PTK6 phosphorylates STAT3

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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.

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


Reactome database release: 78

This document contains 1 reaction (see Table of Contents)
PTK6 phosphorylates STAT3

Stable identifier: R-HSA-9709918

Type: transition

Compartments: cytosol

Inferred from: Ptk6 phosphorylates Stat3 (Mus musculus)

In humans, activated PTK6 (BRK) phosphorylates STAT3 on tyrosine residue Y705. PTK6-mediated phosphorylation of STAT3 is promoted by STAP2 and inhibited by SOCS3 (Liu et al. 2006, Ikeda et al. 2010).

In mouse, Ptk6-mediated phosphorylation of Stat3 is promoted by Stap2 and inhibited by Socs3. Heme oxygenase-1 (Hmox1) binds to tyrosine-705 and three domains on Stat3 (DNA-binding, linker, and trans-activation domains), directly regulating Stat3 activation. Additionally it co-inhibits Socs3, a negative feedback factor of Stat3 activation, as well as RORyt, thereby decreasing Th2 and Th17 immune responses, and alleviating airway inflammation (Lin et al, 2020; Lin et al, 2017).

Literature references


Editions

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<td>Authored, Edited</td>
<td>Stephan, R.</td>
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<tr>
<td>2021-01-23</td>
<td>Reviewed</td>
<td>Somers, J.</td>
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