Nef Binds and activates the Src-family tyrosine kinase Hck

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12/10/2024

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.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

Literature references

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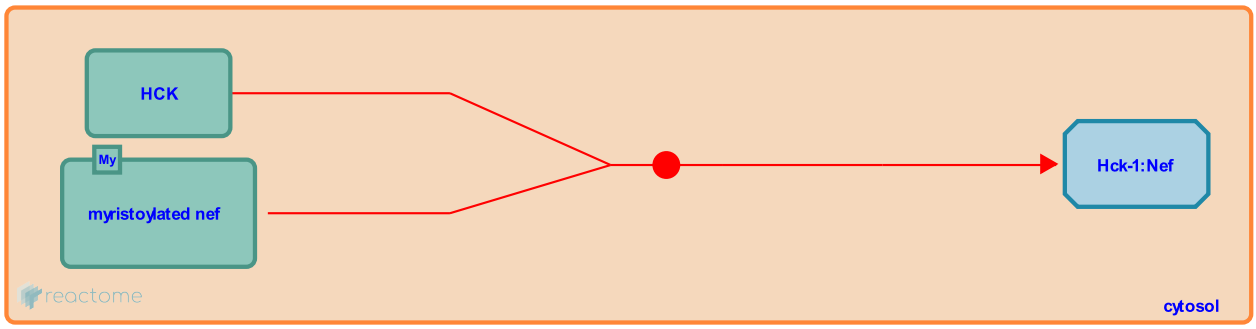
Stable identifier: R-HSA-200858

Type: binding

Compartments: cytosol

Diseases: Human immunodeficiency virus infectious disease



The protein Hck is a member of the Src family of non-receptor tyrosine kinases which is preferentially expressed in haematopoietic cells of the myeloid and B-lymphoid lineages. Src kinases are inhibited by tyrosine-phosphorylation at a carboxy-terminal site. The SH2 domains of these enzymes play an essential role in this regulation by binding to the tyrosine-phosphorylated tail. The SH2 domain of Hck regulates enzymatic activity indirectly; intramolecular interactions between the SH3 and catalytic domains appear to stabilize an inactive form of the kinase. The HIV-1 Nef protein, which is a high-affinity ligand for the Hck SH3 domain, binds to either the downregulated or activated form of Hck causing a large increase in Hck catalytic activity. The intact SH3-binding motif in Nef is crucial for Hck activation.

Literature references

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Editions

2007-07-25	Authored	Gillespie, ME.
2007-08-07	Reviewed	Skowronski, J.