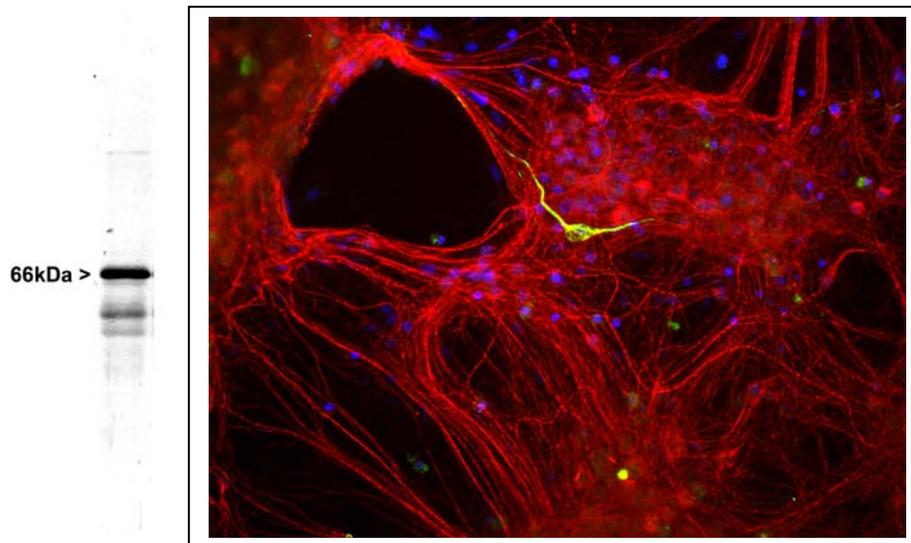


Catalogue RPCA-a-Int: Polyclonal Antibody to α -Internexin/NF66

The Immunogen: α -internexin is a Class IV intermediate filament originally discovered as it copurifies with other neurofilament subunits (1). 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. 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 other neurofilament subunits the presence of highly negatively charged sequences results in reduction of SDS-PAGE mobility.

Many classes of mature neurons contain α -internexin in addition to NF-L, NF-M and NF-H. In some mature neurons α -internexin is the only neurofilament subunit expressed. 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. Antibody to this protein show that α -internexin is an abundant component of the inclusions of neurofilament inclusion body disease (NFID), a serious human neurodegenerative disorder (3).

The antibody was raised against recombinant α -internexin expressed in and purified from *E. coli*, and is similar to but not identical with antibodies described in reference 4 below. The [HGNC](#) name for this protein is [INA](#).



Left: Western blot of whole rat spinal cord homogenate stained with RPCA-a-Int, at dilution of 1:20,000. A prominent band running at ~66 kDa is apparent, as well as smaller lower bands which are apparently degradation products. A minor band at ~150 kDa is also seen, apparently resulting from dimerization of α -internexin. **Right:** Mixed neuron-glia cultures stained with rabbit antibody to alpha-internexin (red) and chicken antibody to peripherin [CPCA-Peri](#) (green). The alpha internexin antibody stains numerous axonal and dendritic profiles in these cultures, while peripherin antibody binds to only a subset of neurons.

Antibody Characteristics: The antibody was raised against recombinant α -internexin expressed in and purified from *E. coli*, and is similar to but not identical with antibodies described in reference 3 below. The antibody is provided in the form of crude rabbit serum. Store at 4°C or -20°C. Avoid repeat freezing and thawing.

Suggestions for use: The serum can be diluted to 1:500-1,000 for immunofluorescence staining and 1:10,000 to 20,000 for western blotting. On western blots look for a major band at 64 to 66 kDa, depending on the species, the human protein being a little larger than that from rodents.

References:

1. Pachter, J and Liem, RKH. Alpha-Internexin, a 66-kD intermediate filament-binding protein from mammalian central nervous tissues. [J Cell Biol 101:1316-22 \(1985\)](#)
2. McGraw et al. Axonally transported peripheral signals regulate alpha-internexin expression in regenerating motoneurons. [J Neurosci 22:4955-63 \(2002\)](#)
3. Cairns NJ et al. alpha-internexin is present in the pathological inclusions of neuronal intermediate filament inclusion disease. [Am J Pathol. 164:2153-61 \(2004\)](#).
4. Evans J. et al. Characterization of mitotic neurons derived from adult rat hypothalamus and brain stem. [J. Neurophysiol. 87:1076-85 \(2002\)](#).

Limitations: This product is for research use only and is not approved for use in humans or in clinical diagnosis.

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