MAP3K8 is phosphorylated

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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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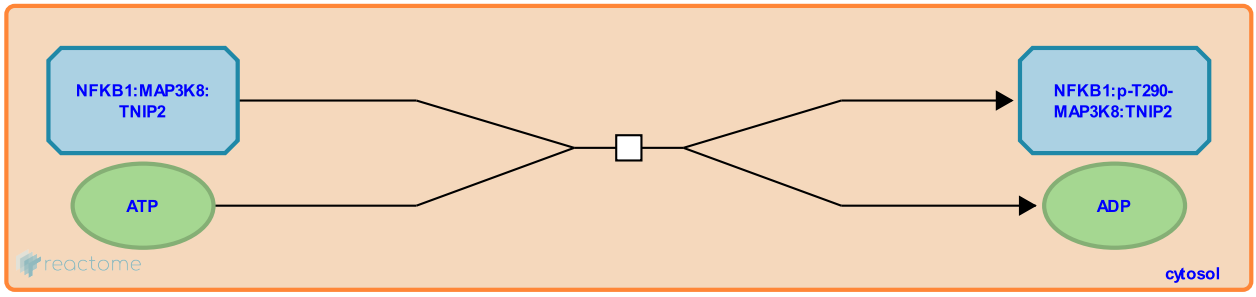
MAP3K8 is phosphorylated ↗

Stable identifier: R-HSA-5684261

Type: transition

Compartments: cytosol



The activity of tumor progression locus-2 (TPL2, also known as COT and MAP3K8) is regulated by means of phosphorylation (Gantke T 2011).

The catalytic subunit of MAP3K8 (TPL2) was reported to undergo phosphorylation at Thr290 in human embryonic kidney 293 (HEK293) cells transfected with MAP3K8 (Luciano BS et al. 2004; Cho J et al. 2005; Stafford MJ et al. 2006). Mutation of this residue to alanine prevented the LPS-stimulated activation of MAP3K8 in mouse macrophages (Cho J et al. 2005). A catalytically inactive mutant of MAP3K8 (Tpl2-K167M) was reported to become phosphorylated at Thr290 in transfected HEK-293 cells, suggesting that Thr290 phosphorylation occurs as a result of trans-phosphorylation (Cho J et al. 2005). In addition, the phosphorylation at Thr290 was also reported to be catalysed by IKBKB, based on small interfering RNA (siRNA)-knockdown studies and the use of high concentrations of the IKBKB inhibitor PS1145 (Cho J et al. 2005). However, the other work showed that lower concentrations of PS1145, but nevertheless sufficient to completely inhibit IKBKB, did not affect the IL-1-stimulated phosphorylation of transfected MAP3K8 at Thr290, suggesting that the IL-1 beta stimulated phosphorylation of Thr290 is catalysed by a protein kinase distinct from IKBKB (Stafford MJ et al. 2006).

Activation of MAP3K8 may also occur trough phosphorylation on Ser62 and Ser400 (Stafford MJ et al. 2006; Roget K et al. 2012).

Literature references

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Editions

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