Binding of newly synthesized MHC class I heavy chain (HC) with calnexin

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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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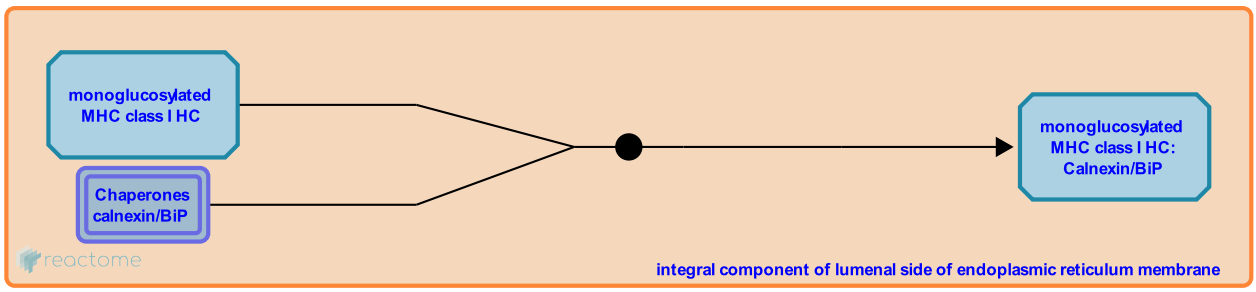
Stable identifier: R-HSA-983145

Type: binding

Compartments: integral component of lumenal side of endoplasmic reticulum membrane, endoplasmic reticulum lumen



The newly synthesized MHC class I heavy chain (HC) translocates into the endoplasmic reticulum (ER) and binds rapidly to calnexin (CNX), a transmembrane calcium-dependent lectin with chaperone activity. CNX recognizes and binds to an N-linked monoglycosylated Glc1Man9GlcNAc2 carbohydrate group found attached to the conserved Asn-86 in the HC. Interaction of HC with CNX promotes the formation of intrachain disulfide bonds. Another candidate ER chaperon protein is immunoglobulin binding protein (BiP), found to associate with HC in the absence of CNX. These chaperones can cooperate in protein folding and prevention of aggregation.

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Editions

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