SANTA CRUZ BIOTECHNOLOGY, INC.

NMDAζ1 (F-10): sc-518053

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 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 epsilon subunits display limited distribution.

REFERENCES

1. Choi, D.W., et al. 1990. The role of glutamate neurotoxicity in hypoxic-ischemic neuronal death. Annu. Rev. Neurosci. 13: 171-182.
2. Nakanishi, S. 1992. Molecular diversity of glutamate receptors and implications for brain function. Science 258: 597-603.
3. 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.

CHROMOSOMAL LOCATION

Genetic locus: GRIN1 (human) mapping to 9q34.3; Grin1 (mouse) mapping to 2 A3.

SOURCE

NMDAζ1 (F-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 653-682 within an internal region of NMDAζ1 of human origin.

PRODUCT

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

NMDAζ1 (F-10) is available conjugated to agarose (sc-518053 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-518053 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518053 PE), fluorescein (sc-518053 FITC), Alexa Fluor® 488 (sc-518053 AF488), Alexa Fluor® 546 (sc-518053 AF546), Alexa Fluor® 594 (sc-518053 AF594) or Alexa Fluor® 647 (sc-518053 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-518053 AF680) or Alexa Fluor® 790 (sc-518053 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

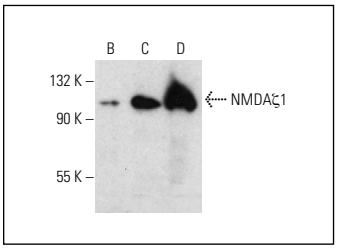
NMDAζ1 (F-10) is recommended for detection of NMDAζ1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 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 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: BC_3H1 cell lysate: sc-2299, U-87 MG cell lysate: sc-2411 or C6 whole cell lysate: sc-364373.

DATA



NMDAζ1 (F-10): sc-518053. Western blot analysis of NMDAζ1 expression in BC_3H1 (**A**), U-87 MG (**B**) and C6 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Jung, S., et al. 2021. Exercise pills for drug addiction: forced moderate endurance exercise inhibits methamphetamine-induced hyperactivity through the striatal glutamatergic signaling pathway in male sprague dawley rats. Int. J. Mol. Sci. 22: 8203.
2. Sánchez-Hernández, J., et al. 2022. Fructose ingestion modifies NMDA receptors and exacerbates the seizures induced by kainic acid. Neurosci. Lett. 772: 136476.
3. Yoshikawa, M., et al. 2022. Free d-amino acids in salivary gland in rat. Biology 11: 390.
4. 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.
5. Guo, H., et al. 2024. Edaravone dexborneol 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.