abcam

ab249939

Anti-Gephyrin antibody [EPR12651(B)] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR12651(B)
Purification technique	Affinity purification Protein A
Concentration	1.022 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Rat, Human, Mouse
Dilution info	-

Notes	-

IP

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

IHC-P

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-

Notes	-

Expected

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

Target data

See full target information GPHN

Function	Microtubule-associated protein involved in membrane protein-cytoskeleton interactions. It is thought to anchor the inhibitory glycine receptor (GLYR) to subsynaptic microtubules (By similarity). Acts as a major instructive molecule at inhibitory synapses, where it also clusters GABA type A receptors (PubMed:25025157, PubMed:26613940). Also has a catalytic activity and catalyzes two steps in the biosynthesis of the molybdenum cofactor. In the first step, molybdopterin is adenylated. Subsequently, molybdate is inserted into adenylated molybdopterin and AMP is released.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab249939 is the carrier-free version of ab177154.

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.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	Gephyrin also known as GPHN is a multifunctional protein integral to synaptic transmission. Weighing approximately 93 kDa it facilitates the anchoring of inhibitory neurotransmitter receptors at postsynaptic sites. This protein is expressed primarily in central nervous system tissues including the brain and spinal cord. Gephyrin performs its mechanical role by forming a scaffold to maintain GABAergic and glycinergic receptors' proper positioning and function.
Biological function summary	Gephyrin's function extends beyond receptor clustering. It plays a part in the larger postsynaptic density complex. This scaffolding capability allows gephyrin to organize inhibitory synapses critical for maintaining neuronal excitability and plasticity. The protein contributes by tethering receptors to the cytoskeleton which stabilizes synaptic structures and allows dynamic interactions with other proteins in the synapse.
Pathways	Gephyrin interacts with the inhibitory signaling pathway. This pathway includes important proteins like GABA receptors and glycine receptors which mediate inhibitory synaptic transmission in the central nervous system. Gephyrin's interactions facilitate the formation of gephyrin clusters which influence synaptic inhibition by crosslinking with tubulin and microtubules significantly impacting neuronal signaling.
Associated diseases and disorders	Disruptions in gephyrin function link to neurological conditions such as epilepsy and schizophrenia. Mutations or alterations in gephyrin expression affect receptor clustering which impacts synapse formation and can result in dysfunctional neural networks. In schizophrenia gephyrin associates with other synaptic proteins such as neuroligin and neurexins indicating potential contributions to synaptic abnormalities seen in the disorder.

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

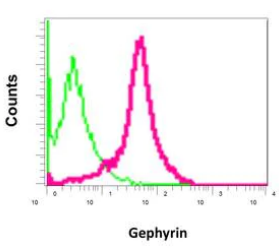
We do not recommend this combination. It is not covered by our product promise.

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.

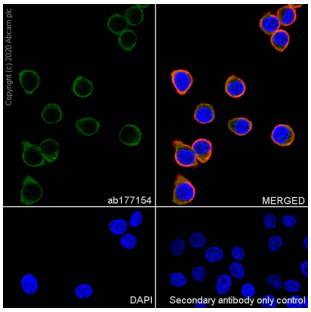
5 product images



Flow Cytometry (Intracellular) - Anti-Gephyrin antibody [EPR12651(B)] - BSA and Azide free (ab249939)

Gephyrin Flow Cytometry (Intracellular) staining using rabbit Anti-Gephyrin antibody

This data was developed using ab177154, the same antibody clone in a different buffer formulation.
Intracellular flow cytometric analysis of permeabilized 293T cells labeling Gephyrinwith ab177154 at 1/10 dilution (red), or a rabbit IgG (negative) (green).

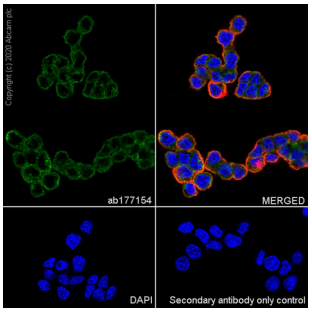


Immunocytochemistry/ Immunofluorescence - Anti-Gephyrin antibody [EPR12651(B)] - BSA and Azide free (ab249939)

Gephyrin Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Gephyrin antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized Jurkat cells labelling Gephyrin with ab177154 at 1/100 dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (2 µg/mL) (Green). Confocal image showing cytoplasmic staining in Jurkat cell line. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (2.5 µg/mL) (Red). The nuclear counterstain was DAPI (Blue).
Secondary antibody only control: PBS instead of the primary antibody.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab177154).

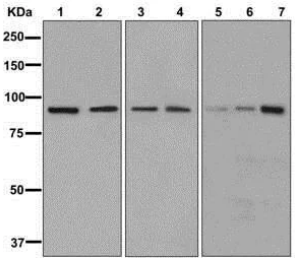


Immunocytochemistry/ Immunofluorescence - Anti-Gephyrin antibody [EPR12651(B)] - BSA and Azide free (ab249939)

Gephyrin Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Gephyrin antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized PC-12 cells labelling Gephyrin with ab177154 at 1/100 dilution, followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (2 µg/mL) (Green). Confocal image showing cytoplasmic staining in PC-12 cell line. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (2.5 µg/mL) (Red). The nuclear counterstain was DAPI (Blue).
Secondary antibody only control: PBS instead of the primary antibody.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab177154).



Western blot - Anti-Gephyrin antibody [EPR12651(B)] - BSA and Azide free (ab249939)

Gephyrin Western blot staining using rabbit Anti-Gephyrin antibody

This data was developed using ab177154, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-Gephyrin antibody [EPR12651(B)] - BSA and Azide free (ab249939) at 1/1000 dilution

Lane 1:
Human fetal brain lysate at 10 µg

Lane 2:
293T lysate at 10 µg

Lane 3:
SH-SY5Y lysate at 10 µg

Lane 4:
Jurkat lysate at 10 µg

Lane 5:
C6 lysate at 10 µg

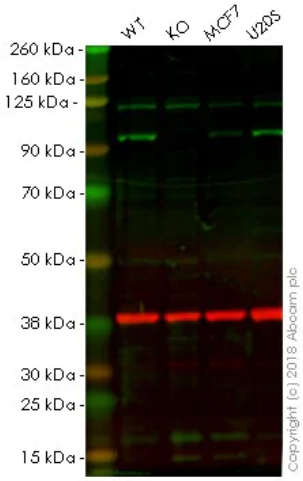
Lane 6:
Raw264.7 lysate at 10 µg

Lane 7:
PC-12 lysate at 10 µg

Secondary

All lanes:
Goat anti-rabbit HRP at 1/2000 dilution

Predicted band size: 80 kDa



Western blot - Anti-Gephyrin antibody [EPR12651(B)] - BSA and Azide free (ab249939)

Gephyrin Western blot staining using rabbit Anti-Gephyrin antibody

This data was developed using ab177154, the same antibody clone in a different buffer formulation.

Lanes 1 - 4: Merged signal (red and green). Green - ab177154 observed at 90 kDa. Red - loading control, ab9484, observed at 37 kDa.

ab177154 was shown to recognize Gephyrin in wild-type HAP1 cells as signal was lost at the expected MW in GPHN (Gephyrin) knockout cells. Additional cross-reactive bands were observed in the wild-type and knockout cells. Wild-type and GPHN (Gephyrin) knockout samples were subjected to SDS-PAGE. ab177154 and ab9484 (Mouse anti-GAPDH loading control) were incubated overnight at 4°C at 1 µg/ml and 1/20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed ab216773 and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed ab216776 secondary antibodies at 1/20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-Gephyrin antibody [EPR12651(B)] - BSA and Azide free (ab249939) at 1 µg/mL

Lane 1:
Wild-type HAP1 whole cell lysate at 20 µg

Lane 2:
GPHN (Gephyrin) knockout HAP1 whole cell lysate at 20 µg

Lane 3:
MCF7 whole cell lysate at 20 µg

Lane 4:
U2OS whole cell lysate at 20 µg

Predicted band size: 80 kDa

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