Trimming of peptides by IRAP in endocytic vesicles

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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


Reactome database release: 83

This document contains 1 reaction (see Table of Contents)

https://reactome.org
Trimming of peptides by IRAP in endocytic vesicles

Stable identifier: R-HSA-1236954

Type: transition

Compartments: early endosome membrane, early endosome lumen

While it is established that cathepsin S is involved in antigen processing in endocytic vesicles, it is less certain whether other proteases present in endocytic vesicles are also involved in generating the peptide fragments. Insulin regulated aminopeptidase (IRAP) is an epitope-trimming zinc-dependent aminopeptidase closely related to ERAP1 and ERAP2. IRAP may be involved in vacuolar processing of the peptide fragments within endosomes (Saveanu et al. 2009, Segura et al. 2009). IRAP is detected predominantly in the early and recycling endosome fractions. Saveanu et al. (2009) observed the physical association of IRAP with internalized class I MHC molecules and suggested that this may favour a direct linkage between peptide trimming and MHC class I loading. They also showed that IRAP-dependent processing of antigens requires active proteasome but not lysosomal proteases, which suggests that this pathway utilizes cytosolic degradation followed by peptide transport into IRAP-containing endosomes.

Literature references


Editions

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