

Major Glucose Transporters

(A) Sodium & ATP Independent transport

(B) Sodium & ATP - dependent cotransport

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Tissue Specificity

Specialized function

→ GLUT-3

- Neurons: High affinity Transport Glucose into Brain cells

facilitated diffusion

Transporter mediated glucose movement

High concentration to lower one

(No Energy Use)
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→ GLUT1

- RBC, kidney, brain, retina, Placenta

→ GLUT-2

- Intestinal cells, liver, beta cells of Pancreas
- Low affinity, glucose receptor in liver
- glucose sensor in beta cells.

GLUT-1, 3 & 4 - Involved in glucose uptake from the blood

→ GLUT-3 & 4

- Skeletal, Heart, Adipose tissue
- Insulin mediated muscle, adipose tissue glucose uptake

GLUT-2 - Liver
Kidney

→ GLUT-5

- Small Intestine, testis, sperm, Kidneys
- Fructose Transporter
- Poor ability to transport glucose

glucose transport into cells when blood glucose level high

or Transport glucose from cells when blood glucose low

→ Glut- 7

↳ Liver Endoplasmic Reticulum

- Glucose from Endoplasmic Reticulum to cytoplasm.

→ SGLT

- Intestine, Kidney

- Cotransport; from lumen into cells.

- (B) Sodium & ATP dependent Transport

- Energy Requiring transport of glucose against concentration gradient

- Na^+ is transported down its electrochemical gradient

- Transporter is Na^+ dependent glucose transporter

- Gradient is created by $\text{Na}^+ - \text{K}^+$ ATPase

Occurs in epithelial cells of intestine, renal tubules, choroid plexus.