abcam

ab28373

Anti-NMDAR2B antibody [NR2B]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	Preservative: 0.05% Sodium azide Constituents: PBS, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Rat Grin2b aa 900 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link Q00960
Clone number	NR2B
Purification technique	Affinity purification Protein A
Specificity	Detects the N-methyl-D-aspartate (NMDA) receptor type 2B. This antibody has been tested in mouse and rat brain in western blotting. It has not been tested in human for Western blotting - only for ICC on transfected HEK cells.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Protein A Chromatography

Reactivity data

ICC

Expected

Species	Mouse, Rat, Human

Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1-2 µg for 10^6 Cells
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	2 µg/mL
Notes	-

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.

Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/10 - 1/100
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

Target data

See full target information Grin2b

Function	Component of N-methyl-D-aspartate (NMDA) receptors (NMDARs) that function as heterotetrameric, ligand-gated cation channels with high calcium permeability and voltage-dependent block by Mg(2+) (PubMed:11929923, PubMed:19910922, PubMed:21677647, PubMed:24607230, PubMed:24876489, PubMed:27135925, PubMed:7524561). Participates in synaptic plasticity for learning and memory formation by contributing to the long-term depression (LTD) of hippocampus membrane currents (By similarity). Channel activation requires binding of the

neurotransmitter L-glutamate to the GluN2 subunit, glycine or D-serine binding to the GluN1 subunit, plus membrane depolarization to eliminate channel inhibition by Mg(2+) (PubMed:11929923, PubMed:19910922, PubMed:21677647, PubMed:24607230, PubMed:24876489, PubMed:27135925, PubMed:7524561). NMDARs mediate simultaneously the potassium efflux and the influx of calcium and sodium (By similarity). Each GluN2 subunit confers differential attributes to channel properties, including activation, deactivation and desensitization kinetics, pH sensitivity, Ca2(+) permeability, and binding to allosteric modulators (PubMed:10436042, PubMed:11929923, PubMed:24607230, PubMed:9463421). In concert with DAPK1 at extrasynaptic sites, acts as a central mediator for stroke damage (By similarity). Its phosphorylation at Ser-1303 by DAPK1 enhances synaptic NMDA receptor channel activity inducing injurious Ca2+ influx through them, resulting in an irreversible neuronal death (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	NMDAR2B also known as NR2B or GluN2B functions as a subunit of the NMDA receptor complex. It plays a role in synaptic transmission and plasticity in the central nervous system. The target weighs approximately 166 kDa. It is highly expressed in the cerebral cortex hippocampus and striatum. NMDAR2B interacts with other subunits in the NMDA receptor which assemble to form a functional ion channel that allows for calcium ion influx when activated by glutamate and glycine.
Biological function summary	The NMDAR2B subunit contributes to the regulation of synaptic strength and is essential for processes involved in learning and memory. As part of the NMDA receptor complex it mediates excitatory neurotransmission and is involved in synaptic plasticity processes such as long-term potentiation (LTP). These functions are significant for cognitive function and neural development. The receptor's role in signal transduction is aided by the unique properties conferred by the NMDAR2B subunit such as its high affinity for glycine and slower deactivation kinetics.
Pathways	NMDAR2B is involved in the glutamatergic signaling pathway which is important for neural communication. It also participates in the calcium signaling pathway

affecting cellular responses to external stimuli. The protein interacts with CaMKII and PSD-95 which are proteins that influence synaptic strength and architecture through these pathways. Its involvement links it to a variety of signaling events important for brain function.

Associated diseases and disorders

Alterations in NMDAR2B have been associated with neurodegenerative conditions such as Alzheimer's disease and neurodevelopmental disorders like schizophrenia. The protein's malfunction can lead to abnormal synaptic connectivity and excitotoxicity. It is linked to other proteins associated with these diseases such as beta-amyloid in Alzheimer's and dopamine receptor dysregulation in schizophrenia indicating its role in disease progression and symptom manifestation.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

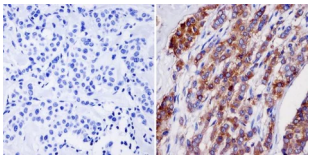
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

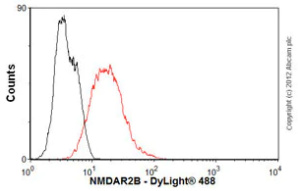
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-NMDAR2B antibody [NR2B] (ab28373)

NMDAR2B Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-NMDAR2B antibody

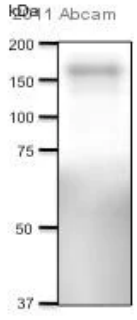
ab28373 staining NMDAR2B in Human breast tissue sections (right) compared with negative control (left) by Immunohistochemistry (IHC-P - paraformaldehyde-fixed, paraffin-embedded sections). Tissue was fixed with paraformaldehyde and blocked with 3% H2O2-methanol for 15 minutes at room temperature; antigen retrieval was by heat mediation in a sodium citrate buffer. Samples were incubated with primary antibody (1/20) overnight at 4°C. A HRP-conjugated secondary antibody was used for detection.



Flow Cytometry - Anti-NMDAR2B antibody [NR2B] (ab28373)

NMDAR2B Flow Cytometry staining using mouse Anti-NMDAR2B antibody

Overlay histogram showing SH-SY5Y cells stained with ab28373 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab28373, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in SH-SY5Y cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



This image is courtesy of an anonymous customer review

Western blot - Anti-NMDAR2B antibody [NR2B] (ab28373)

Samples were incubated with primary antibody for 12 hours at 4°C.
Blocked with 5% milk for 1 hour at 22°C.

All lanes:
Western blot - Anti-NMDAR2B antibody [NR2B] (ab28373) at 1/500 dilution

All lanes:
Rat P14 Cortex Lysate, vesicular fraction at 5 µg

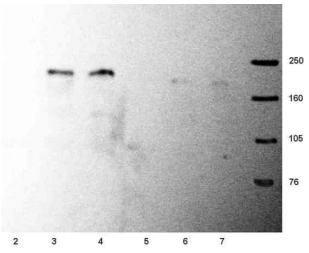
Secondary

All lanes:
HRP conjugated Donkey anti-mouse IgG at 1/15000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 166 kDa



Western blot - Anti-NMDAR2B antibody [NR2B] (ab28373)

Lanes 2 - 4:
Western blot - Anti-NMDAR2B antibody [NR2B] (ab28373) at 1/500 dilution

Lanes 5 - 7:
Western blot - Anti-NMDAR2B antibody [NR2B] (ab28373) at 1/1000 dilution

Lanes 3 and 6:
Mouse brain (50ug)

Lanes 4 and 7:

Rat brain (50ug)

Predicted band size: 166 kDa



Western blot - Anti-NMDAR2B antibody [NR2B] (ab28373)

All lanes:
Western blot - Anti-NMDAR2B antibody [NR2B] (ab28373) at 2 µg/mL

All lanes:
mouse brain tissue

Predicted band size: 166 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.