

ATR phosphorylates Histone H2A.X at un-synapsed regions

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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. [↗](#)
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- Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology*, 14, e1005968. [↗](#)

Reactome database release: 88

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

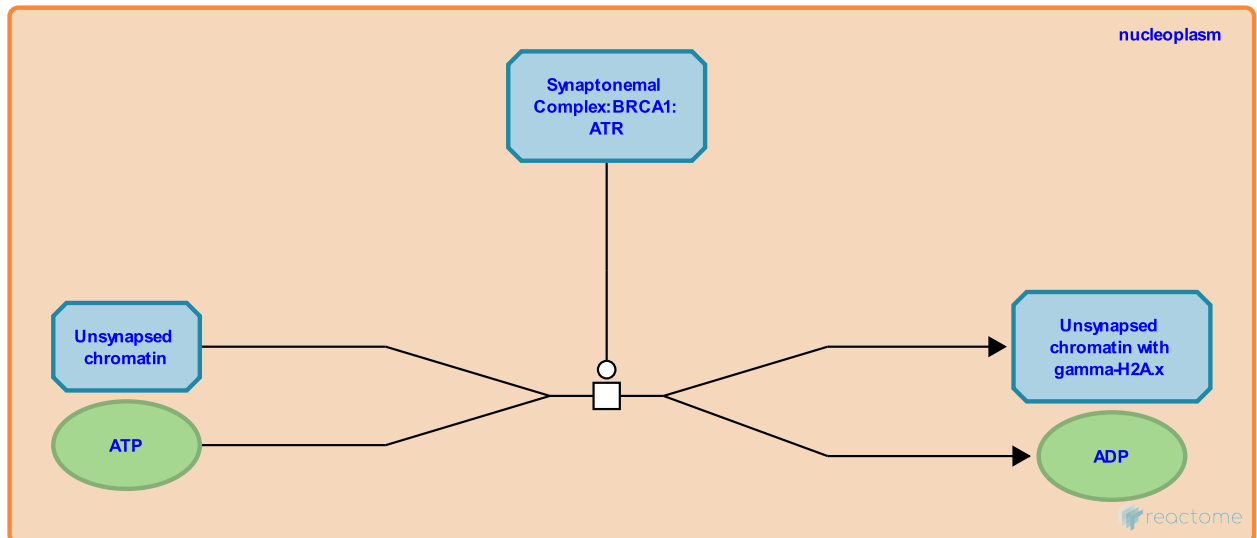
ATR phosphorylates Histone H2A.X at unsynapsed regions ↗

Stable identifier: R-HSA-912470

Type: transition

Compartments: nucleoplasm

Inferred from: [Atr Phosphorylates Histone H2A.X at Unsynapsed Regions \(Mus musculus\)](#)



The ATR kinase phosphorylates histone H2A.X at serine 139 (Ward and Chen 2001, Garcia-Cruz et al. 2009).

Literature references

Chen, J., Ward, IM. (2001). Histone H2AX is phosphorylated in an ATR-dependent manner in response to replication-stress. *J Biol Chem*, 276, 47759-62. ↗

Garcia Caldés, M., Robles, P., Scherthan, H., Garcia-Cruz, R., Roig, I. (2009). ATR, BRCA1 and gammaH2AX localize to unsynapsed chromosomes at the pachytene stage in human oocytes. *Reprod Biomed Online*, 18, 37-44. ↗

Editions

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