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Product Information

Anti-ATM antibody, Mouse monoclonal
clone SYML6A10, purified from hybridoma cell culture

Product Number **A6218**

Product Description

Anti-ATM antibody, Mouse monoclonal (mouse IgG1 isotype) is derived from the SYML6A10 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to the C-terminal region of human ATM with N-terminally added cysteine conjugated to keyhole limpet hemocyanin (KLH).[1] The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2.

Monoclonal Anti-ATM recognizes human ATM by immunoblotting[1] (~350 kDa) and immunocytochemistry.

Ataxia-telangiectasia (A-T) is a rare human autosomal recessive disease with a pleiotropic phenotype characterized by cerebellar degeneration, oculo-cutaneous telangiectasias, immune dysfunction, genomic instability, cancer predisposition, radiation sensitivity, and premature aging.[1] A-T cells exhibit hypersensitivity to ionizing radiation and multiple defects responding to DNA double-strand breaks. In addition, A-T cells exhibit a variety of cellular abnormalities in culture, including cytoskeletal defects,[2] abnormalities in the plasma membrane,[3] and defects in intracellular signaling.[4] The gene mutated in A-T, *ATM* (A-T, mutated),[5] encodes a 350–370 kDa protein.

The ATM protein belongs to a family of protein kinases, that appear to be involved in cell cycle control and DNA damage response.[1] The C-terminal region of the protein has extensive homology to the catalytic domain of PI-3 kinase.[5] ATM is predominantly nuclear; however, immunoelectron microscopy and cellular fractionation demonstrate that a fraction of the ATM protein also localizes to cytoplasmic vesicles.[6] ATM expression is absent or expressed at very low levels in A-T cells.[5,7] The pleiotropic features of A-T, the large size of the ATM protein, and its multiple subcellular localizations, suggest that ATM may have multiple functions.

ATM kinase activity is enhanced immediately after exposure of cells to DNA double strand breaks (DSBs)-inducing agents[8, 9] and a fraction of it is localized to nuclear aggregates, colocalized with the phosphorylated form of histone H2AX and Nbs1 protein.[10]

ATM binds to β-adaptin, one of the components of the AP-2 adaptor complex, which is involved in clathrin-mediated endocytosis of receptors.[11] ATM also interacts with β-NAP, a neuronal-specific β-adaptin homologue that was identified as an autoantigen in a patient with cerebellar degeneration.[11] This indicates that ATM may play a role in intracellular vesicle and/or protein transport mechanisms.

Antibodies reacting specifically with ATM may be used for elucidating the mechanisms involved in DNA damage response and maintenance of DNA integrity.

Reagent

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

Antibody concentration: ~2 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the 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 prolonged storage, freeze in working aliquots at –20 °C. 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 minimum working antibody concentration of 1-2 μg/mL is recommended using a total cell extract from a G-361 (human melanoma) cell line.

Note: In order to obtain the best results using various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

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