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ProductInformation

Monoclonal Anti-RPA/p34
Clone 9H8
produced in mouse, purified immunoglobulin

Catalog Number **R1280**

Product Description

Monoclonal Anti-RPA/p34 (mouse IgG1 isotype) is derived from the hybridoma 9H8 produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with purified human RPA/p34 (Gene ID: 6118).[1] The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-RPA/p34 recognizes human[1, 2, 4] and monkey[4] RPA/p34. The antibody may be used in immunoblotting (~34 kDa),[1, 2] immunocytochemistry,[1, 4] and immunoprecipitation.[2]

Defects in DNA metabolism and especially impaired responses to DNA damage and basal DNA repair are responsible for human diseases like cancer, Fragile X and Huntington's. Replication protein A (RPA) complex is essential for processes like DNA replication and recombination, and DNA repair pathways.[5] This complex includes a single-stranded DNA-binding protein composed of 70-, 32- and 14-kDa subunits that interacts specifically with multiple proteins. The 32-kDa subunit of human RPA becomes hyper-phosphorylated in its N-terminus upon cellular DNA damage. This phosphorylation causes a change in RPA conformation that down-regulates its activity in DNA replication, but does no affect DNA repair processes. Thus the role of RPA phosphorylation in the cellular response to DNA damage is to help regulate DNA metabolism and promote DNA repair.[5] The RPA complex, once bound to single stranded DNA, recruits the ATR-ATRIP protein kinase complex that is crucial for the cellular response to replication stress and DNA damage and for ATR-mediated Chk1 activation in human cells. Furthermore, the association of this complex to the single stranded DNA causes the phosphorylation of RAD17 protein that is bound to DNA. Yeast strains deficient in RPA are defective in recruiting Ddc2 (yeast homologue of ATRIP) and thus down stream proteins are not phosphorylated.[6]

Reagent

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

Antibody concentration: ~2 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 extended storage, freeze at –20 °C 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 dilution samples should be discard if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 0.1-0.2 µg/mL is recommended using HeLa total cell extract.
Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

1. Kenny, M.K., et al., *J. Biol. Chem.*, **265**, 7693-7700 (1990).
2. Stigger, E., et al., *Proc. Natl. Acad. Sci. USA*, **91**, 579-583 (1994).
3. Wilkinson, D.E., and Weller, S.K., *J. Virology*, **79**, 7162-7171 (2005).
4. Jady, B.E., et al., *Mol. Biol. Cell*, **17**, 944-954 (2006).
5. Binz, S.K., et al., *DNA Repair*, **3**, 1015-1024 (2004).
6. Zou, L., and Elledge, S.J., *Science*, **300**, 1542-1548 (2003).

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