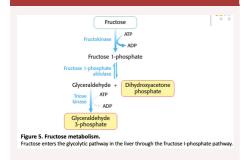
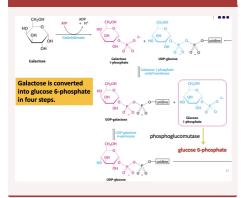


Glycolysis2 Cheat Sheet by rhettbro via cheatography.com/133961/cs/27537/

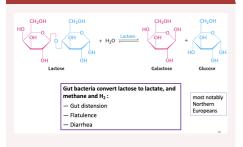
Fructose metabolism



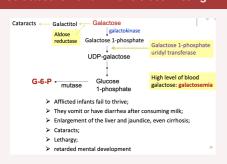
Galactose metabolism



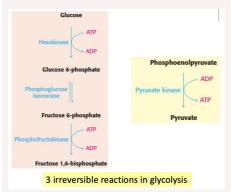
Deficient in Lactase (Lactose intorlerant)



Galactose Is Toxic If Transferase Missing



The Glycolytic Pathway Is Tightly Controlled



Key Enzymes

- 1. Hexokinase
- 2. Phosphofructokinase-1
- 3. Pyruvate kinase

Methods of regulation

- 1. allosteric regulation
- 2. covalent modification

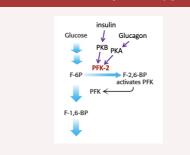
Phosphofructokinase-1 (PFK-1)

the key point for regulation of glycolysis allosteric activator : AMP; F-2,6-BP (in the liver)

allosteric inhibitor: ATP; citrate

In high concentrations, fructose 6-phosphate (F-6P) activates the enzyme phosphofructokinase (PFK) through an intermediary, fructose 2,6-bisphosphate (F-2,6-BP).

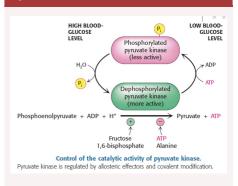
F-6P to PFK if too many Glucose(by insulin)



Published 14th April, 2021. Last updated 14th April, 2021.

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Pyruvate kinase



Hexokinase

Hexokinase is suppressed by its product G-6-P.

Glucokinase in liver, is not inhibited by G-6-P.

Glucokinase phosphorylates glucose only when glucose is abundant

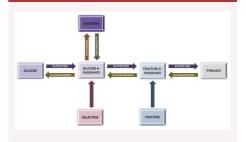
The role of glucokinase is to provide G-6-P for the synthesis of glycogen and for the formation of fatty acids.

Gives the brain and muscles first call on glucose when its supply is limited, and it ensures that glucose will not be wasted when it is abundant.

Glucose Transporters(GLUTs)

Name	Tissue location	K_{M}	Comments
GLUT1	All mammalian tissues	1 mM	Basal glucose uptake
GLUT2	Liver and pancreatic β cells	15-20 mM	In the pancreas, plays a role in the regulation of insulin In the liver, removes excess glucose from the blood
GLUT3	All mammalian tissues	1 mM	Basal glucose uptake
GLUT4	Muscle and fat cells	5 mM	Amount in muscle plasma membran increases with endurance training
GLUT5	Small intestine		Primarily a fructose transporter

Glycolysis and Gluconeogenesis back and forth



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from Noncarbohydrate Precursors to Glucose

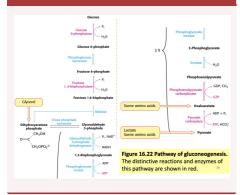
The gluconeogenic (糖異生) pathway converts pyruvate into glucose.

Gluconeogenesis is not a reversal of glycolysis

Noncarbohydrate precursors are first converted into pyruvate, oxaloacetate, dihydroxyacetone phosphate.

Noncarbohydrate Precursors: lactate, amino acids, and glycerol.

pathway of Gluconeogenesis





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