SANTA CRUZ BIOTECHNOLOGY, INC.

NMDAζ1 (H-300): sc-9058

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 neurotransmission by glutamate, whereas the NMDA receptors exhibit slow kinetsis 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: GRIN1 (human) mapping to 9q34.3; Grin1 (mouse) mapping to 2 A3.

SOURCE

NMDAζ1 (H-300) is a rabbit polyclonal antibody raised against amino acids 19-318 mapping within an extracellular domain of NMDAζ1 of human origin.

PRODUCT

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

APPLICATIONS

NMDAζ1 (H-300) is recommended for detection of glutamate (NMDA) receptor subtype ζ 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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).

NMDAζ1 (H-300) is also recommended for detection of glutamate (NMDA) receptor subtype ζ 1 in additional species, including canine, bovine and avian.

Suitable for use as control antibody for NMDAζ1 siRNA (h): sc-36081, NMDAζ1 siRNA (m): sc-36082, NMDAζ1 shRNA Plasmid (h): sc-36081-SH, NMDAζ1 shRNA Plasmid (m): sc-36082-SH, NMDAζ1 shRNA (h) Lentiviral Particles: sc-36081-V and NMDAζ1 shRNA (m) Lentiviral Particles: sc-36082-V.

Molecular Weight of NMDAζ1: 115 kDa.

Positive Controls: mouse brain extract: sc-2253, mouse cerebellum extract: sc-2403 or BC_3H1 cell lysate: sc-2299.

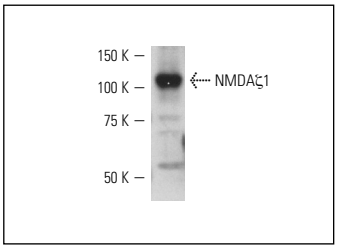
STORAGE

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.

DATA



NMDAζ1 (H-300): sc-9058. Western blot analysis of NMDAζ1 expression in mouse brain extract.

SELECT PRODUCT CITATIONS

1. Fernandez-Monreal, M., et al. 2004. Arginine 260 of the amino-terminal domain of NR1 subunit is critical for tissue-type plasminogen activator-mediated enhancement of N-methyl-D-aspartate receptor signaling. J. Biol. Chem. 279: 50850-50856.
2. Li, L., et al. 2007. Egr3, a synaptic activity regulated transcription factor that is essential for learning and memory. Mol. Cell. Neurosci. 35: 76-88.
3. Schlenker, E.H., et al. 2007. Comparison of NMDA modulation of breathing and NR1 expression in medullary nuclei of weanling male and female rats. Respir. Physiol. Neurobiol. 115: 203-212.
4. Henson, M.A., et al. 2008. Developmental regulation of the NMDA receptor subunits, NR3A and NR1, in human prefrontal cortex. Cereb. Cortex 18: 2560-2573.
5. Wang, H.Y., et al. 2009. Dissociating β-amyloid from α 7 nicotinic acetylcholine receptor by a novel therapeutic agent, S 24795, normalizes α 7 nicotinic acetylcholine and NMDA receptor function in Alzheimer's disease brain. J. Neurosci. 29: 10961-10973.
6. Borgmann-Winter, K.E., et al. 2009. Human olfactory epithelial cells generated *in vitro* express diverse neuronal characteristics. Neuroscience 158: 642-653.
7. Wang, H.Y., et al. 2011. Repetitive transcranial magnetic stimulation enhances BDNF-TrkB signaling in both brain and lymphocyte. J. Neurosci. 31: 11044-11054.
8. Xu, X., et al. 2011. Bisphenol-A rapidly enhanced passive avoidance memory and phosphorylation of NMDA receptor subunits in hippocampus of young rats. Toxicol. Appl. Pharmacol. 255: 221-228.
9. Wang, H.Y., et al. 2012. Reducing amyloid-related Alzheimer's disease pathogenesis by a small molecule targeting filamin A. J. Neurosci. 32: 9773-9784.
10. Xu, X., et al. 2013. Sex-specific effects of bisphenol-A on memory and synaptic structural modification in hippocampus of adult mice. Horm. Behav. 63: 766-775.