Erythropoietin activates RAS

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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 8 reactions (see Table of Contents)

https://reactome.org
Erythropoietin activates RAS

Stable identifier: R-HSA-9027284

The RAS guanine nucleotide exchange factors SOS1 and VAV1 bind indirectly to the phosphorylated EPOR via CRKL, SHC1, and GRB2 (Miura et al. 1994, Hanazono et al. 1996, Odai et al. 1997, Arai et al. 2001, reviewed in Kuhrt et al. 2015). The phosphorylated cytoplasmic domain of EPOR binds CRKL, which is then phosphorylated (Arai et al. 2001). Phosphorylated CRKL binds SHC1, which is then phosphorylated and binds either GRB2:SOS1 (Barber et al. 1997) or GRB2:VAV1 (Hanazono et al. 1996). SOS1 and phosphorylated VAV1 catalyze the exchange of GDP for GTP bound to RAS, that is, RAS:GDP is converted to RAS:GTP.

Literature references


Editions

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https://reactome.org
EPO:p-EPOR:p-JAK2:LYN:IRS2 binds CRKL:RAPGEF1

Location: Erythropoietin activates RAS

Stable identifier: R-HSA-9024723