GLUT1 (SLC2A1) tetramer transports Glc from extracellular region to cytosol

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Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

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Literature references

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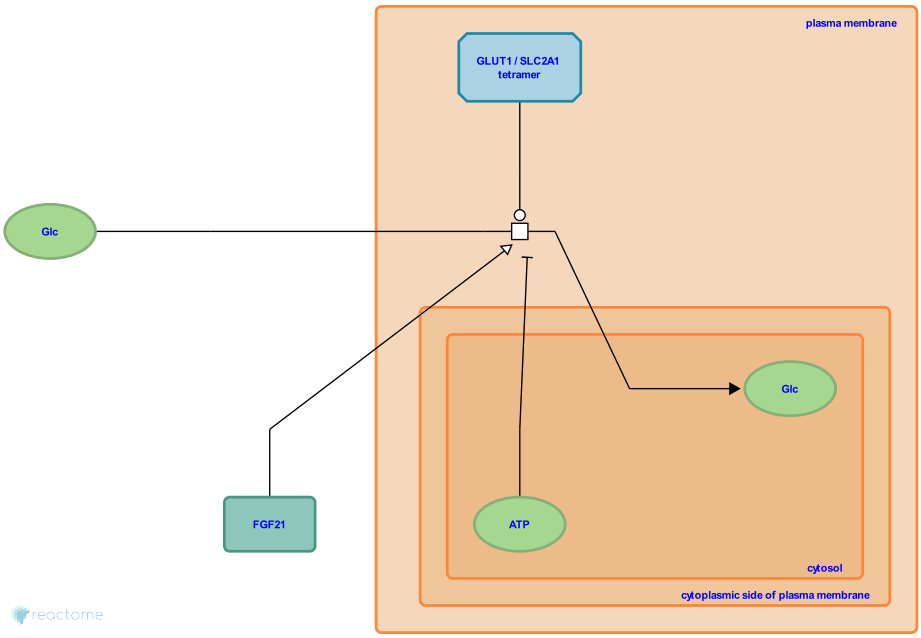
Stable identifier: R-HSA-5339524

Type: transition

Compartments: cytosol, plasma membrane, extracellular region



Tetrameric GLUT1, the SLC2A1 gene product, associated with the plasma membrane, mediates the facilitated diffusion of glucose (Glc) into cells. GLUT1 is expressed by many cell types, notably endothelial cells, red blood cells and cells of the brain. Its low Km for glucose (~1 mM) relative to normal blood glucose concentration (~5 mM) allows these cells to take up glucose independent of changes in blood glucose levels. It has been purified from red blood cells and biochemically characterized (Hruz & Mueckler 2001, Liu et al. 2001). Cytosolic ATP associates with GLUT1 and inhibits its glucose transporter activity. Fibroblast growth factor 21 (FGF21) is a potent positive regulator of glucose uptake in differentiated mouse 3T3-L1 adipocytes and in primary human adipocytes, probably acting by stimulating SLC2A1 / GLUT1 gene transcription.

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Editions

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