**Qty.** 100 µg/200 µl
Mouse anti-NMDAR1
**Catalog No.** 32-0500
**Lot No.**

# Mouse anti-NMDA Receptor Subunit 1

## FORM
The antibody is supplied as a 200 µl aliquot at a concentration of 0.5 mg/ml in PBS, pH 7.4, containing 0.1% sodium azide. This monoclonal antibody is highly purified from mouse ascites by protein A chromatography.

**CLONE:** 54.1[1] **ISOTYPE:** $IgG_{2a}$

## IMMUNOGEN
Fusion protein containing sequence from the intracellular loop between transmembrane regions III and IV of NMDAR1.

## SPECIFICITY
This antibody specifically recognizes the ~103 kDa NMDAR1 protein. Cross-reactivity with other NMDA receptor proteins has not been observed.

## REACTIVITY
This antibody reacts with human, mouse, rat, and monkey NMDAR1.

| Sample | ELISA | Immuno-staining (vibratome sections) | Western Blotting |
|---|---|---|---|
| Human | | + | + |
| Mouse | | + | not tested |
| Rat | | +[2] | + |
| Monkey | | + | + |
| Immunogen | + | | |

## USAGE[1]
Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

**ELISA:** 0.1-1 µg/ml
**Immunostaining[2]:** 5 µg/ml
**Western Blotting:** 1-5 µg/ml

Reactivity of this antibody in applications other than those named here has not been evaluated.

## STORAGE
Store at 2-8°C for up to one month. Store at –20°C for long term storage. Avoid repeated freezing and thawing.

(cont'd)

## BACKGROUND

N-methyl-D-Aspartate (NMDA) type receptors are glutamate-activated calcium channels that play central roles in brain function and disease. Activation of NMDA receptors leads to elevations in synaptic calcium levels, initiating a series of calcium dependent signaling events including activation of nitric oxide synthase and stimulation of calcium/calmodulin dependent protein kinase, and MAP kinase cascades. Through these signal transduction pathways, NMDA receptors mediate both synaptic plasticity and learning and memory.

NMDA receptors are composed of multiple subunits. The subunits are thought to co-assemble in different combinations to form functionally distinct NMDA receptors. All receptors contain an NR1 subunit and various numbers of NR2 subunits. NR2b is the major subunit expressed in adult forebrain. NR2 is also a major component of the postsynaptic density in hippocampus and cerebral cortex. The NR1 subunit is encoded by a single gene, which undergoes extensive alternative splicing to generate eight different splice forms. The NR2 subunit class consists of four genes encoding the subunits NR2A-NR2D.

In addition to mediating diverse aspects of synaptic physiology, NMDA receptors also play a major role in neurodegenerative diseases. Overactivity of NMDA receptors in implicated in numerous neurodegenerative processes including stroke, Alzheimer's disease, Huntington's chorea, and amyotrophic lateral sclerosis.

## APPLICATION REFERENCE

1. Siegal, et al., *Proc. Natl. Acad. Sci*. (USA) 91:564 (1994).
2. Weiss, S., et al., *Journal of Neuroscience*, 18(5): 1725-1734 (1998).

## GENERAL REFERENCE

1. Dingledine R, et al. The glutamate receptor ion channels. Pharmacol Rev. 51(1):7-61 (1999).
2. Ziff EB. Recent excitement in the ionotropic glutamate receptor field. Ann N Y Acad Sci. 868:465-73 (1999).
3. Sucher, N. J., et al., NMDA receptors: from genes to channels. Trends Pharmacol. Sci. 17, 348-355 (1996).

## RELATED PRODUCTS

| *Product* | *Clone/PAD** | *Cat. No.* |
|---|---|---|
| Rb x NMDA NR1 splice variant N1 | -- | 51-4300 |
| Rb x NMDA NR1 splice variant C1 | -- | 51-4400 |
| Rb x NMDA NR1 splice variant C2 | -- | 51-4500 |
| Rb x NMDA NR1 splice variant C2" | -- | 51-4600 |
| Rb x NMDA-Receptor 1 | 2NR2 | 51-3600 |
| Ms x NMDA-Receptor 1A + 1D | 5C4 | 32-0800 |
| Ms x NMDA-Receptor 2A | A3-2D10 | 32-0600 |
| Ms x NMDA-Receptor 2B | B3-13B11 | 32-0700 |
| Rb x NMDA Receptor 2B | 2K11 | 71-8600 |
| Ms x GluR1, 2 and 3 | 2D8 | 32-0100 |
| Ms x GluR2 and 4 | 3A11 | 32-0200 |
| Ms x GluR3 | 3B3 | 32-0400 |
| Rb x mGluR4 | ZTS4 | 51-3100 |
| Ms x Glutamate Transporter EAAC1 | 35-A9 | 32-1000 |
| Ms x α-CaM Kinase II | CBα-2 | 13-7300 |
| Ms x β-CaM Kinase II | CBβ-1 | 13-9800 |
| Rb x Glycine Receptor | -- | 51-5300 |
| Ms x Nitrotyrosine | HM11 | 32-1900 |
| Rb x Synapsin-1 | -- | 51-5200 |
| Rb x Synaptophysin | Z66 | 18-0130 |
| Ms x Tyrosine Hydroxylase | 1hy1 | 32-2100 |
| Ms x Ubiquitin | Ubi-1 | 13-1600 |

*Polyclonal Antibody Designation

| Conjugate | ZyMAX™ Goat x Rabbit IgG (H+L) | ZyMAX™ Goat x Mouse IgG (H+L) |
|---|---|---|
| Unconjugated | 81-6100 | 81-6500 |
| FITC | 81-6111 | 81-6511 |
| TRITC | 81-6114 | 81-6514 |
| Cy™3 | 81-6115 | 81-6515 |
| Cy™5 | 81-6116 | 81-6516 |
| HRP | 81-6120 | 81-6520 |
| AP | 81-6122 | 81-6522 |
| Biotin | 81-6140 | 81-6540 |



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