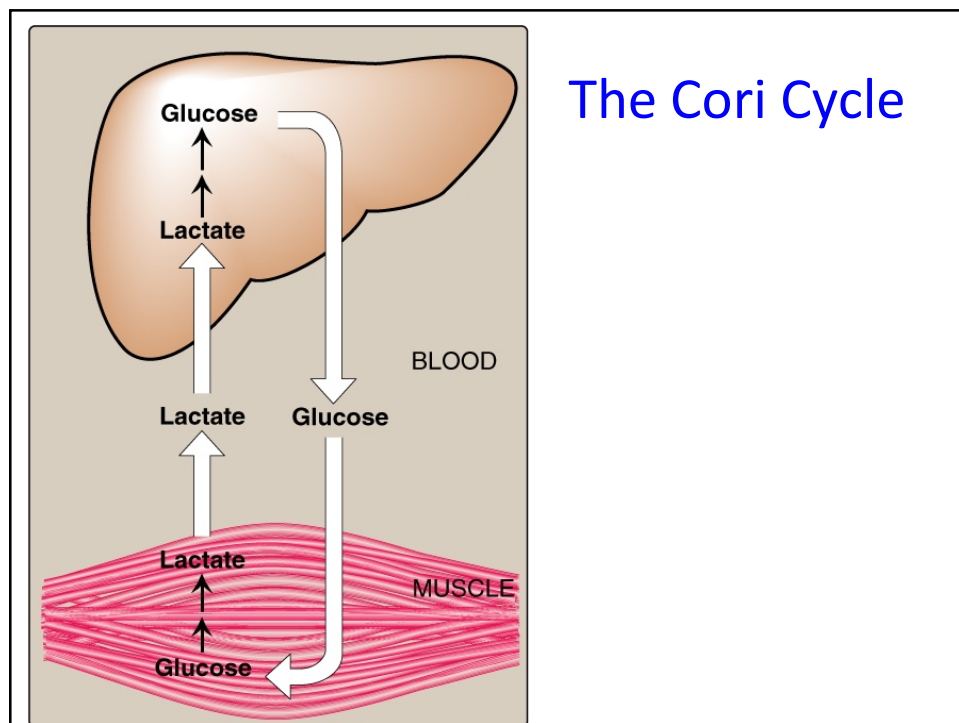








T



The Cori Cycle

