reactome

ATM phosphorylates TP53 at S15

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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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Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics, 33*, 3461-3467. ↗

Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res, 46*, D649-D655. ↗

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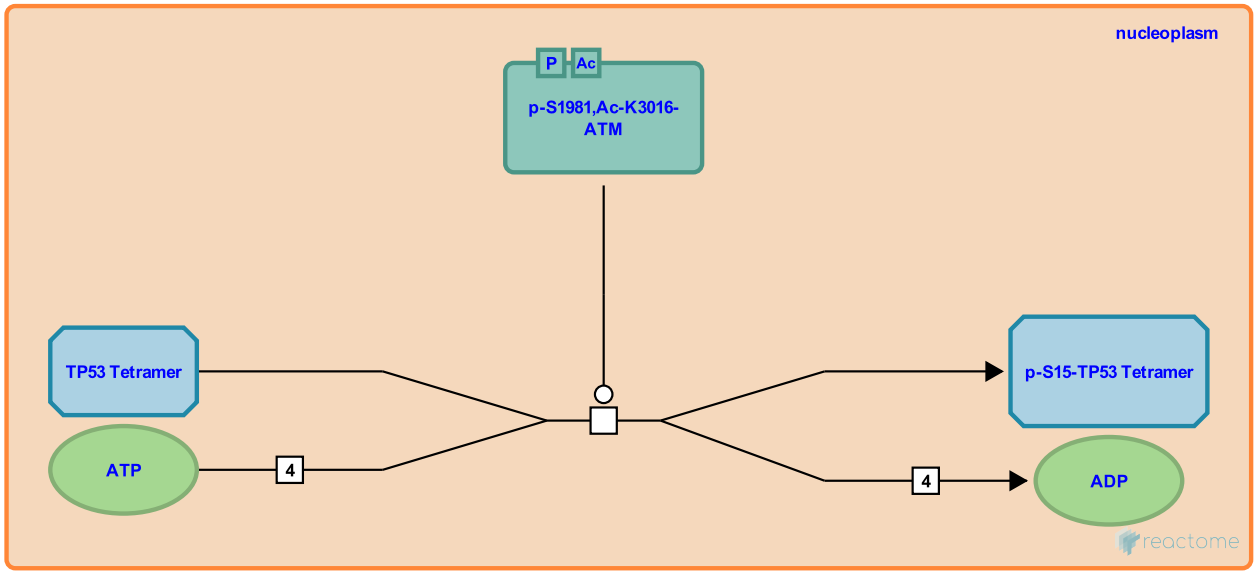
Stable identifier: R-HSA-5693609

Type: transition

Compartments: nucleoplasm



In response to DNA double strand breaks, serine at position 15 of the TP53 (p53) tumor suppressor protein is rapidly phosphorylated by the ATM kinase. This serves to stabilize the p53 protein. A rise in the levels of the p53 protein induces the expression of p21 cyclin-dependent kinase inhibitor. This prevents the normal progression from G1 to S phase, thus providing a check on replication of damaged DNA (Banin et al. 1998, Canman et al. 1998, Khanna et al. 1998).

Literature references

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Editions

2003-06-05	Authored	Khanna, KK.
2008-05-07	Reviewed	Sanchez, Y.
2015-05-12	Edited, Revised	Orlic-Milacic, M.
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