TP53 stimulates and ZNF420 inhibits TP53AIP1 expression

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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: 70

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TP53 (p53) bound to the p53 response element in the first intron of the TP53AIP1 (p53AIP1) gene stimulates transcription of TP53AIP1. TP53AIP1 protein product localizes to mitochondria and induces apoptosis through dissipation of the mitochondrial membrane potential via an unknown mechanism (Oda et al. 2000). In order to induce TP53AIP1 transcription, TP53 has to be phosphorylated at serine residue S46. DYRK2 kinase is activated by ATM in response to DNA damage and can phosphorylate TP53 at S46 upstream of TP53AIP1 induction (Taira et al. 2007).

The transcription factor ZNF420 (Apak) has a binding site in the first intron of TP53AIP1 that overlaps with the p53 response element. The binding of ZNF420 interferes with the binding of TP53 and results in the repression of TP53AIP1 transcription (Yuan et al. 2012).

**Literature references**

