Mouse mAb to α-internexin

**MCA-2E3**

**Applications**

| Western blot, ICC/IF, IHC |

**Host**

| Mouse |

**Isotype**

| IgG1 |

**Molecular Wt.**

| 66 kDa by SDS-PAGE |

**Species Cross-Reactivity**

| Hu, Rt, Ms |

WESTERN BLOT

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| 250kDa> | 150kDa> | 100kDa> |
| 50kDa> | 37kDa> | 15kDa> |

**Immunohistochemistry of a section of rat facial nucleus 7 days following axotomy. These neurons are capable of regenerating their axons and also, concomitant with regeneration, strongly upregulate α-internexin in their perikarya. Other central neurons which are not able to regenerate their axons do not upregulate this protein after axotomy and untreated facial neurons normally show only very low levels of α-internexin. Both findings suggest that α-internexin has a role in axonal regeneration.

**Background:** α-internexin is a Class IV intermediate filament originally discovered as it copurifies with other neurofilament subunits (1). On SDS-PAGE gels it runs with an apparent molecular weight of 64 to 66 kDa, with some species variability, although the real molecular weight is about 55 kDa; as with the other neurofilament subunits the presence of highly negatively charged sequences results in reduction of SDS-PAGE mobility. α-internexin is related to but distinct from the better known neurofilament triplet proteins, NF-L, NF-M and NF-H, having similar protein sequence motifs and a similar intron organization. It is expressed only in neurons and in large amounts early in neuronal development, but is down-regulated in many neurons as development proceeds.

Many classes of mature neurons contain α-internexin in addition to NF-L, NF-M and NF-H although α-internexin is the only neurofilament subunit expressed in other neurons. Antibodies to α-internexin are therefore unique probes to study and classify neuronal types and follow their processes in sections and in tissue culture. In addition the very early developmental expression of α-internexin means its presence is an early and convenient diagnostic feature of neuronal progenitors cells and other cell committed to the neuronal lineage. In addition recent studies show a marked up-regulation of α-internexin during neuronal regeneration (2). The use of antibodies to this protein in the study of brain tumors has not been examined to date, but is likely to be of interest.

Trojanowski, Lee and coworkers used this antibody to show that α-internexin is an abundant component of the inclusions of neurofilament inclusion body disease (NFID, 4, 5), a serious human neurodegenerative disorder. The antibody was also used to confirm the presence of circulating auto-antibodies in sera of patients with chronic autoimmune and healthy individuals.

**References:**

6. Rajasalu T1, Teesalu K, Janmey PA, Ulbo R. Demonstration of natural autoantibodies against the intermediate filament protein alpha-internexin in sera of patients with chronic autoimmune and healthy individuals.

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**RRID:** AB_2572335

**Immunogen:** Purified recombinant rat α-internexin expressed in and purified from E. coli.

**Format:** Affinity purified at 1mg/mL in PBS, 50% glycerol, 5mM NaN3

**Storage:** Shipped on ice. Store at 4°C. For long term storage, leave frozen at -20°C. Avoid freeze / thaw cycles.

**Recommended dilutions:** Western blot: 1:10,000. ICC/IF and IHC: 1:5,000.

**References:**

6. Rajasalu T1, Teesalu K, Janmey PA, Ulbo R. Demonstration of natural autoantibodies against the intermediate filament protein alpha-internexin in sera of patients with chronic autoimmune and healthy individuals.
to α-internexin in the sera of some patients with endocrine autoimmunity, as well as in some normal individuals (Rajasalu et al., 2004, listed below). The HGNC name for this protein is INA.

MCA-2E3 was raised against recombinant rat α-internexin expressed in and purified from E. coli[3]. MCA-2E3 reacts with human α-internexin and with this protein in all mammalian species tested to date. On Western blots the antibody is unusually strong and specific in binding as shown above. The antibody is clean and specific on immunoblots. Can be used on formalin-fixed cells in tissue culture, cryostat sections, and Western blotting. The epitope recognized by the 2E3 clone is in the C-terminal non-helical extension of the protein and is unusually resistant to aldehyde fixation, so that this antibody is ideal for studies of paraffin embedded formalin fixed histological sections.