Phosphorylation of IKK-beta by TAK1

Garapati, P V., Niarakis, A., Roncagalli, R.

European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

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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: 74

This document contains 1 reaction (see Table of Contents)
Phosphorylation of IKK-beta by TAK1

Stable identifier: R-HSA-2730876

Type: transition

Compartments: cytosol, plasma membrane

In humans, the IKK (IKB kinase) complex serves as the master regulator for the activation of NF-kB by various stimuli. It contains two catalytic subunits, IKK alpha and IKK beta, and a regulatory subunit, IKKgamma/NEMO. The activation of IKK complex is dependent on the phosphorylation of IKK alpha/beta at its activation loop and the K63-linked ubiquitination of NEMO. This basic trimer complex is referred to as the IKK complex.

IKK subunits have a N-term kinase domain a leucine zipper (LZ) motifs, a helix-loop-helix (HLH) and a C-ter NEMO binding domain (NBD). IKK catalytic subunits are dimerized through their LZ motifs. IKK beta is the major IKK catalytic subunit for NF-kB activation. Activated TAK1 phosphorylate IKK beta on S177 and S181 (S176 and S180 in IKK alpha) in the activation loop and thus activate the IKK kinase activity, leading to the IkB alpha phosphorylation and NF-kB activation.

Literature references


## Editions

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