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Product Information

Anti-ATR (C-terminal)
produced in rabbit, affinity isolated antibody

Catalog Number **SAB4200348**

Product Description

Anti-ATR (C-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to a sequence at the C-terminal region of human ATR (GeneID: 545), conjugated to KLH. The corresponding sequence is identical in mouse and rat ATR. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-ATR (C-terminal) specifically recognizes human ATR. The antibody may be used in several immunochemical techniques including immunoblotting (~280 kDa) and immunofluorescence. Detection of the ATR band by immunoblotting is specifically inhibited by the ATR immunizing peptide.

DNA-damage response pathways involve three major groups of protein kinases, ATM and ATR and DNA-PKs, which are members of phosphatidyl inositol-3-kinase-like kinase (PIKK) family. Recruitment of PIKKs to DNA lesions is the primary step in their activation and function at checkpoint signaling, promoting cell cycle arrest and DNA repair.[1-3] The survival of cells with impaired ATM or ATR function after DNA damage is compromised and they are defective in initiating DNA-damage-induced cell-cycle arrest. ATM is primarily activated by DNA DSBs caused by ionizing radiation (IR) or radiomimetic drugs, whereas ATR responds to replicative stress and other forms of DNA damage, such as that caused by UV light.[3] ATM and ATR are recruited to sites of DNA damage by related mechanisms, but the factors required are different. ATM is recruited to DSBs by the Mre11–Rad50–Nbs1 (MRN) complex, whereas ATR is recruited by ATR-interacting protein (ATRIP) to RPA-coated single-stranded DNA (ssDNA) that accumulates at stalled DNA replication forks or is generated by processing of the initial DNA damage.[3,4] The activity of the ATR-ATRIP complex is directly regulated by the activator protein TOBP1.[5] ATR activation is also regulated by ATM in a cell-cycle dependent manner.[6] ATM and ATR phosphorylate a number of substrates, including the protein kinases CHK1 and CHK2, which in turn target other proteins to induce cell-cycle arrest and facilitate DNA repair.[2,7]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: ~1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 1.0-2.0 µg/mL is recommended using U2OS cell lysates.

Immunofluorescence: a working concentration of 10-20 µg/mL is recommended using HeLa cells.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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3. Falck, J., et al., *Nature,* **434**, 605-611 (2005).
4. Cortez, D., et al., *Science,* **294**, 1713-1716 (2001).
5. Kumagai, A., et al., *Cell,* **124**, 943-955 (2006).
6. Jazayeri, A., et al., *Nature Cell Biol.,* **8**, 37-45 (2006).
7. Bartek, J., et al., *Cancer Cell*, **3**, 421-429 (2003).

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