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Product Information

Anti-Bax antibody, Mouse monoclonal
clone 6A7, purified from hybridoma cell culture

Product Number **B8429**

Product Description

Anti-Bax antibody, Mouse monoclonal (mouse IgG1 isotype) is derived from the 6A7 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from a BALB/c mouse immunized with a synthetic peptide corresponding to amino acids 12-24 of the human Bax sequence, conjugated to KLH.[1] The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-Bax reacts specifically with human,[1] rat[1] and mouse[1] Bax protein. The epitope recognized by the antibody resides within amino acids 12-24 shared by Bax from both species (probably in close proximity to the BH3 dimerization domain of Bax).[1] The antibody may be used for immunoblotting (21 kDa, and possibly as a dimer at 42 kDa). It is also reactive in immunoprecipitation[1] in the presence of nonionic detergent.

Apoptosis is an active process of cell death that controls cell numbers in a variety of tissues during embryonic development and throughout adult life. The prototypic regulator of mammalian cell death is the protooncogene *bcl-2*. In both normal and neoplastic tissues and in experimental situations, expression or overexpression of the *bcl-2* gene appears to protect cells from death, by preventing or delaying apoptosis.[2] Also, other genes seem to be important in controlling cell death. Candidates include *bcl-x, bad, bak* and *bax*, which have a significant homology to *bcl-2*. The *bcl-x* gene encodes two proteins: Bcl-x_L (a 241 a.a. protein), which like Bcl-2, promotes cell survival, and Bcl-x_S (deleted in 63 a.a.) , a splice variant of Bcl-x_L that antagonizes Bcl-2 function. On the other hand, Bad and Bax enhance apoptosis and inhibit the protective functions of Bcl-x_L (and to a lesser extent of Bcl-2) and Bcl-2, respectively.[3-7] Bcl-2, Bcl-x_L and Bax, each contain a stretch of hydrophobic amino acids, approx. 20 residues in length, at their C-termini. There is little amino acid sequence conservation within these tails, but based on hydropathy plot analysis they are presumed to function in anchoring these proteins into organelle membranes.[8] Bcl-2 (a 26 kDa protein) has been localized to the nuclear membrane, endoplasmic reticulum, and the outer mitochondrial membranes. Bcl-x_L (27 kDa) has been localized to the outer membrane of mitochondria. Bax (21 kDa) is an integral organelle membrane protein, in particular in mitochondria. However, significant amounts of Bcl-x_L and most of the Bax proteins are not membrane-associated and appear to be cytosolic, according to other reports.[1] Bax is associated with organelles or bound to organelles by Bcl-2 or a soluble protein found in the cytosol.[8] Formation of Bax homodimers promotes cell death, and this could be blocked by Bax heterodimerization with Bcl-2 or Bcl-x_L. Although the relative ratio of Bax homodimers to heterodimers has been proposed to serve as a sensory switch to regulate cell death,[1,3,9] this interaction is promoted by the presence of nonionic detergents, which stimulate Bax dimer formation. Other hypotheses propose the formation of channels in mitochondrial outer membranes,[10] or the interaction of these members with the PTP pore to regulate the release of cytochrome c.[11] Cytochrome c in turn activates caspase-3 to cause cell death. Antibodies reacting specifically with Bax protein are useful tools in the study of the unique subcellular localization of Bax, and of the intracellular redistribution of this protein upon induction of apoptosis.

Reagents

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

Antibody Concentration: Approx. 2 mg/ml

Precautions and Disclaimer
This product is 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. 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 discarded if not used within 12 hours.

Product Profile
Immunoblotting: a working concentration of 10-60 μg/ml is determined by, using cultured human breast adenocarcinoma MCF-7 cells, activated with dexamethasone.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

1. Hsu, Y-T., and Youle, R.J., *J. Biol. Chem*., **272**, 13829 (1997).
2. Cory, S., *Annu. Rev. Immunol*., **13**, 513 (1995).
3. Oltvai, Z.N., et al., *Cell*, **74**, 609 (1993).
4. Farrow, S.N., et al., *Nature*, **374**, 731 (1995).
5. Chittenden, T., et al., *Nature*, **374**, 733 (1995).
6. Kiefer, M.C., et al., *Nature*, **374**, 736 (1995).
7. Vaux, D.L., and Strasser, A., *Proc. Natl. Acad. Sci. USA*, **93**, 2239 (1996).
8. Wolter, K.G., et al., *J. Cell Biol*., **139**, 1281 (1997).
9. Hsu, Y-T., et al., *Proc. Natl. Acad. Sci. USA*, **94**, 3668 (1997).
10. Antonsson, B., et al., *Science*, **277**, 370 (1997).
11. Jurgensmeier, J.M., et al., *Proc. Natl. Acad. Sci. USA*, **95**, 4997 (1998).

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