



Monoclonal Anti- α -Internexin
Clone 2E3
Purified Mouse Immunoglobulin

Product Number **I 0282**

Product Description

Monoclonal Anti- α -Internexin (mouse IgG1 isotype) is derived from the 2E3 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from mice immunized with the full-length recombinant rat α -internexin. The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti- α -Internexin recognizes human, cat, bovine, porcine, and rat α -internexin (approx. 66 kDa).¹ The product may be used in ELISA, immunoblotting,¹ immunohistochemistry,¹ and immunocytochemistry.¹

The intermediate filament (IF) network spreads from the cell periphery to the nucleus and forms linkages between nuclear matrix, actin microfilaments, and the extracellular matrix.^{2,3} IF subunit proteins are divided into five different classes (I-V) consisting of nearly fifty different proteins which are each expressed in a well defined tissue specific manner. These proteins include keratins (Classes I and II), vimentin, desmin, peripherin, and glial fibrillary acidic protein (Class III), the neurofilament triplet proteins, nestin and α -internexin (Class IV), and the nuclear lamins (Class V).^{2,3}

Neurofilaments are defined as the IF proteins of neurons, and those isolated from mature axons predominantly contain the neurofilament triplet proteins, called NF-L, NF-M, and NF-H for their relative position on SDS-PAGE gels (low, medium, and high molecular weights). However neurofilaments may also contain several other IF proteins such as peripherin, nestin, vimentin, and α -internexin. These other proteins are expressed in developmentally and cell type specific fashions and so antibodies to these proteins are useful markers of neuronal cell type and developmental state. In many neurological diseases such as Alzheimer's disease, ALS (Lou Gehrig's disease), and giant axon neuropathies, accumulation of neurofilaments is observed.²

α -Internexin (also known as 66 kDa neurofilament subunit or NF-66) was purified from IF preparations of mammalian central nervous system (CNS) tissues and was originally thought to be an IF binding and cross-

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linking protein rather than an IF subunit.⁴ However, cloning and sequencing revealed that α -internexin was a bonafide member of the Class IV IF family, along with NF-L, NF-M, NF-H and nestin.⁵

The α -internexin protein is expressed in neurons at a developmentally earlier stage than the neurofilament triplet proteins, and roughly parallels axonal development and the disappearance of other IF proteins such as vimentin.⁶ In the adult CNS, α -internexin is expressed along with NF-L, NF-M, and NF-H, while in certain small neurons α -internexin is the only IF expressed.⁷ Antibodies specific for α -internexin are important tools for the study of neurofilaments in health and disease and for the identification of specific classes of nerve cell. In addition, the early developmental expression of α -internexin means that antibody to this protein is a useful marker of neuronal stem cells and progenitors. Also, α -internexin protein expression is heavily upregulated in certain neuronal injury states.

Reagent

Monoclonal Anti- α -Internexin is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: approx. 2 mg/ml.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS 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 is not recommended. Storage in frost-free freezers is also 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

A minimum working concentration of 0.5 µg/ml is determined by immunoblotting of rat brain cytosolic extract.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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6. Kaplan, M.P., et al., J. Neurosci., **10**, 2735-2748 (1990).
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