RHOQ GTPase cycle

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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: 79

This document contains 1 pathway and 5 reactions (see Table of Contents)
RHOQ GTPase cycle

Stable identifier: R-HSA-9013406

This pathway catalogues RHOQ (also known as TC10) guanine nucleotide exchange factors (GEFs), GT-Pase activator proteins (GAPs), and RHOQ effectors. No GDP dissociation inhibitors (GDIs) have been shown to interact with RHOQ. Two GDIs, ARHGDIA (also known as Rho-GDI alpha) (Michaelson et al. 2001; Murphy et al. 2001) and ARHGDIB (also known as D4-GDI) (Zhang et al. 2009), were specifically shown not to interact with RHOQ. RHOQ, together with RHOJ (TCL), belongs to the CDC42 subfamily of RHO GTPases, with the three family members sharing 65-85% of homology (Murphy et al. 1999, Vignal et al. 2000, Donnelly et al. 2014; Shi et al. 2016). RHOQ is highly activated on exocytosing vesicles and recycling endosomes. RHOQ GTPase activity is necessary for fusion of vesicles with the plasma membrane (Kawase et al. 2006, Donnelly et al. 2014). RHOQ is required for insulin-stimulated glucose uptake (Kanazaki and Pessin 2003; Saltiel and Pessin 2003) and is involved in insulin signaling in adipocytes (Satoh 2014). While some studies reported RHOQ involvement in neurite outgrowth (Abe et al. 2003, Gonzalez-Billault et al. 2012) and regulation of membrane addition during axon formation (Dupraz et al. 2009, Gonzalez-Billault et al. 2012), other studies failed to identify RHOQ as a regulator of neurite outgrowth (Murphy et al. 1999, Murphy et al. 2001).

Literature references


https://reactome.org


**Editions**

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RHOQ GEFs activate RHOQ

Location: RHOQ GTPase cycle

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