NMDAε1 (D-8): sc-390094

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 kinesis 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

NMDAε1 (D-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 31-69 within an N-terminal extracellular domain of NMDAε1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-390094 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

NMDAε1 (D-8) is recommended for detection of NMDAε1 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 NMDAε1 siRNA (h): sc-36083, NMDAε1 siRNA (m): sc-36084, NMDAε1 siRNA (r): sc-270157, NMDAε1 shRNA Plasmid (h): sc-36083-SH, NMDAε1 shRNA Plasmid (m): sc-36084-SH, NMDAε1 shRNA Plasmid (r): sc-270157-SH, NMDAε1 shRNA (h) Lentiviral Particles: sc-36083-V, NMDAε1 shRNA (m) Lentiviral Particles: sc-36084-V and NMDAε1 shRNA (r) Lentiviral Particles: sc-270157-V.

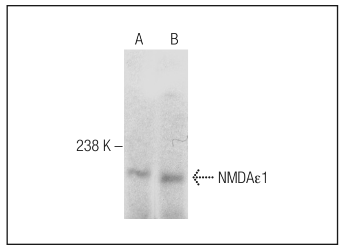
Molecular Weight of NMDAε1: 177 kDa.

Positive Controls: H4 cell lysate: sc-2408, mouse brain extract: sc-2253 or rat brain extract: sc-2392.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



NMDAε1 (D-8): sc-390094. Western blot analysis of NMDAε1 expression in rat brain (**A**) and mouse brain (**B**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Brai, E., et al. 2015. Notch1 regulates hippocampal plasticity through interaction with the Reelin pathway, glutamatergic transmission and CREB signaling. Front. Cell. Neurosci. 9: 447.
2. Banerjee, J., et al. 2017. Altered glutamatergic tone reveals two distinct resting state networks at the cellular level in hippocampal sclerosis. Sci. Rep. 7: 319.
3. Tevzadze, G., et al. 2020. Gut neurotoxin p-cresol induces differential expression of GLUN2B and GLUN2A subunits of the NMDA receptor in the hippocampus and nucleus accumbens in healthy and audiogenic seizure-prone rats. AIMS Neurosci. 7: 30-42.
4. Glavonic, E., et al. 2022. Sex-specific role of hippocampal NMDA-Erk-mTOR signaling in fear extinction of adolescent mice. Brain Res. Bull. 192: 156-167.
5. Raymundi, A.M., et al. 2022. Effects of δ-9 tetrahydrocannabinol on fear memory labilization and reconsolidation: a putative role of GluN2B-NMDA receptor within the dorsal hippocampus. Neuropharmacology 225: 109386.

RESEARCH USE

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

PROTOCOLS

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