SANTA CRUZ BIOTECHNOLOGY, INC.

NMDAε2 (A-8): sc-365597

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. Lonotropic 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: GRIN2B (human) mapping to 12p13.1; Grin2b (mouse) mapping to 6 G1.

SOURCE

NMDAε2 (A-8) is a mouse monoclonal antibody raised against amino acids 27-76 mapping within an extracellular domain of NMDAε2 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.

NMDAε2 (A-8) is available conjugated to agarose (sc-365597 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365597 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365597 PE), fluorescein (sc-365597 FITC), Alexa Fluor® 488 (sc-365597 AF488), Alexa Fluor® 546 (sc-365597 AF546), Alexa Fluor® 594 (sc-365597 AF594) or Alexa Fluor® 647 (sc-365597 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365597 AF680) or Alexa Fluor® 790 (sc-365597 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

NMDAε2 (A-8) is recommended for detection of glutamate (NMDA) receptor subtype ε 2 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), immunohistochemistry (including paraffin-embedded sections) (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 NMDAε2 siRNA (h): sc-36085, NMDAε2 siRNA (m): sc-36086, NMDAε2 siRNA (r): sc-270104, NMDAε2 shRNA Plasmid (h): sc-36085-SH, NMDAε2 shRNA Plasmid (m): sc-36086-SH, NMDAε2 shRNA Plasmid (r): sc-270104-SH, NMDAε2 shRNA (h) Lentiviral Particles: sc-36085-V, NMDAε2 shRNA (m) Lentiviral Particles: sc-36086-V and NMDAε2 shRNA (r) Lentiviral Particles: sc-270104-V.

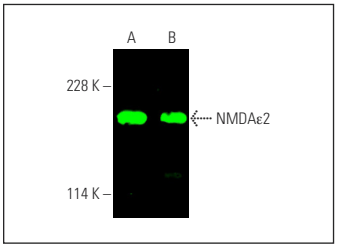
Molecular Weight of NMDAε2: 178 kDa.

Positive Controls: rat brain extract: sc-2392 or mouse brain extract: sc-2253.

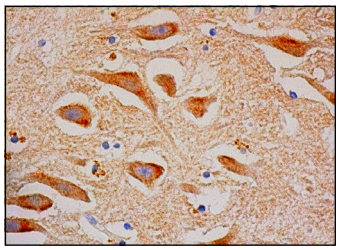
STORAGE

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

DATA



NMDAε2 (A-8): sc-365597. Near-infrared western blot analysis of NMDAε2 expression in rat brain (**A**) and mouse brain (**B**) tissue extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 680: sc-516180.



NMDAε2 (A-8): sc-365597. Immunoperoxidase staining of formalin fixed, paraffin-embedded human hippocampus tissue showing cytoplasmic staining of neuronal cells and glial cells

SELECT PRODUCT CITATIONS

1. Wang, S., et al. 2015. Hippocampal ischemia causes deficits in local field potential and synaptic plasticity. J. Biomed. Res. 29: 370-379.
2. Cao, Q., et al. 2018. Inhibition of acid sensing ion channel 3 aggravates seizures by regulating NMDAR function. Neurochem. Res. 43: 1227-1241.
3. Lai, T.K.Y., et al. 2019. The receptor-receptor interaction between mGluR1 receptor and NMDA receptor: a potential therapeutic target for protection against ischemic stroke. FASEB J. 33: 14423-14439.
4. Mehra, A., et al. 2020. Non-ionotropic action of endothelial NMDA receptors on blood-brain barrier permeability via Rho/ROCK mediated phosphorylation of Myosin. J. Neurosci. 40: 1778-1787.
5. Rzemieniec, J., et al. 2020. Neuroprotective effect of 3,3'-Diindolylmethane against perinatal asphyxia involves inhibition of the AhR and NMDA signaling and hypermethylation of specific genes. Apoptosis 25: 747-762.
6. Gómez, R., et al. 2021. NMDA receptor-BK channel coupling regulates synaptic plasticity in the barrel cortex. Proc. Natl. Acad. Sci. USA 118: e2107026118.
7. Rodríguez-Manzo, G., et al. 2021. Endocannabinoids released in the ventral tegmental area during copulation to satiety modulate changes in glutamate receptors associated with synaptic plasticity processes. Front. Synaptic Neurosci. 13: 701290.
8. Yang, X., et al. 2021. Transferrin-Pep63-liposomes accelerate the clearance of Aβ and rescue impaired synaptic plasticity in early Alzheimer's disease models. Cell Death Discov. 7: 256.

RESEARCH USE

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