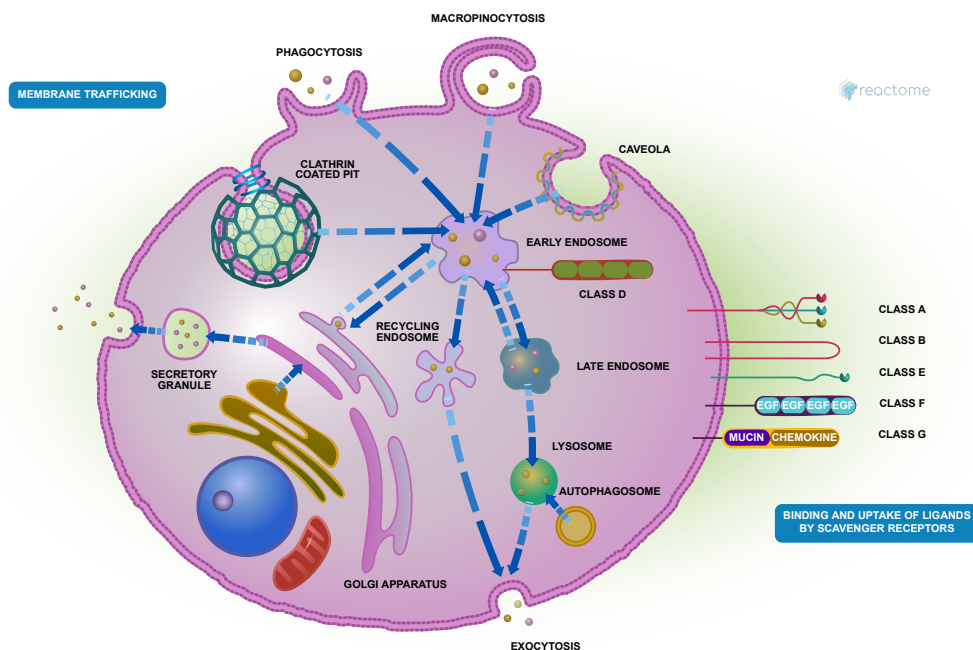


Vesicle-mediated transport



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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/).

26/04/2024

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

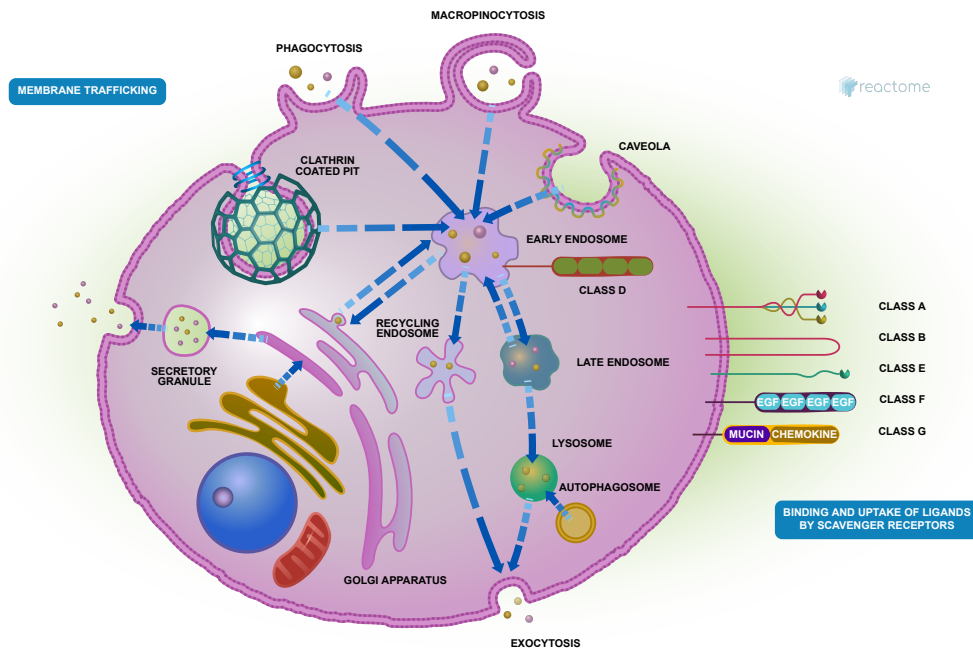
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Reactome database release: 88

This document contains 3 pathways ([see Table of Contents](#))

Vesicle-mediated transport ↗

Stable identifier: R-HSA-5653656



The transit of proteins and other cargo through the cell requires a cellular transport process in which transported substances are moved in membrane-bounded vesicles. Transported substances are enclosed in the vesicle lumen or located in the vesicle membrane. The transport process begins with the formation of the vesicle itself, often triggered by the interaction of the cargo with the vesicle formation machinery. Vesicular transport pathways can include vesicle formation, coating, budding, uncoating and target membrane fusion depending upon the function of the pathway described. Vesicle-mediated transport occurs from within cell via ER and Golgi transport, as well as functioning in the endocytosis of material taken into the cell via scavenger receptors.

Literature references

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Editions

2014-12-01

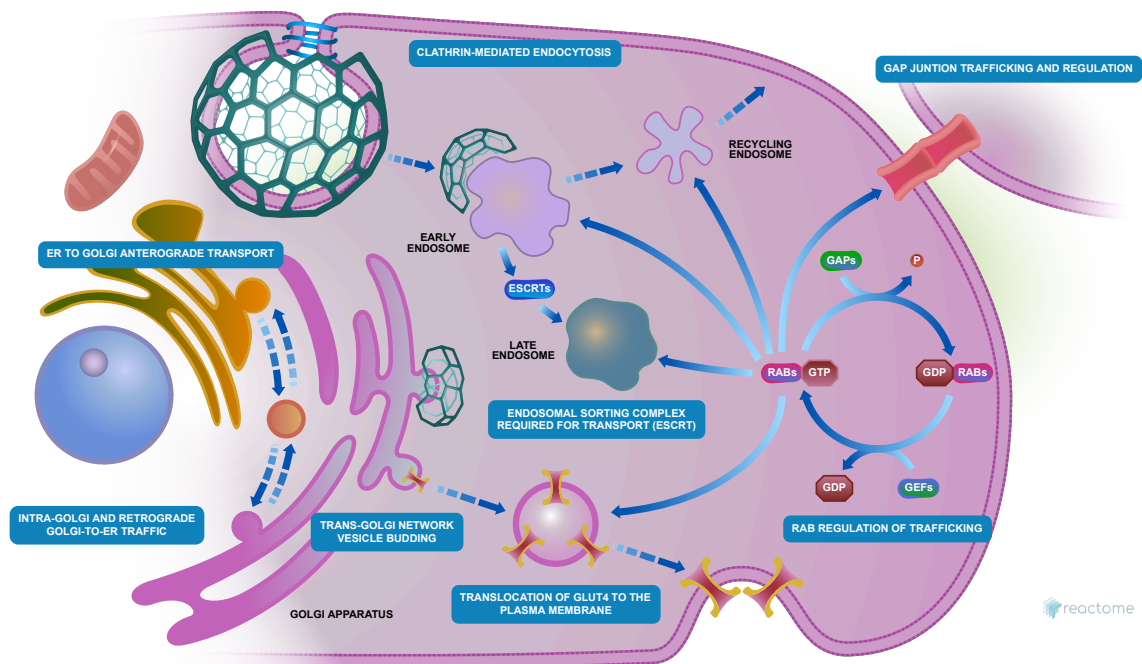
Edited

Matthews, L.

Membrane Trafficking ↗

Location: Vesicle-mediated transport

Stable identifier: R-HSA-199991



The secretory membrane system allows a cell to regulate delivery of newly synthesized proteins, carbohydrates, and lipids to the cell surface, a necessity for growth and homeostasis. The system is made up of distinct organelles, including the endoplasmic reticulum (ER), Golgi complex, plasma membrane, and tubulovesicular transport intermediates. These organelles mediate intracellular membrane transport between themselves and the cell surface. Membrane traffic within this system flows along highly organized directional routes. Secretory cargo is synthesized and assembled in the ER and then transported to the Golgi complex for further processing and maturation. Upon arrival at the trans Golgi network (TGN), the cargo is sorted and packaged into post-Golgi carriers that move through the cytoplasm to fuse with the cell surface. This directional membrane flow is balanced by retrieval pathways that bring membrane and selected proteins back to the compartment of origin.

Literature references

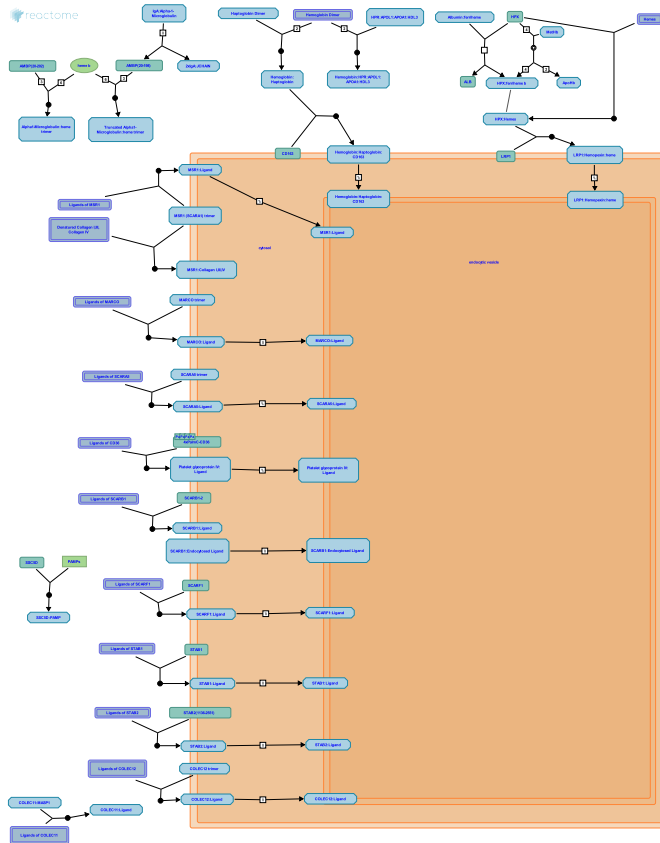
Lippincott-Schwartz, J., Roberts, TH., Hirschberg, K. (2000). Secretory protein trafficking and organelle dynamics in living cells. *Annu Rev Cell Dev Biol*, 16, 557-89. ↗

Binding and Uptake of Ligands by Scavenger Receptors ↗

Location: Vesicle-mediated transport

Stable identifier: R-HSA-2173782

Compartments: plasma membrane, extracellular region, endocytic vesicle membrane



Scavenger receptors bind free extracellular ligands as the initial step in clearance of the ligands from the body (reviewed in Ascenzi et al. 2005, Areschoug and Gordon 2009, Nielsen et al. 2010). Some scavenger receptors, such as the CD163-haptoglobin system, are specific for only one ligand. Others, such as the SCARA receptors (SR-A receptors) are less specific, binding several ligands which share a common property, such as polyanionic charges. Brown and Goldstein originated the idea of receptors dedicated to scavenging aberrant molecules such as modified low density lipoprotein particles (Goldstein et al. 1979) and such receptors have been shown to participate in pathological processes such as atherosclerosis. Based on homology, scavenger receptors have been categorized into classes A-H (reviewed in Murphy et al. 2005).

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Editions

2012-03-25	Authored, Edited	May, B.
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