

Active IKK Complex phosphorylates NF- kappa-B inhibitor

D'Eustachio, P., Fitzgerald, KA., Mocarski, ES., Napetschnig, J., Shamovsky, V., Upton, JW.

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

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Reactome database release: 88

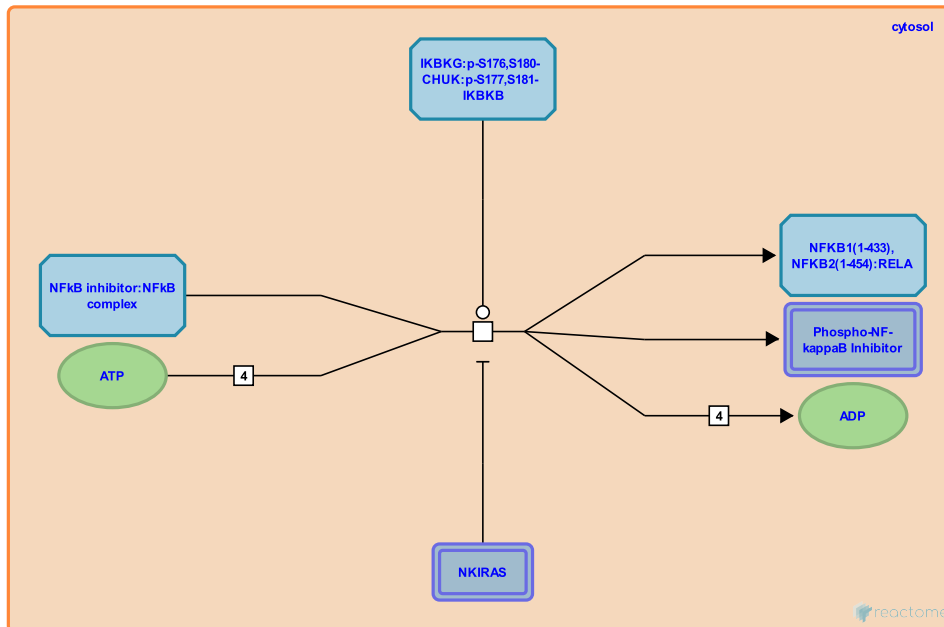
This document contains 1 reaction ([see Table of Contents](#))

Active IKK Complex phosphorylates NF-kappa-B inhibitor ↗

Stable identifier: R-HSA-168140

Type: transition

Compartments: cytosol



In human, IκBs (NFKBIA, NFKBIB or NFKBIE) are inhibitory proteins that sequesters NF-kappa-B in the cytoplasm, by masking a nuclear localization signal, located just at the C-terminal end of the RelA (p65) subunit of the RelA:NFKB1 heterodimer.

A key event in NF-kappa-B activation involves phosphorylation of IκB by an IκB kinase (IKK). The phosphorylation and ubiquitination of IκB kinase complex is mediated by two distinct pathways, either the classical or alternative pathway. In the classical NF-kappa-B signaling pathway, the activated IKK (IκB kinase) complex, predominantly acting through IKK beta (IKKβ, IKBKB) in an IKK gamma (IKKγ, NEMO)-dependent manner, catalyzes the phosphorylation of IκBs (at sites equivalent to Ser32 and Ser36 of human NFKBIA (IκB-α) or Ser19 and Ser22 of NFKBIB (IκB-β)). Once phosphorylated, IκB undergoes ubiquitin-mediated degradation, releasing NF-kappa-B.

Literature references

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Editions

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