

NMDA ϵ 1 (E-4): sc-515148

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 Ca^{2+} ions and a high permeability for Ca^{2+} ions. The NMDA receptors consist of five subunits: ϵ 1, 2, 3, 4 and one ζ subunit. The ζ subunit is expressed throughout the brainstem whereas the four ϵ subunits display limited distribution.

CHROMOSOMAL LOCATION

Genetic locus: GRIN2A (human) mapping to 16p13.2; Grin2a (mouse) mapping to 16 A1.

SOURCE

NMDA ϵ 1 (E-4) is a mouse monoclonal antibody raised against amino acids 23-76 mapping within an extracellular domain of NMDA ϵ 1 of human origin.

PRODUCT

Each vial contains 200 μg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NMDA ϵ 1 (E-4) is available conjugated to agarose (sc-515148 AC), 500 μg /0.25 ml agarose in 1 ml, for IP; to HRP (sc-515148 HRP), 200 μg /ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515148 PE), fluorescein (sc-515148 FITC), Alexa Fluor® 488 (sc-515148 AF488), Alexa Fluor® 546 (sc-515148 AF546), Alexa Fluor® 594 (sc-515148 AF594) or Alexa Fluor® 647 (sc-515148 AF647), 200 μg /ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-515148 AF680) or Alexa Fluor® 790 (sc-515148 AF790), 200 μg /ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

NMDA ϵ 1 (E-4) is recommended for detection of NMDA ϵ 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μg per 100-500 μg 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 NMDA ϵ 1 siRNA (h): sc-36083, NMDA ϵ 1 siRNA (m): sc-36084, NMDA ϵ 1 siRNA (r): sc-270157, NMDA ϵ 1 shRNA Plasmid (h): sc-36083-SH, NMDA ϵ 1 shRNA Plasmid (m): sc-36084-SH, NMDA ϵ 1 shRNA Plasmid (r): sc-270157-SH, NMDA ϵ 1 shRNA (h) Lentiviral Particles: sc-36083-V, NMDA ϵ 1 shRNA (m) Lentiviral Particles: sc-36084-V and NMDA ϵ 1 shRNA (r) Lentiviral Particles: sc-270157-V.

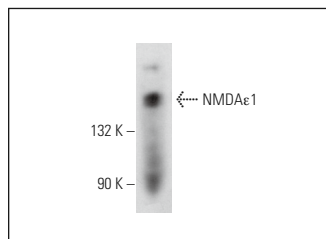
Molecular Weight of NMDA ϵ 1: 177 kDa.

Positive Controls: mouse brain extract: sc-2253.

STORAGE

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

DATA



NMDA ϵ 1 (E-4): sc-515148. Western blot analysis of NMDA ϵ 1 expression in mouse brain tissue extract.

SELECT PRODUCT CITATIONS

- Lee, Y., et al. 2018. Excessive D1 Dopamine receptor activation in the dorsal striatum promotes autistic-like behaviors. *Mol. Neurobiol.* 55: 5658-5671.
- Boondam, Y., et al. 2019. Inverted U-shaped response of a standardized extract of *Centella asiatica* (ECa 233) on memory enhancement. *Sci. Rep.* 9: 8404.
- Gruszczynska-Biegala, J., et al. 2020. STIM protein-NMDA2 receptor interaction decreases NMDA-dependent calcium levels in cortical neurons. *Cells* 9: 160.
- Soltani Zangbar, H., et al. 2021. Hippocampal neurodegeneration and rhythms mirror each other during acute spinal cord injury in male rats. *Brain Res. Bull.* 172: 31-42.
- Özgün, A., et al. 2021. Magnetic field-induced Ca^{2+} intake by mesenchymal stem cells is mediated by intracellular Zn^{2+} and accompanied by a Zn^{2+} influx. *Biochim. Biophys. Acta Mol. Cell Res.* 1868: 119062.
- Cigel, A., et al. 2021. Long term neuroprotective effects of acute single dose MK-801 treatment against traumatic brain injury in immature rats. *Neuropeptides* 88: 102161.
- Gómez, R., et al. 2021. NMDA receptor-BK channel coupling regulates synaptic plasticity in the barrel cortex. *Proc. Natl. Acad. Sci. USA* 118: e2107026118.
- Han, W.M., et al. 2023. NMDARs antagonist MK801 suppresses LPS-induced apoptosis and mitochondrial dysfunction by regulating subunits of NMDARs via the CaM/CaMKII/ERK pathway. *Cell Death Discov.* 9: 59.
- Guo, H., et al. 2024. Edaravone dextro-neo attenuates cognitive impairment in a rat model of vascular dementia by inhibiting hippocampal oxidative stress and inflammatory responses and modulating the NMDA receptor signaling pathway. *Brain Res.* 1833: 148917.

RESEARCH USE

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