

ATR Polyclonal Antibody
Catalog # AP68599**Specification****ATR Polyclonal Antibody - Product Information**

Application	WB
Primary Accession	Q13535
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal

ATR Polyclonal Antibody - Additional Information**Gene ID** 545**Other Names**

ATR; FRP1; Serine/threonine-protein kinase ATR; Ataxia telangiectasia and Rad3-related protein; FRAP-related protein 1

Dilution

WB~~Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. ELISA: 1/40000. Not yet tested in other applications.

Format

Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.

Storage Conditions

-20°C

ATR Polyclonal 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:<a href="http://www.uniprot.org/citations/16260606"

target="_blank">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

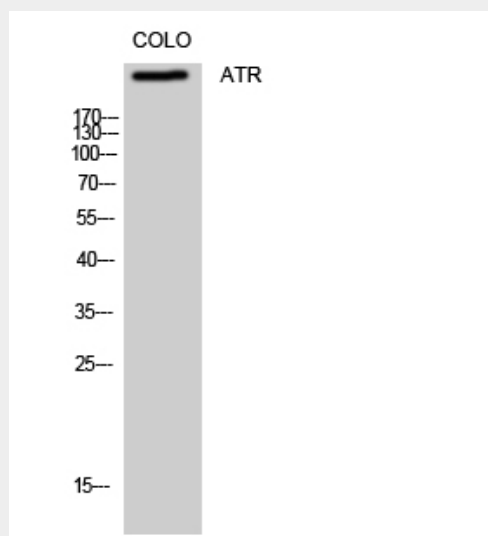
Ubiquitous, with highest expression in testis.

ATR Polyclonal 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 Polyclonal Antibody - Images



ATR Polyclonal Antibody - Background

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. Recognizes the substrate consensus sequence [ST]-Q. Phosphorylates BRCA1, CHEK1, MCM2, RAD17, RPA2, SMC1 and p53/TP53, which collectively inhibit DNA replication and mitosis and promote DNA repair, recombination and apoptosis. Phosphorylates 'Ser-139' of histone variant H2AX/H2AFX at sites of DNA damage, thereby regulating DNA damage response mechanism. Required for FANCD2 ubiquitination. Critical for maintenance of fragile site stability and efficient regulation of centrosome duplication.