G beta:gamma signalling through CDC42

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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: 72

This document contains 1 pathway and 6 reactions (see Table of Contents)
G beta:gamma signalling through CDC42

Stable identifier: R-HSA-8964616

Compartments: plasma membrane, cytosol

G-Protein Coupled Receptors (GPCR) sense extracellular signals and activate different Guanine nucleotide binding proteins (G-proteins) that have alpha, beta and gamma subunits. Upon activation, the alpha subunit of G-proteins dissociates from beta-gamma and the both are then free to regulate downstream effectors. Serine/threonine-protein kinase PAK 1 binds with Rho guanine nucleotide exchange factor 6 (ARHGEF6, PIX-Alpha) in the cytosol and is subsequently translocated by the G-protein beta-gamma complex to the plasma membrane. Here, ARHGEF6 activates Cell division control protein 42 homolog (CDC42) by acting as a GEF. Once active, CDC42 can facilitate the activation of PAK1. CDC42 is known to be involved in epithelial cell polarization processes.

Literature references


Editions

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<tr>
<th>Date</th>
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<tr>
<td>2017-07-27</td>
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<td>Varusai, TM.</td>
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PAK1 binds ARHGEF6

Location: G beta:gamma signalling through CDC42

Stable identifier: R-HSA-8964619