Activation of Rap1 by membrane-associated GEFs

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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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Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res, 46*, D649-D655. ↗

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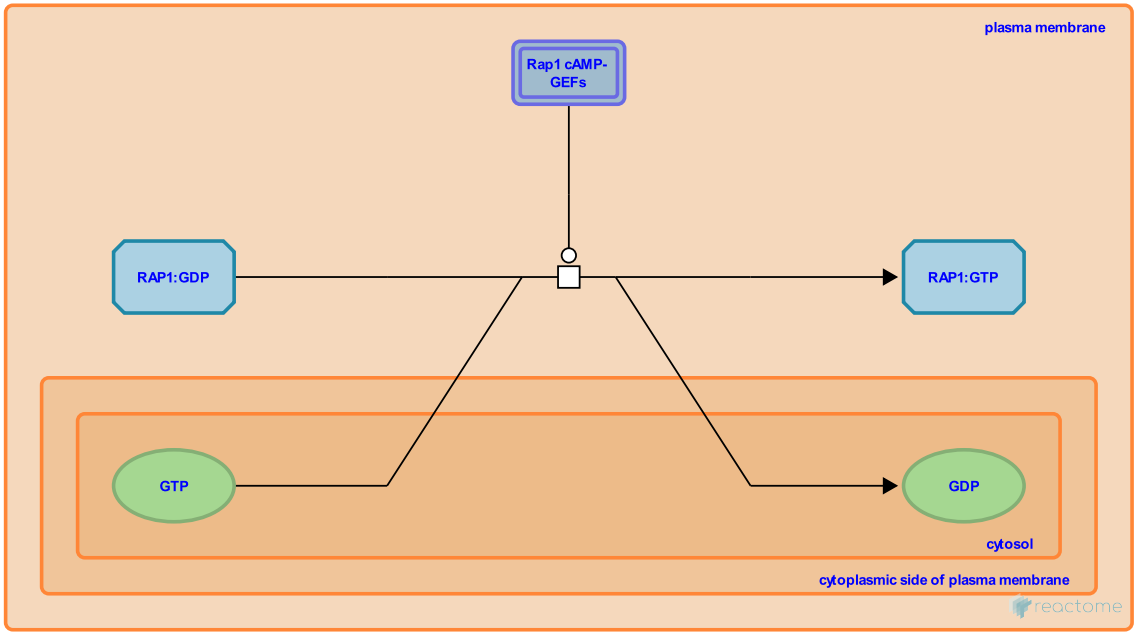
Stable identifier: R-HSA-939265

Type: transition

Compartments: cytosol, plasma membrane



Signals from agonist receptors (such as GPVI) trigger the production of PIP3, DAG, cAMP and elevated Ca++ levels. This leads to the activation and translocation of active Rap1-GTP to the plasma membrane. Rap-GEFs stimulate the replacement of GDP for GTP, activating Rap1. Several Rap1 GEFs have been identified enabling Rap1 to respond to diverse stimuli. CalDAG-GEFs activate Rap1 in response to calcium and DAG, downstream of Phospholipase C. EPAC (exchange proteins directly activated by cAMP) GEFs are activated by binding cAMP.

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Editions

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