



NR3B (H-230): sc-50473

BACKGROUND

Glutamate receptors mediate most excitatory neurotransmission in the brain and play an important role in neural plasticity, neural development and neurodegeneration. Ionotropic glutamate receptors are categorized into NMDA receptors and kainate/AMPA receptors, both of which contain glutamate-gated, cation-specific ion channels. Kainate/AMPA receptors co-localize with NMDA receptors in many synapses and consist of seven structurally related subunits designated GluR-1 to 7. The kainate/AMPA receptors are primarily responsible for fast excitatory neurotransmission by glutamate, whereas the NMDA receptors exhibit slow kinetics of Ca^{2+} ions and a high permeability for Ca^{2+} ions. One such NMDA receptor, NR3B, is expressed in motor neurons and forms cation channels impermeable to calcium, which can resist many open-channel blockers. NR3B functions in the brain as an excitatory glycine receptor, modifying the normal role of glycine as an inhibitory neurotransmitter.

REFERENCES

- Andersson, O., et al. 2001. Nucleotide sequence, genomic organization and chromosomal localization of genes encoding the human NMDA receptor subunits NR3A and NR3B. *Genomics* 78: 178-184.
- Nishi, M., et al. 2001. Motoneuron-specific expression of NR3B, a novel NMDA-type glutamate receptor subunit that works in a dominant-negative manner. *J. Neurosci.* 21: RC185.
- Chatterton, J.E., et al. 2002. Excitatory glycine receptors containing the NR3 family of NMDA receptor subunits. *Nature* 415: 793-798.
- Matsuda, K., et al. 2003. Specific assembly with the NMDA receptor 3B subunit controls surface expression and calcium permeability of NMDA receptors. *J. Neurosci.* 23: 10064-10073.
- Ishihama, K., et al. 2005. Prenatal development of NMDA receptor composition and function in trigeminal neurons. *Arch. Histol. Cytol.* 68: 321-335.
- Salter, M.G., et al. 2005. NMDA receptors are expressed in developing oligodendrocyte processes and mediate injury. *Nature* 438: 1167-1171.
- Yamakura, T., et al. 2005. The NR3B subunit does not alter the anesthetic sensitivities of recombinant N-methyl-D-aspartate receptors. *Anesth. Analg.* 100: 1687-1692.
- Bendel, O., et al. 2005. Experimental subarachnoid hemorrhage induces changes in the levels of hippocampal NMDA receptor subunit mRNA. *Brain Res. Mol. Brain Res.* 137: 119-125.
- Fukaya, M. et al. 2005. NR2 to NR3B subunit switchover of NMDA receptors in early postnatal motoneurons. *Eur. J. Neurosci.* 21: 1432-1436.

CHROMOSOMAL LOCATION

Genetic locus: GRIN3B (human) mapping to 19p13.3; Grin3b (mouse) mapping to 10 C1.

SOURCE

NR3B (H-230) is a rabbit polyclonal antibody raised against amino acids 111-340 mapping within an N-terminal extracellular domain of NR3B of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

NR3B (H-230) is recommended for detection of NR3B of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1–2 μ g per 100–500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for NR3B siRNA (h): sc-62701.

Molecular Weight of NR3B: 100 kDa.

Positive Controls: motor neurons.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.