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Product Information

Anti-hABH3 antibody
Mouse monoclonal, clone hABH3-99
purified from hybridoma cell culture

Product Number **A8353**

Product Description

Anti-hABH3 antibody, Mouse monoclonal (mouse IgG1 isotype) is derived from the hABH3-99 hybridoma produced by the fusion of mouse myeloma cells (NS1 cells) and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to a fragment of human hABH3, conjugated to KLH. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2.

Monoclonal Anti-hABH3 (**h**uman **A**lk**B** **h**omologue) recognizes human, monkey, bovine, dog, rat, hamster, and mouse hABH3. It does not recognize hABH1 or hABH2. The antibody can be used in ELISA, immunoblotting (~33 kDa), immuno-histochemistry, and immunoprecipitation.

Alkylating agents may damage DNA, which in turn can affect many physiological processes and cause pathological conditions like cancer, neurological disease, and developmental defects. Three enzymes have been identified to date that can remove alkylated bases from DNA, 3-methyladenine-DNA glycosylases, O^6-Methylguanine-DNA methyltransferase and AlkB protein in bacteria that hABHs are its human homologs.

3-methyladenine-DNA glycosylases perform base excision repair and excise 3-methyladenine and related lesions from DNA.[1,2] The methyl group from the toxic DNA lesion O^6-methylguanine is removed via transfer to a cysteine residue in the repair protein, O^6-Methyl-guanine-DNA Methyltransferase. Removal of the methyl groups of 1-methyladenine (1-meA) and 3-methylcystosine (3-meC) to their unmodified forms is done by the AlkB protein in bacteria and its human homologs, hABH2 and hABH3.[1,2,4] The hABH1 protein was the first to be cloned based on its homology to the AlkB protein (53% similar and 23% identical); however, the data implying its catalytic activity as a DNA repair enzyme is still contradictory.[3,4]

It has been shown that AlkB and hABH3, but not hABH2, repair alkylated RNA. Furthermore, whereas hABH2 acts on double stranded DNA, AlkB and hABH3 work on single stranded nucleic acids.[2] hABH2 and hABH3 show different localization in cells. While hABH2 localizes to the nucleoplasm and occasionally to the nucleoli, hABH3 is mainly found in the nucleoplasm and in the cytoplasm, but not in the nucleoli.[2] Using structural homology between the AlkB protein and its human homologs, it has been found that five additional members (hABH4-8) belong to this family, however to date, their enzymatic activity has not been demonstrated.[5]

Monoclonal antibodies to hABH proteins are an important tool for studying the regulation of DNA/RNA repair enzymes.

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 extended 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 working antibody concentration of 1-2 μg/mL is recommended using total cell extract of 293T cells.

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

References

1. Duncan, T., et al., *Proc. Natl. Acad. Sci. USA*, **99**, 16660-16665 (2002).
2. Per Arne, A., et al., *Nature*, **421**, 859-863 (2003).
3. Wei, Y.F., et al., *Nuc. Acids Res*., **24**, 931-937 (1996).
4. Koivisto, P., et al., *J. Biol. Chem*., **278**, 44348-44354 (2003).
5. Kurowski, M.A., et al., *BMC Genomics*, **4**, 48-52 (2003).

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