

# NMDA $\epsilon$ 4 (R-20): sc-31551

## 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 are co-localized 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 the fast excitatory neuro-transmission by glutamate, whereas the NMDA receptors exhibit slow kinetics of Ca<sup>2+</sup> ions and a high permeability for Ca<sup>2+</sup> ions. The NMDA receptors consist of five subunits:  $\epsilon$  1, 2, 3, 4 and one  $\zeta$  subunit. The  $\zeta$  subunit is expressed throughout the brainstem whereas the four epsilon subunits display limited distribution.

## REFERENCES

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- Stern, P., et al. 1992. Fast and slow components of unitary EPSCs on stellate cells elicited by focal stimulation in slices of rat visual cortex. *J. Physiol.* 449: 247-278.
- Bliss, T.V., et al. 1993. A synaptic model of memory: long-term potentiation in the hippocampus. *Nature* 361: 31-39.
- Watanabe, M., et al. 1994. Distinct distributions of five NMDA receptor channel subunit mRNAs in the brainstem. *J. Comp. Neurol.* 343: 520-531.
- Hollmann, M., et al. 1994. Cloned glutamate receptors. *Annu. Rev. Neurosci.* 17: 31-108.
- Schiffer, H.H., et al. 1997. Rat GluR7 and a carboxy-terminal splice variant, GluR7 $\beta$  are functional kainate receptor subunits with a low sensitivity to glutamate. *Neuron* 19: 1141-1146.

## CHROMOSOMAL LOCATION

Genetic locus: GRIN2D (human) mapping to 19q13.33; Grin2d (mouse) mapping to 7 B4.

## SOURCE

NMDA $\epsilon$ 4 (R-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an N-terminal extracellular domain of NMDA $\epsilon$ 4 of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-31551 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

NMDA $\epsilon$ 4 (R-20) is recommended for detection of the glutamate (NMDA) receptor epsilon 4 subtype of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

NMDA $\epsilon$ 4 (R-20) is also recommended for detection of the glutamate (NMDA) receptor epsilon 4 subtype in additional species, including bovine and porcine.

Suitable for use as control antibody for NMDA $\epsilon$ 4 siRNA (h): sc-36087, NMDA $\epsilon$ 4 siRNA (m): sc-36088, NMDA $\epsilon$ 4 shRNA Plasmid (h): sc-36087-SH, NMDA $\epsilon$ 4 shRNA Plasmid (m): sc-36088-SH, NMDA $\epsilon$ 4 shRNA (h) Lentiviral Particles: sc-36087-V and NMDA $\epsilon$ 4 shRNA (m) Lentiviral Particles: sc-36088-V.

Molecular Weight of NMDA $\epsilon$ 4: 157 kDa.

Positive Controls: MEG-01 cell lysate: sc-2283, HEL92.1.7 cell lysate: sc-2270 or IMR-32 cell lysate: sc-2409.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> 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](http://www.scbt.com) or our catalog for detailed protocols and support products.


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Try **NMDA $\epsilon$ 4 (G-10): sc-17822**, our highly recommended monoclonal alternative to NMDA $\epsilon$ 4 (R-20).