Anti-Phospho Ser^{1244} NMDA Receptor, NR2C Subunit

Catalog Number: SY-p1518-1244 **Size**: 100 µl $375.00

Product Description: Affinity purified rabbit polyclonal antibody

Applications: **WB**: 1:1000

Antigen: Synthetic phospho-peptide surrounding the phospho Ser^{1244} of the NR2C-subunit of rat NMDA receptor.

Species reactivity: The antibody has been directly tested for reactivity in Western blots with mouse and rat tissue. It is also expected that the antibody will react with bovine, canine, human and non-human primates as these species have 100% homology with the amino acid sequence used as antigen.

Biological Significance: The ion channels activated by glutamate 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 NR2C subunit of the receptor is thought to influence the NMDAR conductance level (Ebralidze et al., 1996). Phosphorylation of Ser^{1244} has been shown to regulate NMDA receptor channel function (Chen et al., 2006).

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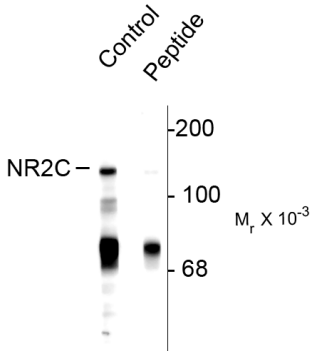

Western blot of rat cerebellum lysate showing specific immunolabeling of the ~140k NR2C subunit of the NMDA receptor phosphorylated at Ser^{1244}. The phosphospecificity is shown in the second lane where immunoreactivity is blocked by preadsorption with the phospho-peptide (Peptide) used as antigen but not by the dephosphopeptide (not shown).

Purification Method: Prepared from rabbit serum by affinity purification via sequential chromatography on phospho- and dephosphopeptide affinity columns.

Antibody Specificity: Specific for the ~140k NR2C subunit of the NMDA receptor phosphorylated at Ser^{1244}. Immunolabeling is blocked by preadsorption of antibody with the

WB = Western Blot **IF** = Immunofluorescence **IHC** = Immunohistochemistry **IP** = Immunoprecipitation
Packaging: 100 µl in 10 mM HEPES (pH 7.5), 150 mM NaCl, 100 µg per ml BSA and 50% glycerol. Adequate amount of material to conduct 10-mini Western Blots.
Storage and Stability: For long term storage –20°C is recommended. Stable at –20°C for at least 1 year.
Shipment: Domestic - Blue Ice; International - Dry Ice.

phospho-peptide that was used to generate the antibody but not by the corresponding dephospho-peptide.

Quality Control Tests: Western blots performed on each lot.

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.

Ebralidze AK, Rossi DJ, Tonegawa S, Slater NT (1996) Modification of NMDA receptor channels and synaptic transmission by targeted disruption of the NR2C gene. J Neurosci 16:5014-5025.

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.

Chen B, Braud S, Badger JD, Isaac, JTR, Roche, KW (2006) Regulation of NR1/NR2C N-Methyl-D-aspartate (NMDA) receptors by phosphorylation. J Biol Chem 281:16583-16590.

Note: Dr. Michael Browning, a co-author of four of the cited papers, is President and founder of PhosphoSolutions.

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