Unfolded substrate in LAMP2a multimeric complex binds HSPA8

Metzakopian, E., Varusai, TM.
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: 78

This document contains 1 reaction (see Table of Contents)
Unfolded substrate in LAMP2a multimeric complex binds HSPA8

Stable identifier: R-HSA-9625196

Type: binding

Compartments: lysosomal lumen, lysosomal membrane

Inferred from: Unfolded substrate in Lamp2 multimeric complex binds Hspa8 (Rattus norvegicus)

Intracellular proteins are targeted for proteolytic degradation in the lysosome with the aid of chaperones. Heat shock cognate 71 kDa protein (HSPA8) acts as the constitutive chaperone that binds a KFERQ-domain containing substrate in the cytosol and translocates to lysosomal membrane where it binds to Lysosome-associated membrane glycoprotein 2 (LAMP2a). Subsequently, Hspa8 is released and Heat shock protein HSP90 binds to the lysosomal luminal end of LAMP2a. The LAMP2a complex then multimerizes and stabilizes. Now, the substrate unfolds and binds to HSPA8 in the lysosomal lumen (Agarraberes FA et al. 1997, Cuervo AM et al. 1997). Subsequently, the substrate is internalized and degraded in the lumen. Experiments confirming this interaction were performed in rats.

Literature references


Editions

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