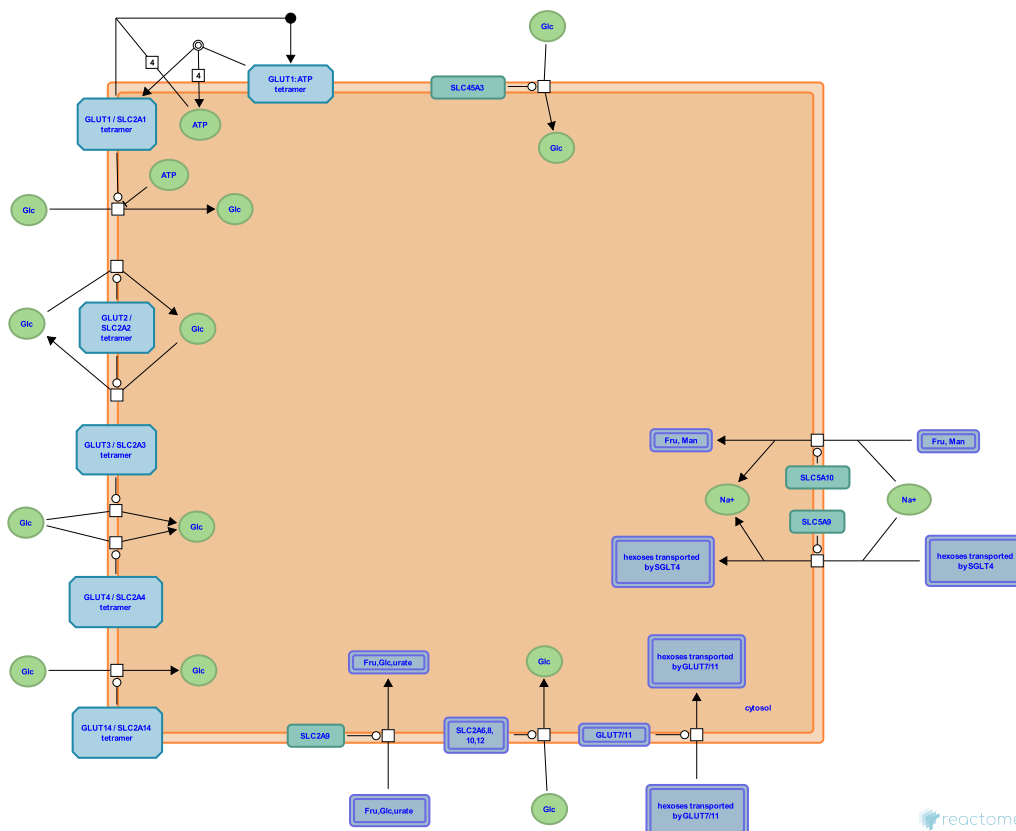


# Cellular hexose transport



European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

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This is just an excerpt of a full-length report for this pathway. To access the complete report, please download it at the [Reactome Textbook](https://reactome.org/Textbook/).

17/05/2024

## 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.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

## Literature references

Fabregat, A., Sidiropoulos, K., Viteri, G., Forner, O., Marin-Garcia, P., Arnau, V. et al. (2017). Reactome pathway analysis: a high-performance in-memory approach. *BMC bioinformatics*, 18, 142. [↗](#)

Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics*, 33, 3461-3467. [↗](#)

Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res*, 46, D649-D655. [↗](#)

Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology*, 14, e1005968. [↗](#)

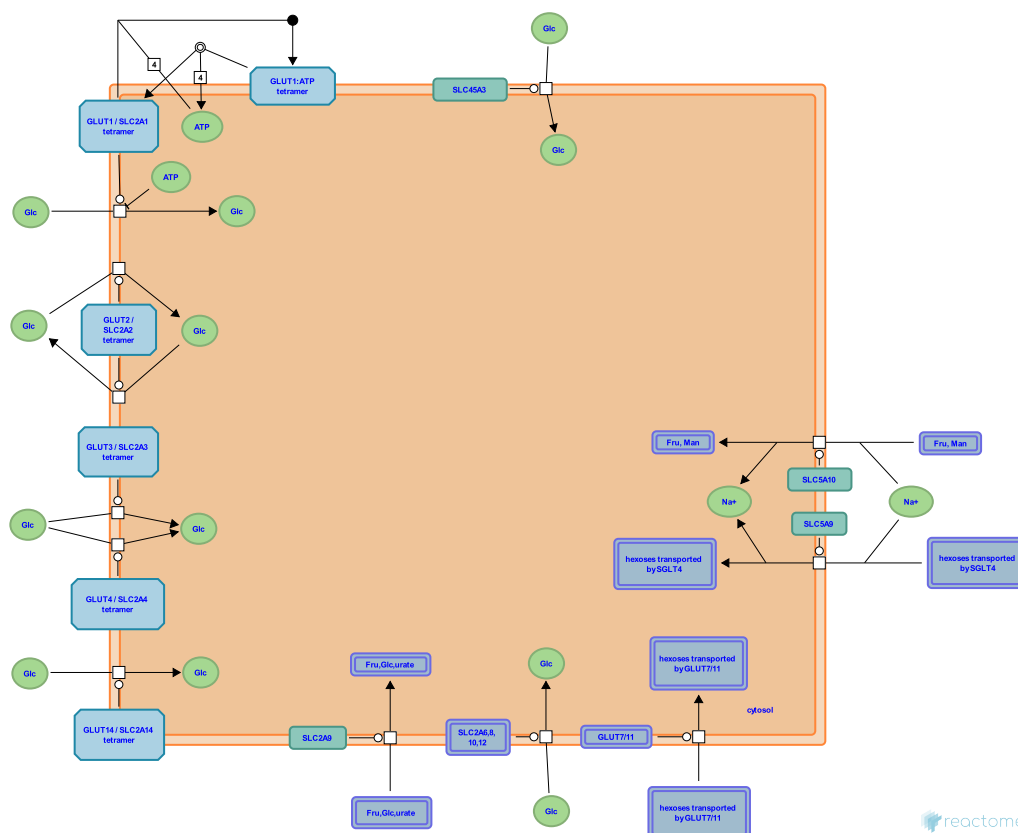
Reactome database release: 88

This document contains 1 pathway and 14 reactions ([see Table of Contents](#))

## Cellular hexose transport ↗

**Stable identifier:** R-GGA-189200

**Inferred from:** Cellular hexose transport (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

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

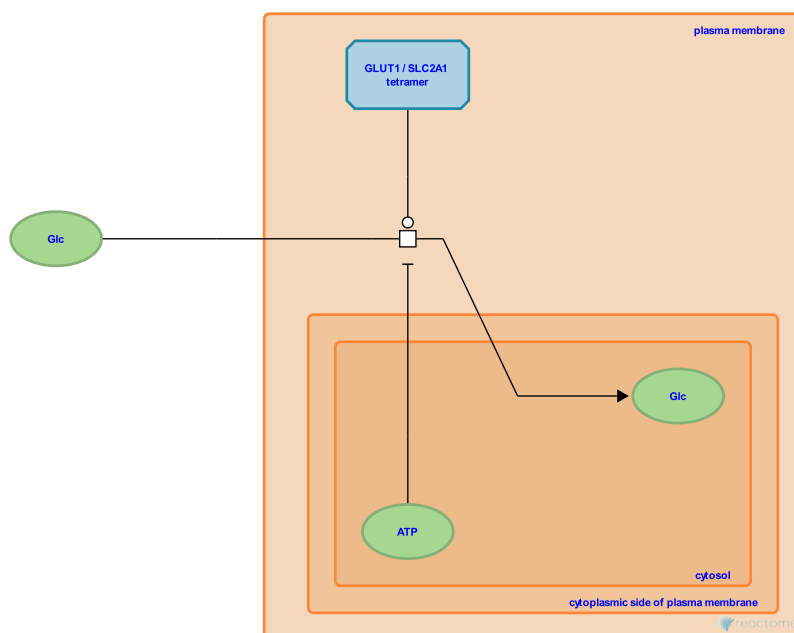
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-5339524

**Type:** transition

**Compartments:** plasma membrane, extracellular region, cytosol

**Inferred from:** GLUT1 (SLC2A1) tetramer transports Glc from extracellular region to cytosol (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](https://www.reactome.org) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

**Preceded by:** GLUT1:ATP tetramer dissociates to GLUT1 tetramer and 4xATP

## GLUT1 tetramer binds 4xATP ↗

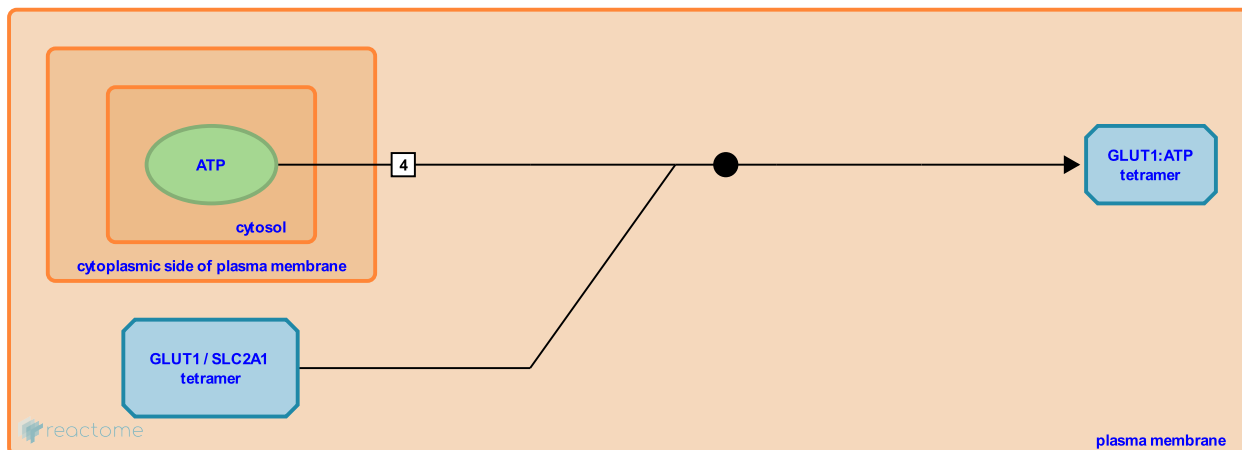
**Location:** [Cellular hexose transport](#)

**Stable identifier:** R-GGA-450088

**Type:** binding

**Compartments:** plasma membrane, cytosol

**Inferred from:** [GLUT1 tetramer binds 4xATP \(Homo sapiens\)](#)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## GLUT1:ATP tetramer dissociates to GLUT1 tetramer and 4xATP ↗

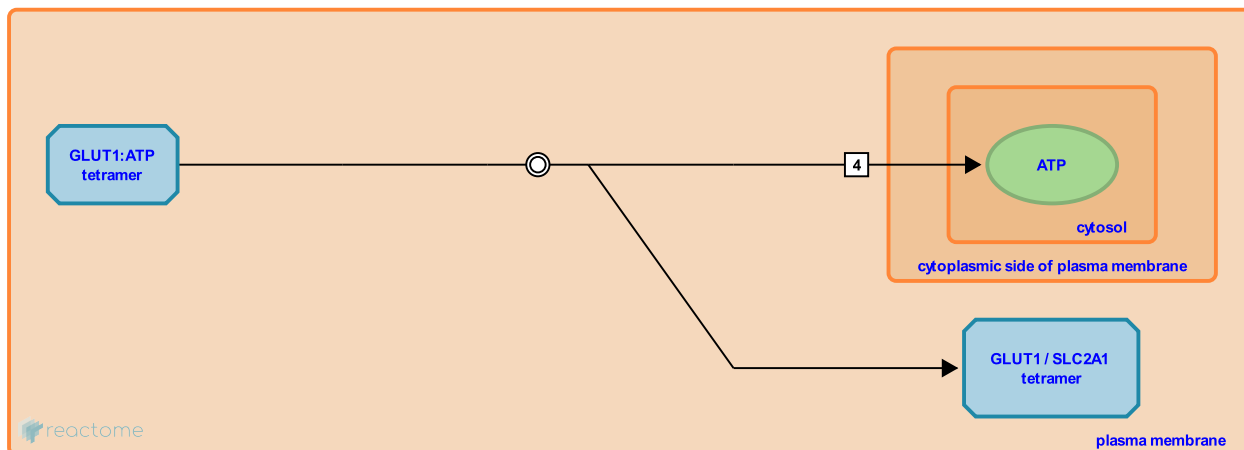
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-450092

**Type:** dissociation

**Compartments:** plasma membrane, cytosol

**Inferred from:** GLUT1:ATP tetramer dissociates to GLUT1 tetramer and 4xATP (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

**Followed by:** GLUT1 (SLC2A1) tetramer transports Glc from extracellular region to cytosol

## GLUT2 (SLC2A2) tetramer transports Glc from extracellular region to cytosol ↗

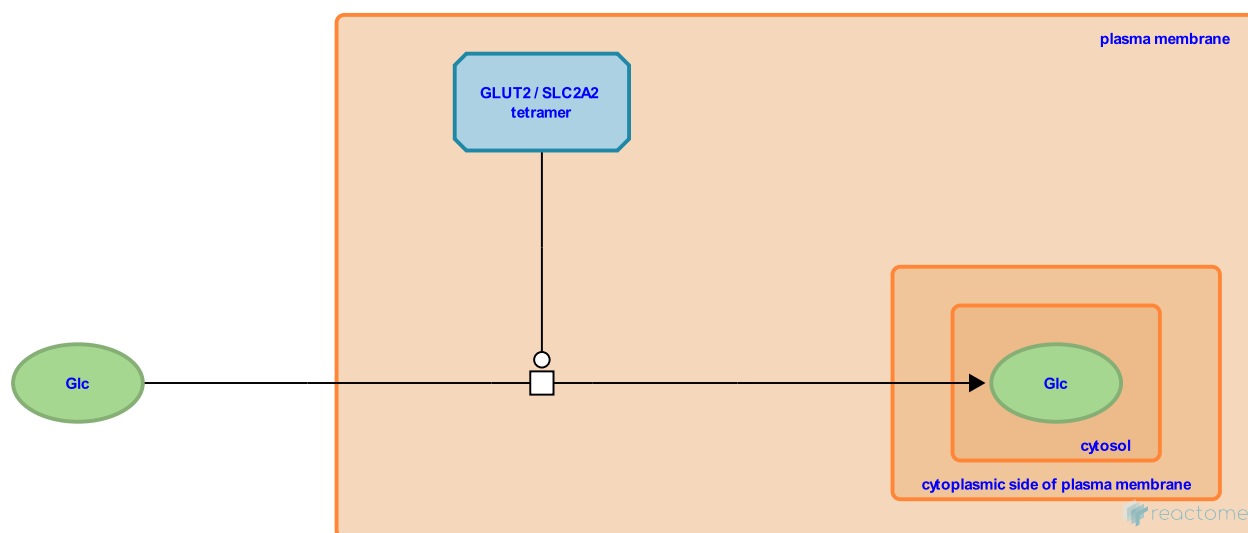
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-8981574

**Type:** transition

**Compartments:** plasma membrane, extracellular region, cytosol

**Inferred from:** GLUT2 (SLC2A2) tetramer transports Glc from extracellular region to cytosol (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## GLUT2 (SLC2A2) transports Glc from cytosol to extracellular region ↗

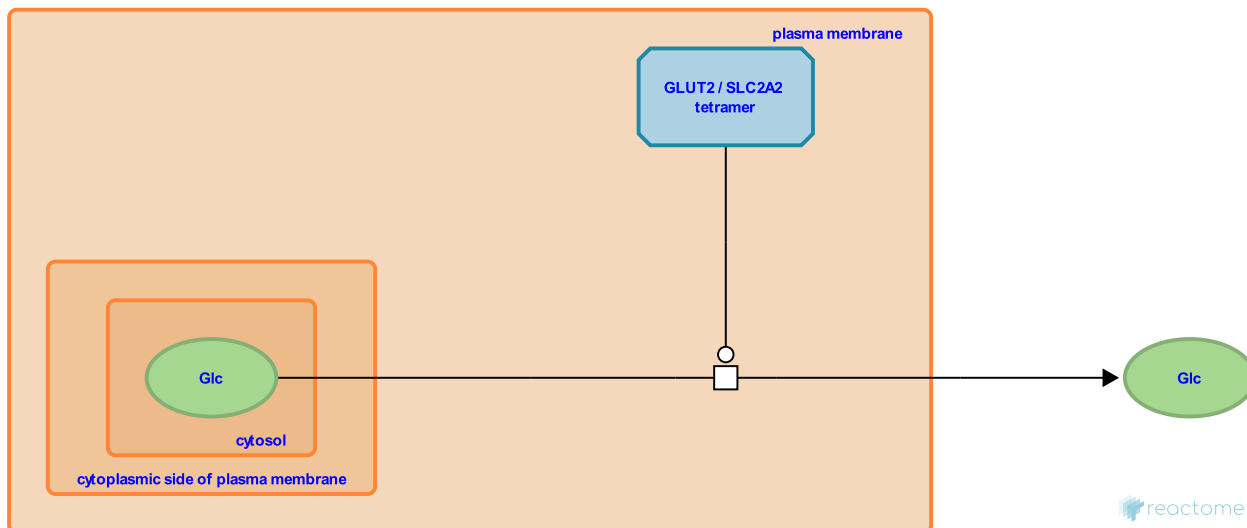
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-450095

**Type:** transition

**Compartments:** plasma membrane, extracellular region, cytosol

**Inferred from:** GLUT2 (SLC2A2) transports Glc from cytosol to extracellular region (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>



## GLUT3 (SLC2A3) tetramer transports Glc from extracellular region to cytosol ↗

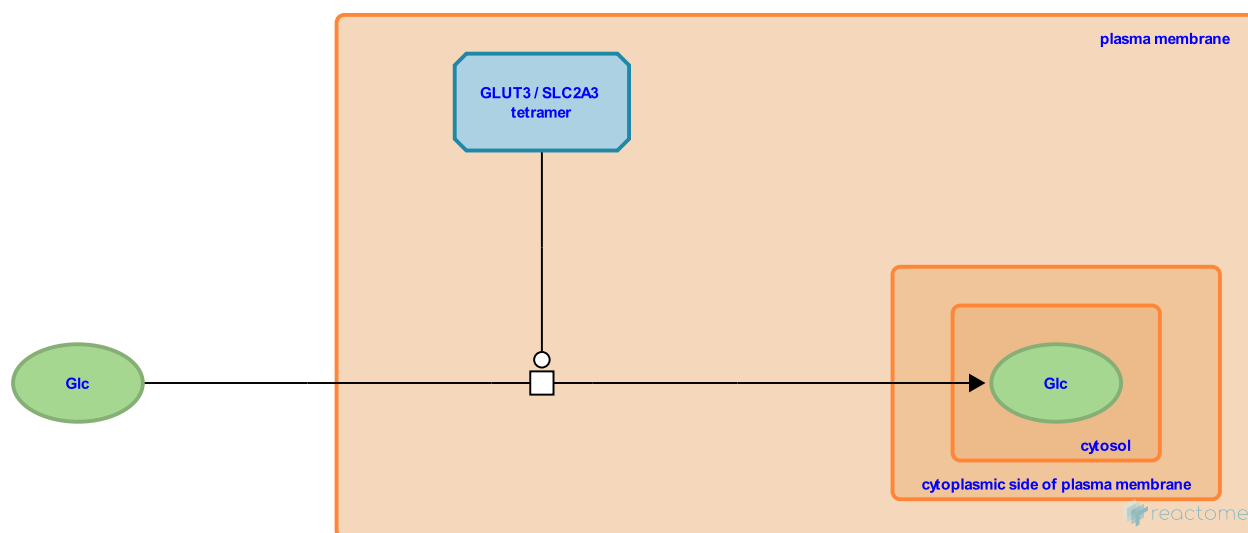
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-8981564

**Type:** transition

**Compartments:** plasma membrane, extracellular region, cytosol

**Inferred from:** GLUT3 (SLC2A3) tetramer transports Glc from extracellular region to cytosol (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## GLUT4 (SLC2A4) tetramer transports Glc from extracellular region to cytosol ↗

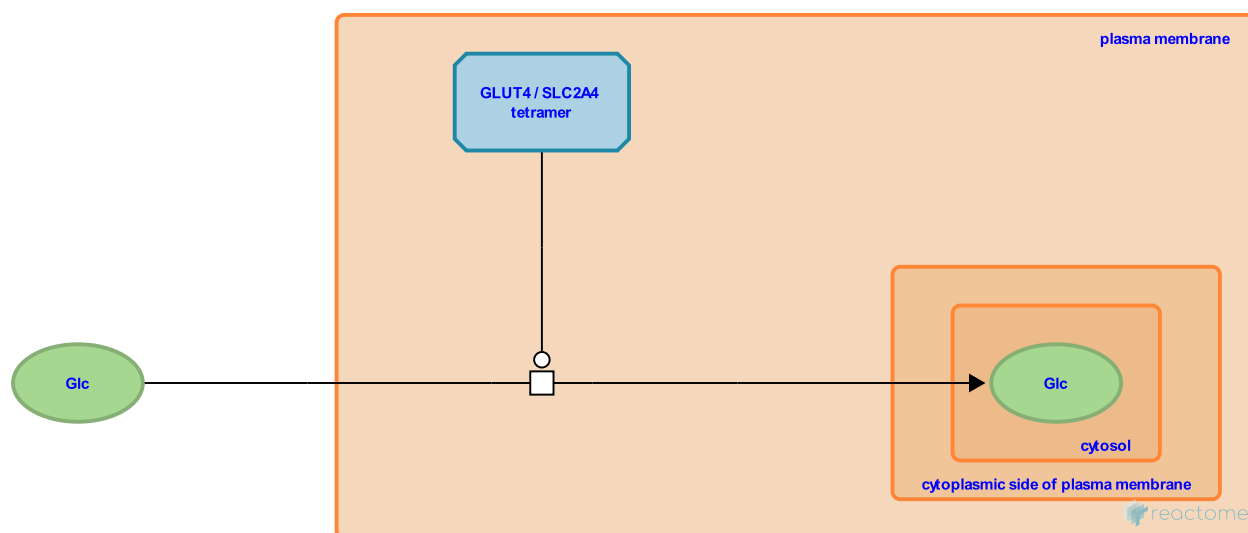
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-8981570

**Type:** transition

**Compartments:** plasma membrane, extracellular region, cytosol

**Inferred from:** GLUT4 (SLC2A4) tetramer transports Glc from extracellular region to cytosol (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## SLC2A9 transports Fru, Glc, urate ↗

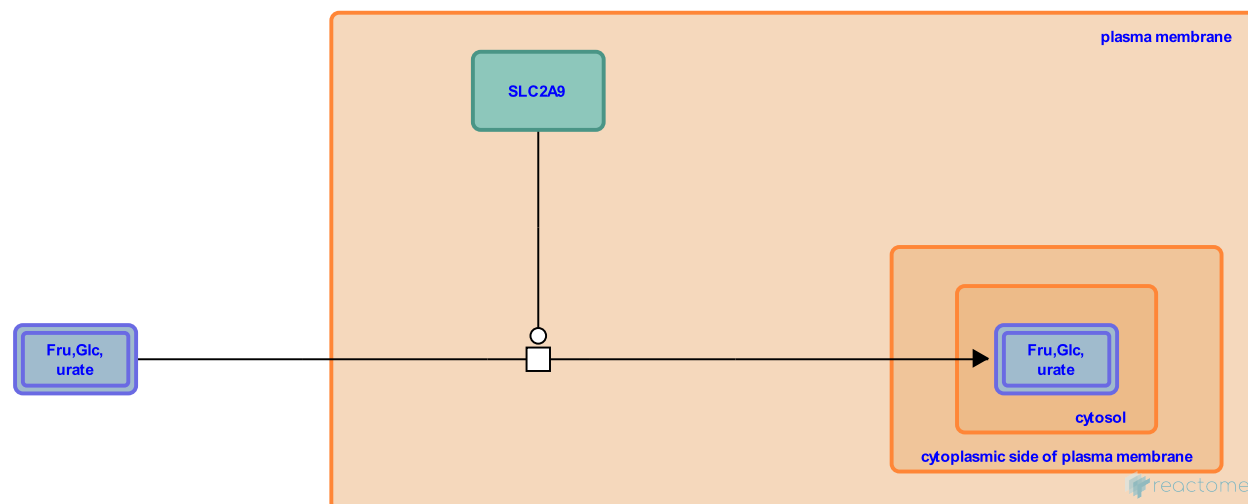
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-429036

**Type:** transition

**Compartments:** plasma membrane

**Inferred from:** SLC2A9 transports Fru, Glc, urate (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## SLC2A6,8,10,12 transport Glc from extracellular region to cytosol ↗

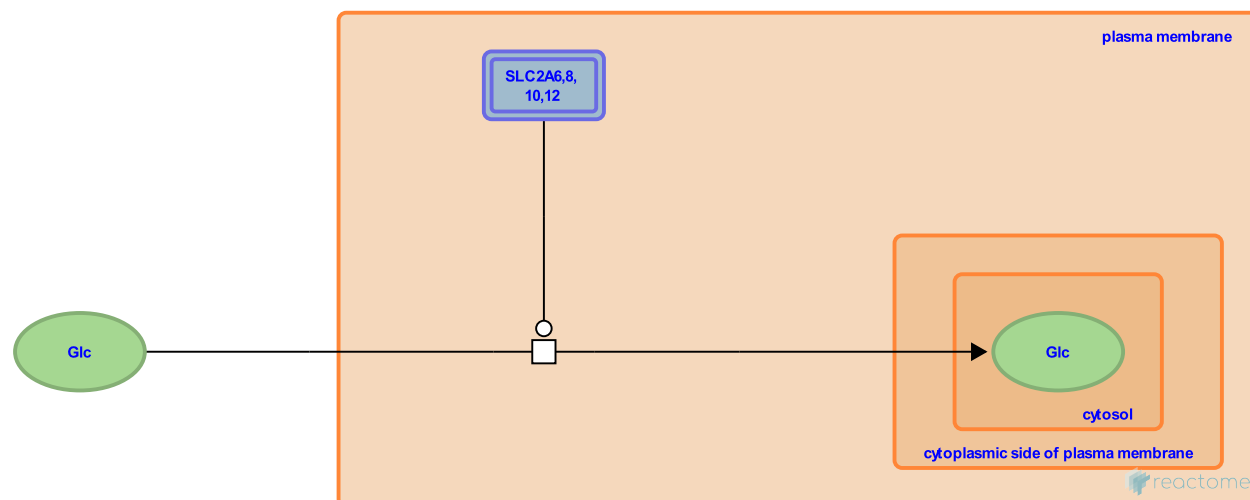
**Location:** [Cellular hexose transport](#)

**Stable identifier:** R-GGA-429094

**Type:** transition

**Compartments:** plasma membrane

**Inferred from:** [SLC2A6,8,10,12 transport Glc from extracellular region to cytosol \(Homo sapiens\)](#)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## GLUT7 and GLUT11 transport glucose and fructose ↗

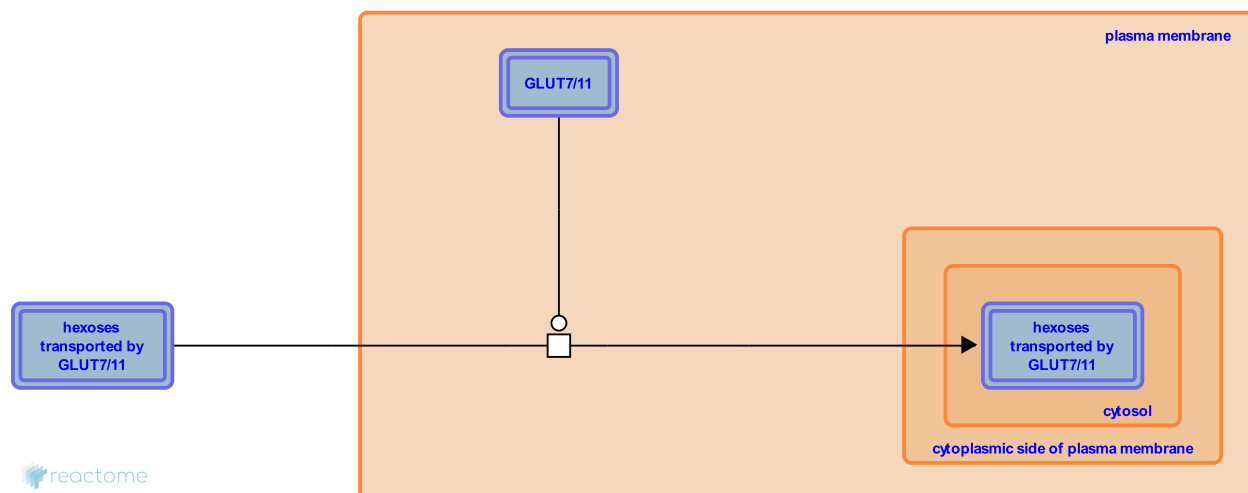
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-428779

**Type:** transition

**Compartments:** plasma membrane

**Inferred from:** GLUT7 and GLUT11 transport glucose and fructose (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## GLUT14 (SLC2A14) tetramer transports Glc from extracellular region to cytosol ↗

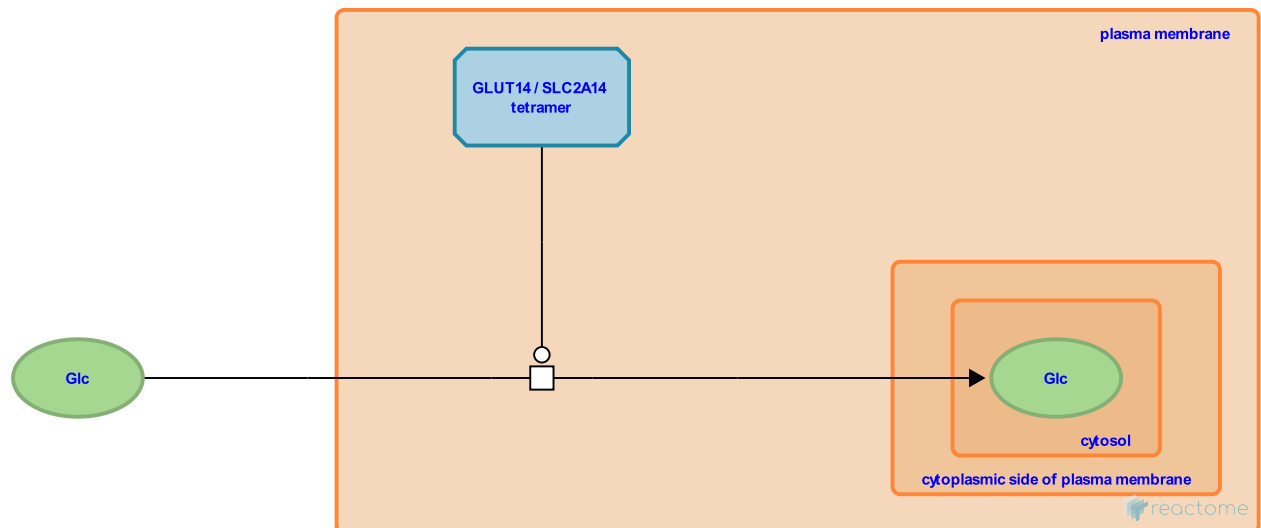
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-8981553

**Type:** transition

**Compartments:** plasma membrane, extracellular region, cytosol

**Inferred from:** GLUT14 (SLC2A14) tetramer transports Glc from extracellular region to cytosol (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## SLC5A10 cotransports Na<sup>+</sup> with Man, Fru from extracellular region to cytosol ↗

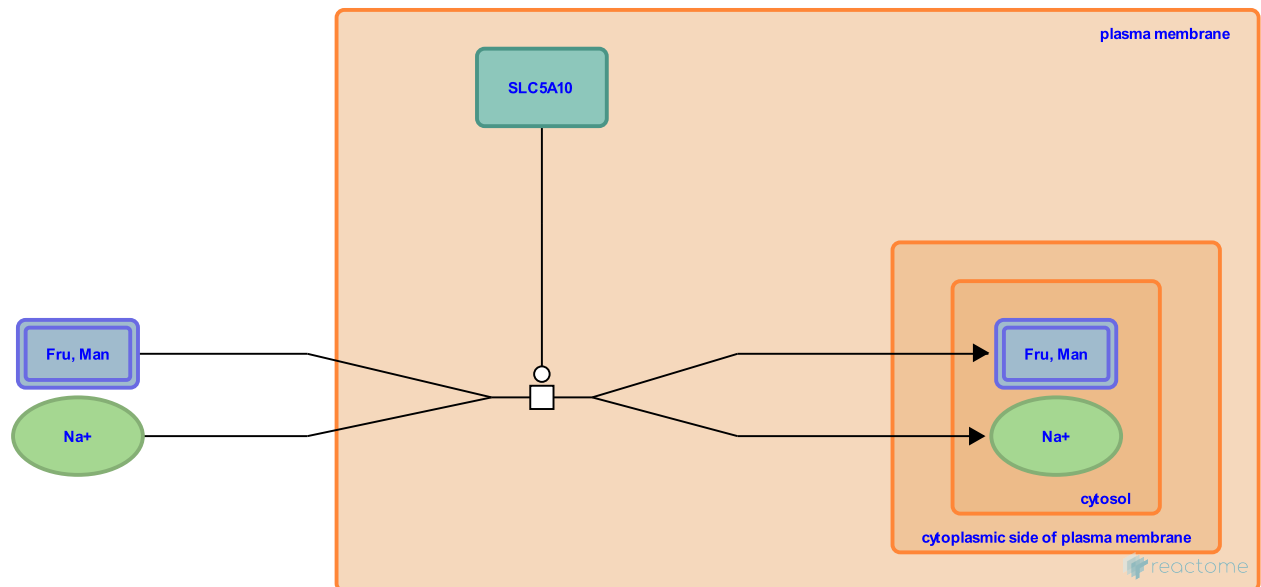
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-8876283

**Type:** transition

**Compartments:** plasma membrane, extracellular region, cytosol

**Inferred from:** SLC5A10 cotransports Na<sup>+</sup> with Man, Fru from extracellular region to cytosol (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](http://www.pantherdb.org/about.jsp) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>

## SLC45A3 transports Glc from extracellular region to cytosol ↗

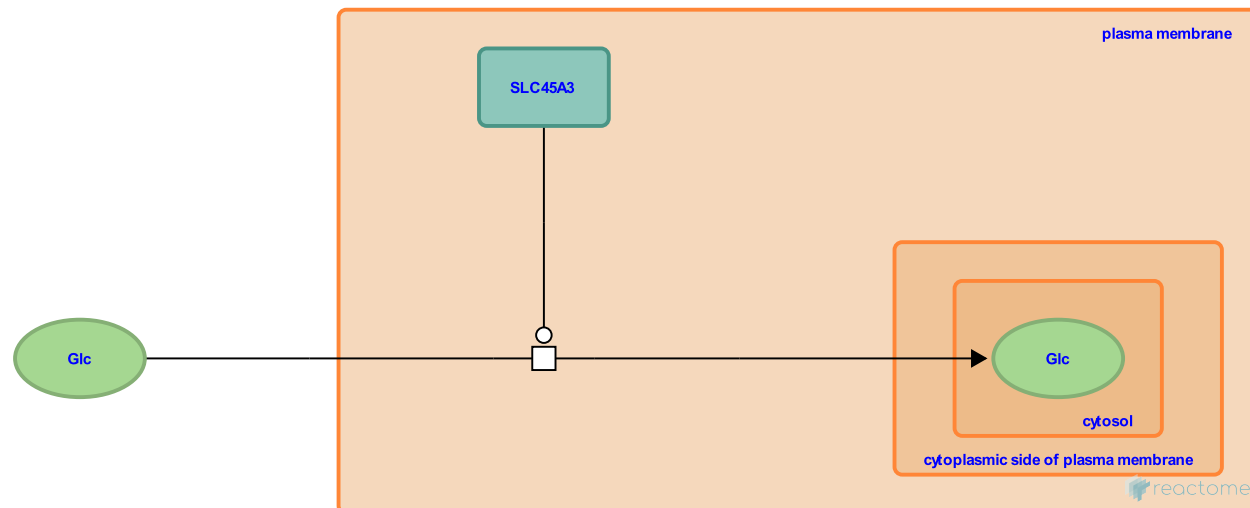
**Location:** [Cellular hexose transport](#)

**Stable identifier:** R-GGA-8875902

**Type:** transition

**Compartments:** plasma membrane, extracellular region, cytosol

**Inferred from:** [SLC45A3 transports Glc from extracellular region to cytosol \(Homo sapiens\)](#)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

[More details and caveats of the event inference in Reactome.](#) For details on PANTHER see also: <http://www.pantherdb.org/about.jsp>



## Co-transport (influx) of glucose/mannose and Na<sup>+</sup> ions by SGLT4 ↗

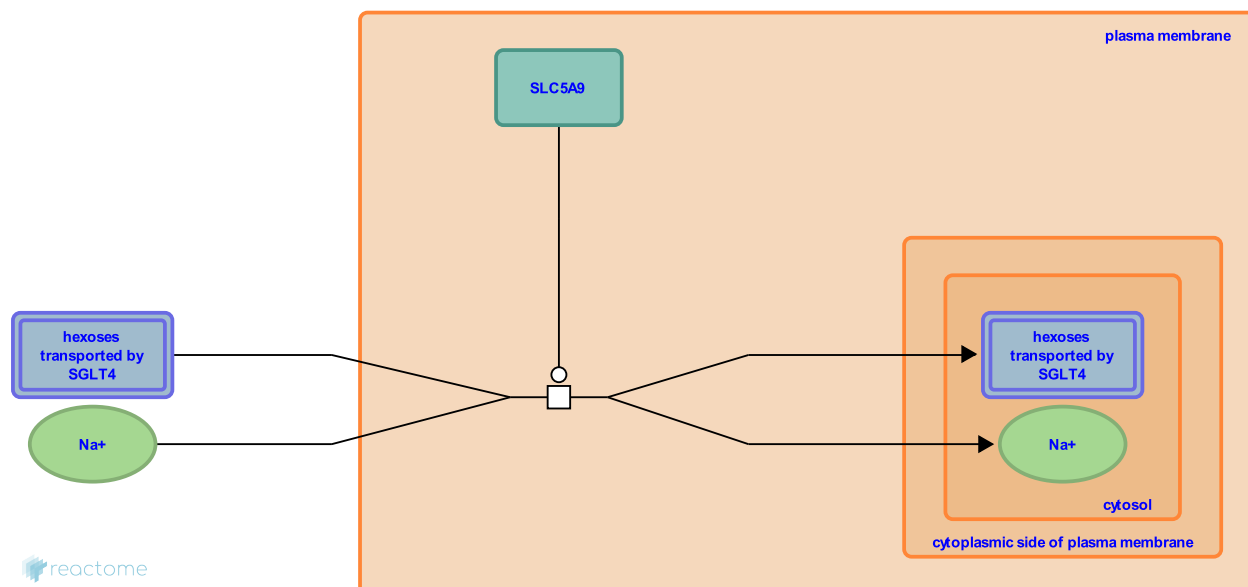
**Location:** Cellular hexose transport

**Stable identifier:** R-GGA-429567

**Type:** transition

**Compartments:** plasma membrane

**Inferred from:** Co-transport (influx) of glucose/mannose and Na<sup>+</sup> ions by SGLT4 (Homo sapiens)



This event has been computationally inferred from an event that has been demonstrated in another species.

The inference is based on the homology mapping from PANTHER. Briefly, reactions for which all involved PhysicalEntities (in input, output and catalyst) have a mapped orthologue/paralogue (for complexes at least 75% of components must have a mapping) are inferred to the other species. High level events are also inferred for these events to allow for easier navigation.

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