Anti-Phospho-Tyr^{1252} NMDA Receptor NR2B Subunit

Catalog Number: SY-p1516-1252 **Size:** 100 µl $375.00

Product Description: Affinity purified rabbit polyclonal antibody

Applications: **WB**: 1:1000 **IHC:** 1:400

Antigen: Phosphopeptide corresponding to amino acid residues surrounding the phospho-Tyr^{1252} of the NR2B subunit of the rat NMDA receptor.

Species reactivity: The antibody has been directly tested for reactivity in Western blots with rat tissue. It is anticipated that the antibody will react with bovine, canine, chicken, human, mouse, non-human primate and zebra fish based on the fact that these species have 100% homology with the amino acid sequence used as antigen.

Biological Significance: The NMDA receptor (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 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 (Ishii et al., 1993). Phosphorylation of Tyr^{1252} is thought to potentiate NMDA receptor-dependent influx of calcium (Takasu et al., 2002).

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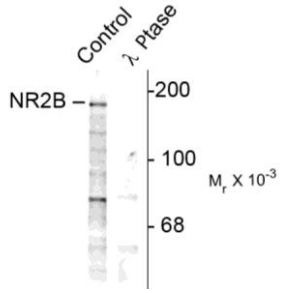

Western blot of rat hippocampal lysate showing specific immunolabeling of the ~180k NR2B subunit of the NMDAR phosphorylated at Tyr^{1252} (Control). The phosphospecificity of this labeling is shown in the second lane (*lambda*-phosphatase: λ-Ptase). The blot is identical to the control except that it was incubated in λ-Ptase (1200 units for 30 min) before being exposed to the phospho-Tyr^{1252} NMDA NR2B subunit antibody. The immunolabeling is completely eliminated by treatment with λ-Ptase.

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: Store at –20°C; stable for at least one year.
Shipment: Domestic - Blue Ice; International - Dry Ice.

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

Antibody Specificity: Specific for ~180k NMDAR NR2B subunit protein phosphorylated at Tyr^{1252}. Immunolabeling of the NMDA NR2B subunit band is blocked by the phosphopeptide used as the antigen but not by the corresponding dephosphopeptide. Immunolabeling is also blocked by λ-phosphatase treatment. The antibody may also show some slight reactivity with Tyr^{1246} of NR2A.

Quality Control Tests: Western blots performed on each lot.

References:

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.

Ishii T, Moriyoshi K, Sugihara H, Sakurada K, Kadotani H, Yokoi M, Akazawa C, Shigemoto R, Mizuno N, Masu M, Nakanishi S (1993) Molecular characterization of the family of the N-methyl- D-aspartate receptor subunits. J Biol Chem 268:2836-2843.

Takasu, MA, Dalva, MB, Zigmond, RE, Greenberg, ME (2002) Modulation of NMDA Receptor -Dependent Calcium Influx and Gene Expression Through EphB Receptors. Science 295:491-495.

Wenthold RJ, Prybylowski K, Standley S, Sans N, Petralia RS (2003) Trafficking of NMDA receptors. Annu Rev Pharmacol Toxicol 43:335-358.

Note: Dr. Michael Browning, a coauthor of one of the cited papers, is President and founder of PhosphoSolutions.

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