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ProductInformation

MONOCLONAL ANTI-14-3-3 θ/τ (theta/tau)
CLONE 3B9
Purified Mouse Immunoglobulin

Product Number **T5942**

Product Description

Monoclonal Anti-14-3-3 θ/τ (mouse IgG1 isotype) is derived from the 3B9 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from a mouse immunized with recombinant 14-3-3 θ/τ. The antibody is purified from ascites fluid using Protein G chromatography.

Monoclonal Anti-14-3-3 θ/τ recognizes the θ/τ (theta/tau) form of 14-3-3 using immunoprecipitation and immunoblotting (native and denatured, 31 kDa). The antibody does not react with the 14-3-3ζ (zeta) isoform. The antibody has been shown to react with human, bovine, rat and mouse 14-3-3 θ/τ.

At least seven isoforms comprise the highly conserved 14-3-3 family of homo- and heterodimeric proteins that are abundantly expressed in all eukaryotic cells. These multifunctional proteins bind and modulate the function of a wide array of cellular proteins. They exist mainly as dimers with a monomeric molecular mass of approximately 30 kDa and have an acidic isoelectric point of 4.5-5.

Although more than seven isoforms of 14-3-3 have been described, some redundancies have appeared upon sequencing. The 14-3-3s are thought to be key regulators of signal transduction events mediated through their binding to serine-phosphorylated proteins. By interacting with Cdc25C, 14-3-3 regulates entry into the cell cycle and through interaction with bad, prevents apoptosis.[3]

14-3-3 plays a dual role in Raf-1 activation. It helps to keep Raf-1 in an inactive state by binding to phosphoserine-259 and the cysteine-rich domain (DRD). Interactions of 14-3-3 at the phosphoserine-621 may be required for Raf-1 activation and may function asan essential cofactor for Raf-1 kinase activity.[3]

Other proteins that have been shown to bind 14-3-3s include members of the protein kinase C family, Cbl, IRS-1, middle-T antigen, KSR, IGF-1 receptor, etc.[3]

Detection of 14-3-3 proteins in cerebrospinal fluid has been shown to be quite useful in the differential diagnosis of Creutzfeldt-Jakob disease and other prion diseases.

The θ or τ isoform was initially isolated from T cells.[1] It's structure has been resolved.[2] It is found in T cells, brain and testes. Although the ζ isoform is present at high levels, β,γ,η and τ isoforms are also expressed in the rat brain. However, the τ isoform is the only isoform found in the white matter.[4]

Reagent

Monoclonal Anti-14-3-3 θ/τ is supplied as a solution in phosphate buffered saline, pH 7.5, containing 50% glycerol and 3 mM sodium azide.

Protein concentration is approximately 1 mg/ml.

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

Store at –0 °C to –20 °C. 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 working concentration of 1:5,000 is recommended by immunoblotting using whole extracts of mouse 3T3, rat PC12, human Jurkat, or normal fibroblasts or bovine MDBK cells.

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

References

1. Nielsen, P.J., Primary structure of a human protein kinase regulator protein. Biochim. Biophys. Acta, 1088,425-428 (1991).
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4. Skoulakis, E.M., and Davis, R.L., 14-3-3 proteins in neuronal development and function. Mol. Neurobiol., **16**, 269-84. (1998).
5. Baldin, V., 14-3-3 proteins and growth control. Prog. Cell Cycle Res., **4**, 49-60. (2000).).

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