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ProductInformation

ANTI-ARTS (Apoptosis-related protein in TGF-b signaling pathway)
Developed in Rabbit, IgG Fraction of Antiserum

Product Number **A 3720**

Product Description

Anti-ARTS is developed in rabbit using a synthetic peptide corresponding to the C-terminal region of human ARTS (amino acids 247-266 with N-terminal added lysine) conjugated to KLH as immunogen. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-ARTS specifically recognizes human ARTS (32 kDa) by immunoblotting. Staining of ARTS in immunoblotting is specifically inhibited with the ARTS immunizing peptide.

Apoptosis is a fundamental process important in normal growth and differentiation as well as in carcinogenesis. Apoptotic cell death induced by TGF-β is important in both development and tumor regression.[1] TGF-βs are a group of 25 kDa dimeric peptides that modulate numerous cellular functions including extracellular matrix formation, cell differentiation, proliferation, and apoptosis.

While certain signal transduction pathways of TGF-β are known to be mediated by SMAD proteins,[2] and by MAP Kinase (JNK) pathways,[3] very little is known about the downstream mediators involved in apoptotic pathways of TGF-β. In search for such genes, a novel protein likely derived from alternative splicing of the H5/PNUTL2/hCDCrel-2a/2b gene was found.[4,5] This protein called ARTS (Apoptosis Related protein in the TGF-β Signaling pathway) encodes a polypeptide of 274 amino acids (32 kDa), with a unique 27 amino acid C-terminus not found in any other product of the H5 gene. ARTS contains also a P-loop motif which is conserved in the septin family of proteins and found in many ATP/GTPases including CED-4 and Apaf-1, which are regulators of apoptosis. ARTS was found to be highly expressed in brain and heart with a much lower level in other tissues. Over-expression or inhibition (antisense) of ARTS expression have clearly demonstrated that this protein is necessary for TGF-β signaling towards apoptosis.

Confocal and immunoelectron microscopy showed that ARTS localizes to mitochondria. However, following TGF-β treatment, ARTS translocates to the nucleus after which fragmentation of nuclei is observed. This translocation is mediated by the P-loop sequence, as mutations in this sequence block the effect of TGF-β on ARTS translocation, as well as its ability to activate caspase 3 and induce apoptosis.

Antibodies specific for ARTS are useful in studies of the localization and function of this gene and its role in apoptosis induced by any stimuli.

Reagent

Anti-ARTS is supplied as an IgG fraction of antiserum in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution.
Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2 °C -8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. 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

A minimum working dilution of 1:15,000 is determined by immunoblotting using a whole cell extract of HEK 293 cells transfected with ARTS expression plasmid.

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

References

1. Hsing, A.Y., et al., Cancer Res., **56**, 5146-5149 (1996).
2. Kretzschmar, M., and Massague, J., Curr. Opin. Genet. Dev., **8**, 103-111 (1998).
3. Atfi, A., et al., J. Biol. Chem., **272,** 24731 - 24734 (1997).
4. Larisch-Bloch S., et al., Cell Growth Differ., **11**, 1-10 (2000).
5. Larisch S., et al., Nature Cell Biology, In Press (December 2000).

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