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NMDA Receptor, NR1 Subunit Antibody
Mouse monoclonal antibody
Catalog # AN1050

Specification

NMDA Receptor, NR1 Subunit Antibody - Product Information

Application	**WB**
Primary Accession	P35439
Reactivity	**Mouse, Rat**
Host	**Mouse**
Clonality	**monoclonal**
Calculated MW	**120 KDa**

NMDA Receptor, NR1 Subunit Antibody - Additional Information

Gene ID	**24408**
Gene Name	**GRIN1**

Other Names
Glutamate receptor ionotropic, NMDA 1, GluN1, Glutamate [NMDA] receptor subunit zeta-1, N-methyl-D-aspartate receptor subunit NR1, NMD-R1, Grin1, Nmdar1

Target/Specificity
Fusion protein containing amino acids 1-564 of the NR1 subunit.

Dilution
WB~~ 1:1000

Format
Culture supernatant

Antibody Specificity
Specific for the ~120k NR1 subunit of the NMDA receptor.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions
NMDA Receptor, NR1 Subunit Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

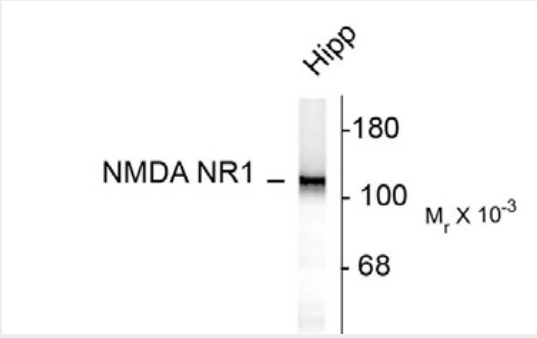
Shipping
Blue Ice

NMDA Receptor, NR1 Subunit Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

NMDA Receptor, NR1 Subunit Antibody - Images



Western blot of 10 ug of rat hippocampal (Hipp) lysate showing specific immunolabeling of the ~120k NR1 subunit of the NMDA receptor.

NMDA Receptor, NR1 Subunit Antibody - Background

The ion channels activated by glutamate are typically divided into two classes. Glutamate receptors that are activated by kainate and α-amino-3-hydroxy-5-methyl-4-isoxalone propionic acid (AMPA) are known as kainate/AMPA receptors (K/AMPAR). Those that are sensitive to N-methyl-D-aspartate (NMDA) are designated NMDA receptors (NMDAR). The NMDAR plays an essential role in memory, neuronal development and it has also been implicated in several disorders of the central nervous system including Alzheimer's, epilepsy and ischemic neuronal cell death (Grosshans et al., 2002; Wenthold et al., 2003; Carroll and Zukin, 2002). The NMDA receptor is also one of the principal molecular targets for alcohol in the CNS (Lovinger et al., 1989; Alvestad et al., 2003; Snell et al., 1996). The NMDAR is also potentiated by protein phosphorylation (Lu et al., 1999). The rat NMDAR1 (NR1) was the first subunit of the NMDAR to be cloned. The NR1 protein can form NMDA activated channels when expressed in Xenopus oocytes but the currents in such channels are much smaller than those seen in situ. Channels with more physiological characteristics are produced when the NR1-subunit is combined with one or more of the NMDAR2 (NR2 A-D) subunits.

NMDA Receptor, NR1 Subunit Antibody - References

Alvestad RM, Grosshans DR, Coultrap SJ, Nakazawa T, Yamamoto T, Browning MD (2003) Tyrosine dephosphorylation and ethanol inhibition of N-methyl-D-aspartate receptor function. J Biol Chem 278:11020-11025.
Carroll RC, Zukin RS (2002) NMDA-receptor trafficking and targeting: implications for synaptic transmission and plasticity. Trends Neurosci 25:571-577.
Grosshans DR, Clayton DA, Coultrap SJ, Browning MD (2002) LTP leads to rapid surface expression of NMDA but not AMPA receptors in adult rat CA1. Nat Neurosci 5:27-33.
Lovinger DM, White G, Weight FF (1989) Ethanol inhibits NMDA-activated ion current in hippocampal neurons. Science 243:1721-1724.
Lu W-Y, Xiong Z-G, Lei S, Orser BA, Browning MD, MacDonald JF (1999) G-protein coupled receptors act via protein kinase C and Src to regulate NMDA receptors. Nature Neurosci 2:331-338.

Snell LD, Nunley KR, Lickteig RL, Browning MD, Tabakoff B, Hoffman PL (1996) Regional and subunit specific changes in NMDA receptor mRNA and immunoreactivity in mouse brain following chronic ethanol ingestion. Mol Brain Res 40:71-78.
Wenthold RJ, Prybylowski K, Standley S, Sans N, Petralia RS (2003) Trafficking of NMDA receptors. Annu Rev Pharmacol Toxicol 43:335-358.
Li JH, Wang YH, Wolfe BB, Krueger KE, Corsi L, Stocca G, Vicini S (1998) Developmental changes in localization of NMDA receptor subunits in primary cultures of cortical neurons. Eur J Neurosci. 10(5):1704-15.
Kurtis D. Davies, Susan M. Goebel-Goody, Steven J. Coultrap, and Michael D. Browning (2008) Long Term Synaptic
Depression That Is Associated with GluR1 Dephosphorylation but Not -Amino-3-hydroxy-5-methyl-4-isoxazolepropionic Acid (AMPA) Receptor Internalization J. Biol. Chem., 283: 33138 - 33146.
Guohua Zhang, Yuanlin Dong, Bin Zhang, Fumito Ichinose, Xu Wu, Deborah J. Culley, Gregory Crosby, Rudolph E.
Tanzi, and Zhongcong Xie (2008) Isoflurane-Induced Caspase-3 Activation Is Dependent on Cytosolic Calcium
and Can Be Attenuated by Memantine J. Neurosci., 4551 - 4560.
Tianna R. Hicklin, Peter H. Wu, Richard A. Radcliffe, Ronald K. Freund, Susan M. Goebel-Goody, Paulo R. Correa, William R. Proctor, Paul J. Lombroso, and Michael D. Browning (2011) Alcohol inhibition of the NMDA receptor function, long-term potentiation, and fear learning requires striatal-enriched protein tyrosine phosphatase PNAS, Apr 2011; 108: 6650 - 6655.
Note: Dr. Michael Browning, a co-author of four of the cited papers, is President and founder of PhosphoSolutions.
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