Endosomal Sorting Complex Required For Transport (ESCRT)

Gillespie, ME., Rush, MG.

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

The contents of this document may be freely copied and distributed in any media, provided the authors, plus the institutions, are credited, as stated under the terms of Creative Commons Attribution 4.0 International (CC BY 4.0) License. For more information see our license.

25/12/2019
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


Reactome database release: 71

This document contains 1 pathway and 4 reactions (see Table of Contents)
Many plasma membrane proteins are in a constant flux throughout the internal trafficking pathways of the cell. Some receptors are continuously internalized into recycling endosomes and returned to the cell surface. Others are sorted into intraluminal vesicles of morphologically distinctive endosomes that are known as multivesicular bodies (MVBs). These MVBs fuse with lysosomes, resulting in degradation of their cargo by lysosomal acidic hydrolases.

Endosomes can be operationally defined as being either early or late, referring to the relative time it takes for endocytosed material to reach either stage. Ultrastructural studies indicate that early endosomes are predominantly tubulovesicular structures, which constitute a major sorting platform in the cell, whereas late endosomes show the characteristics of typical MVBs and are capable of fusing with lysosomes.

A well characterized signal for shunting membrane proteins into the degradative MVB pathway is the ubiquitylation of these cargoes. At the center of a vast protein:protein and protein:lipid interaction network that underpins ubiquitin mediated sorting to the lysosome are the endosomal sorting complexes required for transport (ESCRTs), which are conserved throughout all major eukaryotic taxa.

**Literature references**


**Cargo Recognition And Sorting**

**Location:** Endosomal Sorting Complex Required For Transport (ESCRT)

**Stable identifier:** R-HSA-917730

**Type:** transition

**Compartments:** plasma membrane