



PhosphoSolutions®
Antibodies that work™

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Anti-Phospho-Tyr¹³³⁶ NMDA Receptor NR2B Subunit

Catalog Number: p1516-1336

Size: 100 µl

Product Description: Affinity purified rabbit polyclonal antibody

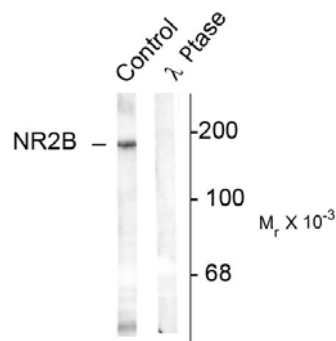
Applications: **WB:** 1:1000 **IHC:** 1:400

Antigen: Phosphopeptide corresponding to amino acid residues surrounding the phospho-Tyr¹³³⁶ 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 human, mouse and non-human primate tissues based on the fact that these species have 100% homology with the amino acid sequence used as antigen.

Biological Significance: 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 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 Tyr¹³³⁶ is thought to potentiate NMDA receptor-dependent influx of calcium (Takasu et al., 2002) and ischemia may also increase the phosphorylation of this site (Takagi et al., 2003).

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Western blot of rat hippocampal lysate showing specific immunolabeling of the ~180k NR2B subunit of the NMDAR phosphorylated at Tyr¹³³⁶ (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-Tyr¹³³⁶ NMDA NR2B antibody. The immunolabeling is completely eliminated by treatment with λ-Ptase.

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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 - Blue Ice or 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 Tyr¹³³⁶. Immunolabeling of the NMDAR NR2B subunit band is blocked by λ -phosphatase treatment.

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.
- Tatyana Chernova, Joern R. Steinert, Christopher J. Guerin, Pierluigi Nicotera, Ian D. Forsythe, and Andrew G. Smith (2007) Neurite Degeneration Induced by Heme Deficiency Mediated via Inhibition of NMDA Receptor-Dependent Extracellular Signal-Regulated Kinase 1/2 Activation *J. Neurosci.*, 27: 8475 - 8485.

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

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