

# NMDA $\epsilon$ 1 (5): sc-136004

## 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 fast excitatory neurotransmission by glutamate, whereas the NMDA receptors exhibit slow kinetics of  $\text{Ca}^{2+}$  ions and a high permeability for  $\text{Ca}^{2+}$  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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- Nakanishi, S. 1992. Molecular diversity of glutamate receptors and implications for brain function. *Science* 258: 597-603.
- 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 GluR-7 and a carboxy-terminal splice variant, GluR-7 $\beta$  are functional kainate receptor subunits with a low sensitivity to glutamate. *Neuron* 19: 1141-1146.

## CHROMOSOMAL LOCATION

Genetic locus: Grin2a (mouse) mapping to 16 A1.

## SOURCE

NMDA $\epsilon$ 1 (5) is a mouse monoclonal antibody raised against amino acids 1093-1214 of NMDA $\epsilon$ 1 of mouse origin.

## PRODUCT

Each vial contains 50  $\mu\text{g}$  IgG<sub>1</sub> in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## 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. Not for resale.

## APPLICATIONS

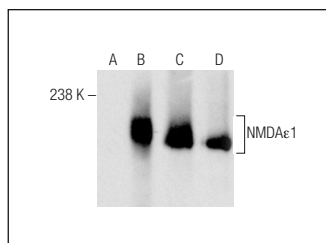
NMDA $\epsilon$ 1 (5) is recommended for detection of NMDA $\epsilon$ 1 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2  $\mu\text{g}$  per 100-500  $\mu\text{g}$  of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for NMDA $\epsilon$ 1 siRNA (m): sc-36084, NMDA $\epsilon$ 1 siRNA (r): sc-270157, NMDA $\epsilon$ 1 shRNA Plasmid (m): sc-36084-SH, NMDA $\epsilon$ 1 shRNA Plasmid (r): sc-270157-SH, NMDA $\epsilon$ 1 shRNA (m) Lentiviral Particles: sc-36084-V and NMDA $\epsilon$ 1 shRNA (r) Lentiviral Particles: sc-270157-V.

Molecular Weight of NMDA $\epsilon$ 1: 177 kDa.

Positive Controls: NMDA $\epsilon$ 1 (m): 293 Lysate: sc-179014, mouse brain extract: sc-2253 or mouse cerebellum extract: sc-2403.

## DATA



NMDA $\epsilon$ 1 (5): sc-136004. Western blot analysis of NMDA $\epsilon$ 1 expression in non-transfected: sc-110760 (A) and mouse NMDA $\epsilon$ 1 transfected: sc-179014 (B). 293 whole cell lysates and mouse brain (C) and mouse cerebellum (D) tissue extracts.

## SELECT PRODUCT CITATIONS

- Prickett, T.D., et al. 2014. Somatic mutation of GRIN2A in malignant melanoma results in loss of tumor suppressor activity via aberrant NMDAR complex formation. *J. Invest. Dermatol.* 134: 2390-2398.
- Prickett, T.D., et al. 2017. Genetic and functional analysis of GRIN2A in tumor samples. *Methods Mol. Biol.* 1677: 93-116.
- Schwenk, J., et al. 2019. An ER assembly line of AMPA-receptors controls excitatory neurotransmission and its plasticity. *Neuron* 104: 680-692.e9.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.