abcam

ab133477

Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032]

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR5032
Purification technique	Affinity purification Protein A
Specificity	This antibody does not cross-react with Human GRIA1, GRIA3 and GRIA4.
Concentration	0.865 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Mouse
Dilution info	1/70

Notes	-

Expected

Species	Human
Dilution info	-
Notes	-

Species	Rat
Dilution info	1/70
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/80
Notes	-

Expected

Species	Mouse
Dilution info	-
Notes	-

Species	Rat
Dilution info	1/80
Notes	-

WB

Tested

Species	Rat
Dilution info	1/5000

Notes	-

Species	Mouse
Dilution info	1/5000
Notes	-

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

IHC-P

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Target data

See full target information GRIA2

Function

Ionotropic glutamate receptor that functions as a ligand-gated cation channel, gated by L-glutamate and glutamatergic agonists such as alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA), quisqualic acid, and kainic acid (PubMed:20614889, PubMed:31300657, PubMed:8003671). L-glutamate acts as an excitatory neurotransmitter at many synapses in the central nervous system and plays an important role in fast excitatory synaptic transmission (PubMed:14687553). Binding of the excitatory neurotransmitter L-glutamate induces a conformation change, leading to the opening of the cation channel, and thereby converts the chemical signal to an electrical impulse upon entry of monovalent and divalent cations such as sodium and calcium (PubMed:20614889, PubMed:8003671). The receptor then desensitizes rapidly and enters in a transient inactive state, characterized by the presence of bound agonist (By similarity). In the presence of CACNG4 or CACNG7 or CACNG8, shows resensitization which is characterized by a delayed accumulation of current flux upon continued application of L-glutamate (By similarity). Through complex formation with NSG1, GRIP1 and STX12 controls the intracellular fate of AMPAR and the endosomal sorting of the GRIA2 subunit toward recycling and membrane targeting (By similarity).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Stable for 12 months at -20°C

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

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

Activity summary	Ionotropic glutamate receptor 2 (GluR2) also known as GRIA2 plays an important role in synaptic transmission. It belongs to the family of ionotropic glutamate receptors and these receptors function as ligand-gated ion channels. GluR2 has a molecular weight of approximately 98 kDa. You will find GluR2 widely expressed in the central nervous system where it forms an essential part of excitatory neurotransmission processes. It influences how neurons respond to glutamate a principal excitatory neurotransmitter.
Biological function summary	Ion channels like GluR2 contribute to the regulation of synaptic plasticity. GluR2 often forms heteromeric complexes with other AMPA receptor subunits like GluR1 GluR3 and GluR4. These combinations determine the calcium permeability of the receptor complex which has implications for synaptic strength and plasticity. Such properties make GluR2 vital for memory formation and learning given its role in modifying synaptic responses based on neural activity.

Pathways	GluR2 engages significantly in synaptic signaling pathways. It takes part in the AMPA receptor trafficking pathway which dictates its movement to and from the synaptic membrane. GluR2 along with its related proteins like GRIA1 controls the flow of ions that are important for neurotransmission. Another important pathway involving GluR2 is the regulation of excitatory postsynaptic potentials. This function links GluR2 to various cellular processes that respond to neural activity changes.
Associated diseases and disorders	GluR2 is linked to neurodegenerative disorders such as amyotrophic lateral sclerosis (ALS) and Alzheimer's disease. Mutations or malfunctions in GluR2-related pathways may lead to dysfunctional neurotransmission which can contribute to such conditions. Additionally abnormal GluR2 expression has connections to GRIA1 in epilepsy where changes in receptor composition affect neuronal excitability. Understanding GluR2 interactions in these contexts could provide valuable insights into therapeutic strategies.

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

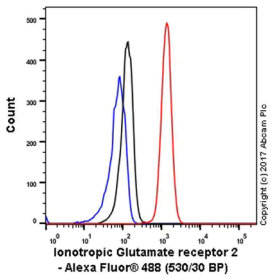
We do not recommend this combination. It is not covered by our product promise.

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.

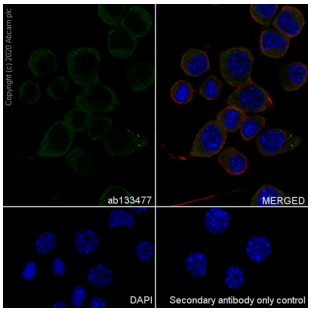
7 product images



Flow Cytometry (Intracellular) - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477)

Ionotropic Glutamate receptor 2 Flow Cytometry (Intracellular) staining using rabbit Anti-Ionotropic Glutamate receptor 2 antibody

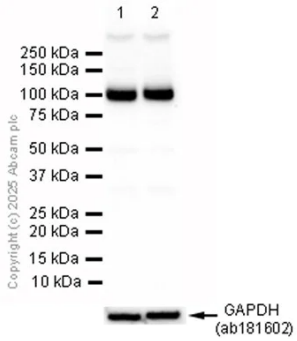
Intracellular Flow Cytometry analysis of SH-SY5Y (Human neuroblastoma epithelial cell) cells labeling Ionotropic Glutamate receptor 2 (red) with ab133477 at a 1/200 dilution. Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. A goat anti-rabbit IgG (Alexa Fluorr® 488) (ab150077) was used as the secondary antibody at a 1/2000 dilution. Black - Rabbit monoclonal IgG (Black) (ab172730). Blue (unlabeled control) - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunocytochemistry/ Immunofluorescence - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477)

Ionotropic Glutamate receptor 2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Ionotropic Glutamate receptor 2 antibody

Immunocytochemistry analysis of Neuro-2a (Mouse neuroblastoma neuroblast) cells labeling Ionotropic Glutamate receptor 2 with purified ab133477 at 1/70 dilution (10 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/mL) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Western blot - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477)

Ionotropic Glutamate receptor 2 Western blot staining using rabbit Anti-Ionotropic Glutamate receptor 2 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
In Western blot, Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) staining at 1/1000000 dilution.

Exposure time: ab133477: 20s, ab181602: 60s.

All lanes:
Western blot - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477) at 1/5000 dilution

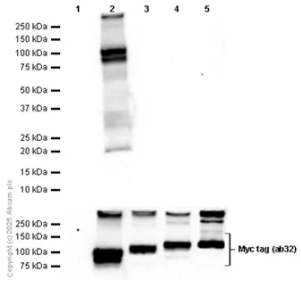
Lane 1:
Mouse brain tissue whole cell lysate at 20 µg

Lane 2:
Rat brain tissue whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 100 kDa



Western blot - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477)

Ionotropic Glutamate receptor 2 Western blot staining using rabbit Anti-Ionotropic Glutamate receptor 2 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
In Western blot, Anti-Myc tag antibody [9E10] - Loading Control (ab32) staining at 1/10000 dilution.

This antibody does not cross-react with Human GRIA1, GRIA3 and GRIA4.

Exposure time: ab133477: 20s, ab32: 80s.

All lanes:
Western blot - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477) at 1/5000 dilution

Lane 1:
293T transfected with an empty vector (vector control), containing a myc-His-tag®, whole cell lysate at 20 µg

Lane 2:
293T transfected with Human fragment GRIA2 expression vector containing a c-term myc-His-tag®, whole cell lysate at 20 µg

Lane 3:
293T transfected with Human full length GRIA3 expression vector containing a n-term myc-His-tag®, whole cell lysate at 20 µg

Lane 4:

293T transfected with human full length GRIA4 expression vector containing a c-term myc-His-tag®, whole cell lysate at 20 µg

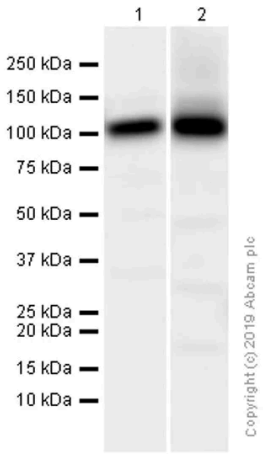
Lane 5:
Recombinant Human full length GRIA1 Protein containing a C-Myc/DDK tag at 100 ng

Secondary

Lanes 1 - 5:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Lanes 1 - 5:
Goat anti-mouse IgG (H+L), Peroxidase conjugated at 1/10000 dilution

Observed band size: 100 kDa



Western blot - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477)

All lanes:
Western blot - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477) at 1/5000 dilution

Lane 1:
Human hypothalamus lysate at 15 µg

Lane 2:
Human midbrain lysate at 15 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 98 kDa

b

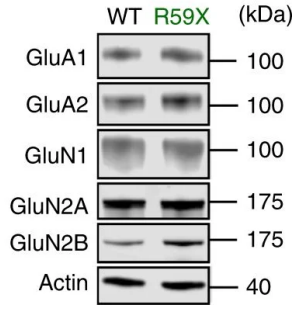


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Western blot - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477)

Ionotropic Glutamate receptor 2 Western blot staining using rabbit Anti-Ionotropic Glutamate receptor 2 antibody

Western Blotting using Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032], ab133477. Publication image from Zhou, Z. et al., 2019, Nat Commun, 31201320. Legend direct from paper.

R59X mice have an upregulation of NMDA receptors at the postsynaptic membrane. a Schematic of the R59X nonsense mutation at arginine 59, which results in early truncation of the catalytic domain of CDKL5. b Representative western blot results for several major ionotropic glutamate receptor subunits from postsynaptic density membrane fractions. Samples are from pairs of WT and R59X littermates. c–g R59X mice show a selective increase in level of GluN2B, a major subunit of the NMDA receptor (WT, n = 8 mice; R59X, n = 8 mice; unpaired t-test or Mann–Whitney test). Full-scan western blots of all samples are available in Supplemental Fig. 6. Source data are provided as a Source Data file

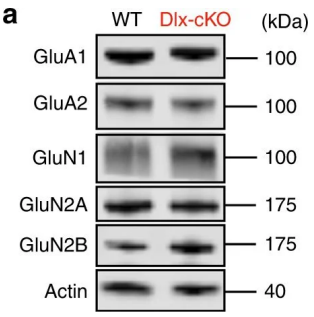


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Western blot - Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032] (ab133477)

Ionotropic Glutamate receptor 2 Western blot staining using rabbit Anti-Ionotropic Glutamate receptor 2 antibody

Western Blotting using Anti-Ionotropic Glutamate receptor 2 antibody [EPR5032], ab133477. Publication image from Zhou, Z. et al., 2019, Nat Commun, 31201320. Legend direct from paper.

Dlx-cKO mice have an upregulation of NMDA receptors at the postsynaptic membrane. a Representative western blot results for several major ionotropic glutamate receptor subunits from postsynaptic density membrane fractions. Samples are from pairs of WT and Dlx-cKO littermates. b–f Dlx-cKO mice show a selective increase in levels of GluN1 and GluN2B, two of the major subunits that compose the NMDA receptor (WT, n = 10 mice; Dlx-cKO, n = 10 mice; unpaired t-test or Mann–Whitney test). Full-scan western blots of all samples are available in Supplemental Fig. 6. *p < 0.05. Source data are provided as a Source Data file

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