abcam

ab75810

Anti-GAP43 antibody [EP890Y] - Neuronal Marker

Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810) is a rabbit monoclonal antibody detecting GAP43 in **Western Blot, Flow Cytometry (Intra), IP, IHC-P, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 80 publications
- Trusted since 2009

Lab Essentials | 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	EP890Y
Purification technique	Affinity purification Protein A
Concentration	0.23 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/3000
Notes	**For unpurified use at 1/500.** Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/3000
Notes	**For unpurified use at 1/500.** Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/3000
Notes	**For unpurified use at 1/500.** Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

IP

Tested

Species	Human
Dilution info	1/20 - 1/50
Notes	-

Expected

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

WB

Tested

Species	Rat
Dilution info	1/1000

Notes	**For unpurified use at 1/100000 - 1/200000.** The expression of GAP43 is undetectable in undifferentiated PC-12 cells in Western Blot (Ref: PMID: 2139463, PMID: 15969743)

Species	Human
Dilution info	1/1000
Notes	**For unpurified use at 1/100000 - 1/200000.** The expression of GAP43 is undetectable in undifferentiated PC-12 cells in Western Blot (Ref: PMID: 2139463, PMID: 15969743)

Expected

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

ICC/IF

Tested

Species	Mouse
Dilution info	1/160
Notes	**For unpurified use at 1/500.**

Species	Human
Dilution info	1/160
Notes	**For unpurified use at 1/500.**

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information GAP43

Function	This protein is associated with nerve growth. It is a major component of the motile 'growth cones' that form the tips of elongating axons. Plays a role in axonal and dendritic filopodia induction.

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	Avoid freeze / thaw cycle

Notes

What is this antibody validated in?
Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunoprecipitation (IP), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of GAP43?
Anti-GAP43 [EP890Y] - Neuronal Marker (ab75810) specifically detects a band for GAP43 (UniProt: P17677) at a molecular weight of 25kDa.

Trusted by the scientific community
Anti-GAP43 [EP890Y] - Neuronal Marker (ab75810) was first used in a scientific publication in 2009 and has been cited over 80 times in peer-reviewed journals.

Reviewed by scientists
Anti-GAP43 [EP890Y] - Neuronal Marker (ab75810) has over 5 independent reviews from customers.

Other related products
We have a range of other formats of antibody clone [EP890Y] also available for your convenience: ab75810, Alexa Fluor® 488 - ab196324, HRP - ab196325, Alexa Fluor® 647 - ab196540, PE - ab208745, Carrier free - ab219582

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	GAP43 commonly called Growth Associated Protein 43 or neuronal marker is a protein with a molecular weight of approximately 25-50 kDa. Researchers identify it by various names including GAP-43 GAP43 anticuerpo or GAP43 neuronal marker. This protein exhibits a specific presence in the nervous system especially in axons of neurons. It has significant expression during neural development and regeneration indicating its role in growth and repair.
Biological function summary	GAP43 plays an important role in neurite outgrowth and synaptic plasticity. It functions as an important mediator of signal transduction in neurons. GAP43 does not act alone but integrates into a network of signaling pathways that guide axonal elongation and branching. It works closely with cytoskeletal elements influencing the structural dynamics needed for effective neuronal response and adaptation.

Pathways	GAP43 is vital in the regulation of the protein kinase C pathway and the cAMP pathway both essential for neuronal growth and differentiation. It closely interacts with proteins such as calmodulin which binds to GAP43 and impacts its function in those pathways. These interactions highlight its role in the modulation of neuronal growth and synaptic plasticity making it essential for neurons' response to environmental signals.
Associated diseases and disorders	GAP43 associates with neurodegenerative diseases and cognitive disorders particularly Alzheimer's disease and schizophrenia. Changes in GAP43 expression levels correlate with the severity and progression of these conditions. Additionally GAP43 connects to other proteins implicated in such diseases like tau in Alzheimer's suggesting a multifaceted involvement in disease mechanisms. This makes it a target of interest for therapeutic research as modulating GAP43 activity might alter disease progression.

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

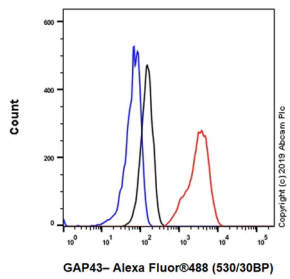
We do not recommend this combination. It is not covered by our product promise.

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.

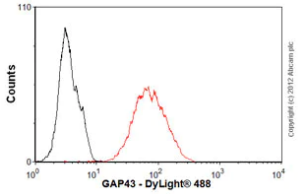
13 product images



Flow Cytometry (Intracellular) - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Flow Cytometry (Intracellular) staining using rabbit Anti-GAP43 antibody

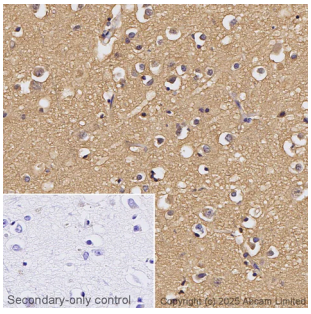
Intracellular Flow Cytometry analysis of SH-SY5Y (Human neuroblastoma epithelial cell) cells labeling GAP43 with Purified ab75810 at 1/20 dilution (10 µg/ml) (Red). Cells were fixed with 80% Methanol and permeabilised with 0.1% Tween-20. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Flow Cytometry (Intracellular) - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Flow Cytometry (Intracellular) staining using rabbit Anti-GAP43 antibody

Overlay histogram showing SH-SY5Y cells stained with ab75810 (unpurified) (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 (ab75810, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) (ab96899) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1µg/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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of human Alzheimer's brain tissue using rabbit Anti-GAP43 antibody

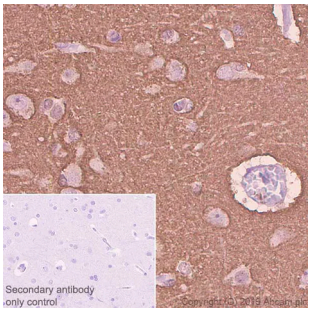
Immunohistochemical analysis of paraffin-embedded human Alzheimer's brain tissue* labelling GAP43 with ab75810 at 1ug/ml followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).
Positive staining in human Alzheimer's brain.

The section was incubated with ab75810 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval with sodium citrate buffer (pH 6.0 epitope retrieval solution1) for 20 mins.

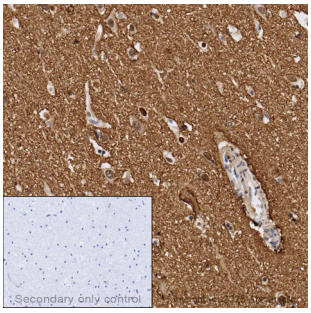
*Tissue obtained from the Human Research Tissue Bank, supported by the NIHR Cambridge Biomedical Research Centre.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GAP43 antibody

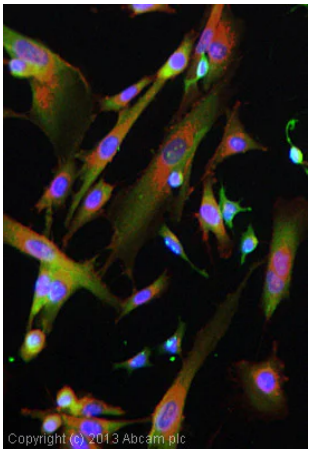
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human cerebrum tissue sections labeling GAP43 with Purified ab75810 at 1:3000 dilution (0.07 µg/ml). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used for detection. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human cerebrum using rabbit Anti-GAP43 antibody

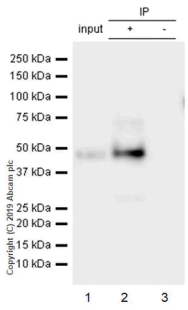
Immunohistochemical analysis of formalin fixed paraffin embedded human cerebrum labelling GAP43 with ab75810 at a concentration of 0.1µg/ml. The immunostaining was performed on a Ventana DISCOVERY ULTRA (Roche Tissue Diagnostics) instrument with a OptiView DAB IHC Detection Kit. Heat mediated antigen retrieval was performed with DISCOVERY cell conditioning solution (CC1) 100°C, pH8.5 for 32 mins. ab75810 anti-GAP43 antibody [EP890Y] was incubated for 16 mins at 37°C. Sections were counterstained with Hematoxylin II. Image inset shows absence of staining in secondary antibody only control.
Customers are encouraged to optimise antigen retrieval conditions, antibody concentration, incubation times and temperature for best results in their own IHC assay workflow (automated and manual).



Immunocytochemistry/ Immunofluorescence - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-GAP43 antibody

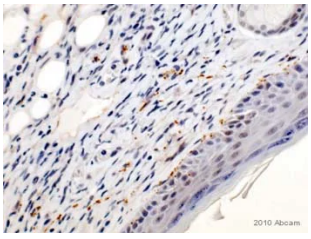
ICC/IF image of ab75810 (unpurified) stained SKNSH cells. The cells were 100% methanol fixed (5 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab75810, 1/50 dilution) overnight at +4°C. The secondary antibody (green) was ab96899, DyLight® 488 goat anti-rabbit IgG(H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.



Immunoprecipitation - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

ab75810 (Purified) at 1:20 dilution (1 µg) immunoprecipitating GAP43 in SH-SY5Y whole cell lysate.
Lane 1 (input): SH-SY5Y (Human neuroblastoma epithelial cell) whole cell lysate 10 µg
Lane 2 (+): ab75810 & SH-SY5Y whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab75810 in SH-SY5Y whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab75810)
All lanes:
Immunoprecipitation - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

Predicted band size: 24 kDa, 45 kDa

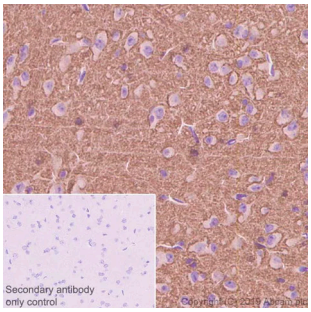


This image is a courtesy of anonymous customer review.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GAP43 antibody

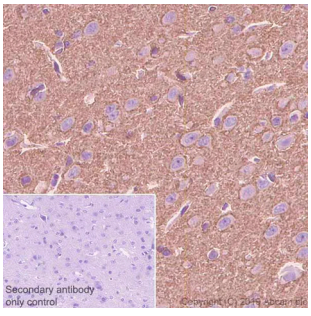
ab75810 (unpurified) staining GAP43 in Mouse ear tissue sections by Immunohistochemistry (Formalin/ PFA-fixed paraffin-embedded tissue sections). The sections were formaldehyde fixed, subjected to heat mediated antigen retrieval at pH 6 and blocked for 10 minutes at 25C. The primary antibody was diluted 1/500 and incubated with the sample for 1 hour at 25°C. An HRP polymer anti-rabbit IgG system was used undiluted, as the secondary antibody.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GAP43 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse cerebrum tissue sections labeling GAP43 with Purified ab75810 at 1:3000 dilution (0.07 µg/ml). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used for detection. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.

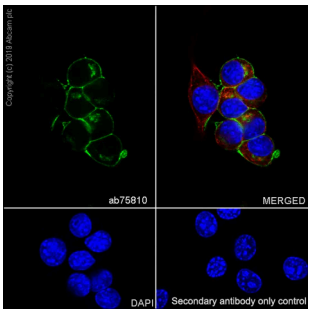


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GAP43 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat cerebrum tissue sections labeling GAP43 with Purified ab75810 at 1:3000 dilution (0.07 µg/ml). Heat

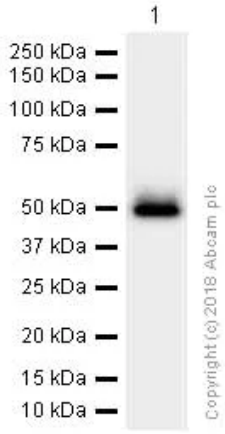
mediated antigen retrieval using Bond© Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used for detection. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunocytochemistry/ Immunofluorescence - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

GAP43 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-GAP43 antibody

Immunocytochemistry/ Immunofluorescence analysis of Neuro-2a (Mouse neuroblastoma neuroblast) cells labeling GAP43 with Purified ab75810 at 1:160 dilution (1.4 µg/ml). Cells were fixed in 100% Methanol and permeabilized with None. 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-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

All lanes:
Western blot - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810) at 1/50000 dilution

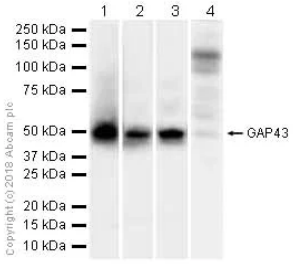
All lanes:
SH-SY5Y (Human neuroblastoma epithelial cell) whole cell lysates at 15 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 24 kDa

Observed band size: 48 kDa



Western blot - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

This antibody fails to detect GAP43 in PC-12 cells which is positve as described in PMID: 21695168
All lanes:
Western blot - Anti-GAP43 antibody [EP890Y] - Neuronal Marker (ab75810)

Lane 1:
Human brain lysates at 20 µg

Lane 2:
Mouse brain lysates at 20 µg

Lane 4:
PC-12 (Rat adrenal gland pheochromocytoma) whole cell lysates at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 24 kDa

Observed band size: 48 kDa

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