

# SOS mediated nucleotide exchange of RAS (SHC)

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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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Reactome database release: 88

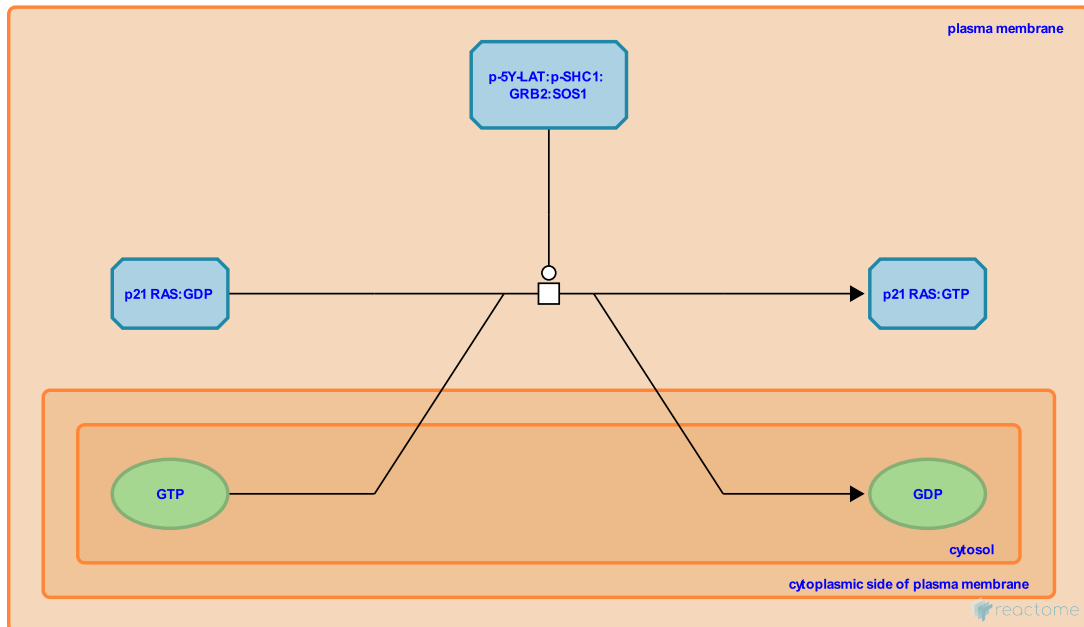
This document contains 1 reaction ([see Table of Contents](#))

## SOS mediated nucleotide exchange of RAS (SHC) ↗

**Stable identifier:** R-HSA-2424477

**Type:** transition

**Compartments:** plasma membrane



GRB2-bound SOS promotes the formation of active GTP-bound RAS. This activates the mitogen-activated protein kinase (MAPK) cascade, leading to cell growth and differentiation.

### Literature references

Boriack-Sjodin, PA., Margarit, SM., Kuriyan, J., Bar-Sagi, D. (1998). The structural basis of the activation of Ras by Sos. *Nature*, 394, 337-43. ↗

### Editions

2012-05-25	Authored, Edited	Garapati, P V.
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