

ATR Antibody
Rabbit Polyclonal Antibody
Catalog # ABV10586**Specification**

ATR Antibody - Product Information

Application	WB
Primary Accession	Q13535
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	301367

ATR Antibody - Additional Information**Gene ID 545****Application & Usage**

Western blotting (1:1000 - 1:2000). HeLa cell lysate can be used as a positive control. However, the optimal concentrations should be determined individually. The antibody recognizes the ATR of human and mouse origins. Reactivity to other species has not been tested.

Other Names

ATR, Ataxia telangiectasia and Rad3 related; FRAP, FRP1, FRAP-related protein 1; SCKL, SCKL1, Seckel syndrome

Target/Specificity

ATR

Antibody Form

Liquid

Appearance

Colorless liquid

Formulation

100 µl affinity purified rabbit polyclonal antibody in phosphate-buffered saline (PBS) containing 30% glycerol, 1% BSA and 0.02% thimerosal.

Handling

The antibody solution should be gently mixed before use.

Reconstitution & Storage

-20 °C

Background Descriptions

Precautions

ATR Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

ATR Antibody - Protein Information

Name ATR {ECO:0000303|PubMed:14729973, ECO:0000312|HGNC:HGNC:882}

Function

Serine/threonine protein kinase which activates checkpoint signaling upon genotoxic stresses such as ionizing radiation (IR), ultraviolet light (UV), or DNA replication stalling, thereby acting as a DNA damage sensor (PubMed:<a href="http://www.uniprot.org/citations/10597277"

target="_blank">10597277, PubMed:10608806, PubMed:10859164, PubMed:11721054, PubMed:12791985, PubMed:12814551, PubMed:14657349, PubMed:14729973, PubMed:14742437, PubMed:15210935, PubMed:15496423, PubMed:16260606, PubMed:21144835, PubMed:27723717, PubMed:27723720, PubMed:33848395, PubMed:9427750, PubMed:9636169, PubMed:21777809, PubMed:25083873, PubMed:30139873, PubMed:37788673, PubMed:37832547). Recognizes the substrate consensus sequence [ST]-Q

(PubMed:10597277, PubMed:10608806, PubMed:10859164, PubMed:11721054, PubMed:12791985, PubMed:12814551, PubMed:14657349, PubMed:14729973, PubMed:14742437, PubMed:15210935, PubMed:15496423, PubMed:16260606, PubMed:21144835, PubMed:27723717, PubMed:27723720, PubMed:33848395, PubMed:9427750, PubMed:9636169).

Phosphorylates BRCA1, CHEK1, MCM2, RAD17, RPA2, SMC1 and p53/TP53, which collectively

inhibit DNA replication and mitosis and promote DNA repair, recombination and apoptosis (PubMed:9925639, PubMed:11114888, PubMed:11418864, PubMed:11865061, PubMed:21777809, PubMed:25083873). Phosphorylates 'Ser-139' of histone variant H2AX at sites of DNA damage, thereby regulating DNA damage response mechanism (PubMed:11673449). Required for FANCD2 ubiquitination (PubMed:15314022). Critical for maintenance of fragile site stability and efficient regulation of centrosome duplication (PubMed:12526805). Acts as a regulator of the S-G2 transition by restricting the activity of CDK1 during S-phase to prevent premature entry into G2 (PubMed:30139873). Acts as a regulator of the nuclear envelope integrity in response to DNA damage and stress (PubMed:25083873, PubMed:37788673, PubMed:37832547). Acts as a mechanical stress sensor at the nuclear envelope: relocalizes to the nuclear envelope in response to mechanical stress and mediates a checkpoint via phosphorylation of CHEK1 (PubMed:25083873). Also promotes nuclear envelope rupture in response to DNA damage by mediating phosphorylation of LMNA at 'Ser-282', leading to lamin disassembly (PubMed:37832547). Involved in the inflammatory response to genome instability and double-stranded DNA breaks: acts by localizing to micronuclei arising from genome instability and catalyzing phosphorylation of LMNA at 'Ser-395', priming LMNA for subsequent phosphorylation by CDK1 and micronuclei envelope rupture (PubMed:37788673). The rupture of micronuclear envelope triggers the cGAS-STING pathway thereby activating the type I interferon response and innate immunity (PubMed:37788673). Positively regulates the restart of stalled replication forks following activation by the KHDC3L-OOEP scaffold complex (By similarity).

Cellular Location

Nucleus. Chromosome. Nucleus envelope. Note=Depending on the cell type, it can also be found in PML nuclear bodies (PubMed:12814551). Recruited to chromatin during S-phase (PubMed:14871897). Redistributes to discrete nuclear foci upon DNA damage, hypoxia or replication fork stalling (PubMed:27723720). Relocalizes to the nuclear envelope in response to mechanical stress or DNA damage (PubMed:25083873, PubMed:37832547) Also localizes to the micronuclear envelope in response to response to genome instability (PubMed:37788673).

Tissue Location

Ubiquitous, with highest expression in testis.

ATR Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)

- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

ATR Antibody - Images**ATR Antibody - Background**

ATR (ATM and Rad3 related) is closely related to ATM (Ataxia telangiectasia, mutated) and is a member of the phosphatidylinositol 3 kinase (PI-3) family that is an early sensor of DNA damage. ATR is a serine-threonine kinase that reacts to UV damage and interruptions in replication. ATR may be able to sense DNA damage through interaction with Rad17 and 1as well as components of nucleosome remodeling complexes. In response to DNA damage, ATR has been shown to phosphorylate a multitude of substrates which include BRCA1, p53, Chk2, Rad 17, and E2F transcription factor 1.

ATR Antibody - Citations

- [Mitochondrial Dysfunctions Regulated Radioresistance through Mitochondria-to-Nucleus Retrograde Signaling Pathway of NF- \$\kappa\$ B/PI3K/AKT2/mTOR.](#)