abcam

ab108404

Anti-Calbindin antibody [EP3478]

Anti-Calbindin antibody [EP3478] (ab108404) is a rabbit monoclonal antibody detecting Calbindin in **Western Blot, Flow Cytometry (Intra), IHC-P, IHC-Fr, ICC/IF, mIHC**. Suitable for **Human, Mouse, Rat**.

- Multiplex IHC validated on the Leica BOND® MAX using Opal reagents
- Biophysical QC for unrivalled batch-batch consistency
- Over 20 publications

Recombinant | RabMAb | Advanced Validation | 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	EP3478
Purification technique	Affinity purification Protein A
Concentration	1.34 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

mIHC

Tested

Species	Human
Dilution info	1/1000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Expected

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

IP

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

WB

Tested

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

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

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

ICC/IF

Tested

Species	Mouse
Dilution info	1/150
Notes	**For unpurified use at 1/100**

Expected

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

IHC-Fr

Tested

Species	Mouse
Dilution info	1/500
Notes	We do not guarantee IHC-Fr for human

Species	Rat
Dilution info	1/500
Notes	We do not guarantee IHC-Fr for human

Not recommended

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/150

Notes	-

Expected

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

IHC-P

Tested

Species	Human
Dilution info	1/1000
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. We do not guarantee IHC-P for mouse and rat. **For unpurified use at 1/100 - 1/250.** Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Mouse
Dilution info	-
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. We do not guarantee IHC-P for mouse and rat. **For unpurified use at 1/100 - 1/250.** Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	-
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. We do not guarantee IHC-P for mouse and rat. **For unpurified use at 1/100 - 1/250.** Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Target data

See full target information CALB1

Function	Buffers cytosolic calcium. May stimulate a membrane Ca(2+)-ATPase and a 3',5'-cyclic nucleotide phosphodiesterase.

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Storage information	Stable for 12 months at -20°C

Notes

What is this antibody validated in?
Anti-Calbindin antibody [EP3478] (ab108404) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunohistochemistry (IHC-P), Immunohistochemistry (IHC-Fr), Immunocytochemistry/immunofluorescence (ICC/IF), Multiplex IHC (mIHC) in Human, Mouse, Rat samples.

What is the molecular weight of Calbindin?
Anti-Calbindin [EP3478] (ab108404) specifically detects a band for Calbindin (UniProt: P05937) at a molecular weight of 30kDa.

Trusted by the scientific community
Anti-Calbindin [EP3478] (ab108404) was first used in a scientific publication in 2011 and has been cited over 20 times in peer-reviewed journals.

Other related products
We have a range of other formats of antibody clone [EP3478] also available for your convenience: ab108404, Alexa Fluor® 647 - ab207528, Alexa Fluor® 488 - ab208377, Carrier free - ab233018, PE - ab303059, APC - ab303060, HRP - ab303061, Alkaline Phosphatase - ab308740, Alexa Fluor® 594 - ab310455, Alexa Fluor® 555 - ab311984, Alexa Fluor® 568 - ab312459, Alexa Fluor® 750 - ab320901

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.

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	Calbindin also known as calbindin-D28k is a calcium-binding protein with a molecular mass of approximately 28 kDa. This target is mainly expressed in the neurons of the brain such as in the cerebellum and hippocampus as well as in the kidneys and intestine. Calbindin plays a mechanical role in binding and buffering intracellular calcium ions which is important for the regulation of calcium-dependent signaling pathways. Researchers often use techniques like Calbindin IHC (immunohistochemistry) and ELISA to study its distribution and presence within tissues.
Biological function summary	Calbindin contributes to cellular homeostasis by managing intracellular calcium levels. It does not appear to be part of a larger protein complex but operates independently. This protein helps to protect neurons from calcium overload potentially safeguarding against excitotoxicity which occurs when neurons die from excessive stimulation. Calbindin's function as a calcium buffer is of particular importance in maintaining neuron function and survival in areas with high neuronal activity.
Pathways	Calbindin has a significant role in the calcium signaling pathway and is also involved in the vitamin D pathway. The calcium signaling pathway is vital for many cellular processes like muscle contraction neurotransmitter release and gene expression. The vitamin D pathway regulates calcium and phosphate homeostasis in the body. Calbindin's relationship with proteins such as calmodulin and parvalbumin both involved in calcium regulation highlights its importance in maintaining cellular functions.
Associated diseases and disorders	Abnormal Calbindin expression has been observed in conditions like epilepsy and Parkinson's disease. In epilepsy its decreased expression can impact the ability of neurons to regulate calcium properly leading to increased vulnerability to seizures. In Parkinson's disease altered Calbindin levels have been associated with the selective vulnerability of dopamine neurons. These diseases highlight the connection between Calbindin and proteins like alpha-synuclein known for its role in Parkinson's pathology emphasizing the need to understand its contribution to disease mechanisms.

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

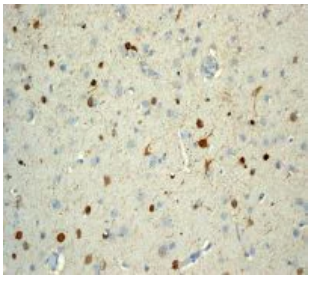
We do not recommend this combination. It is not covered by our product promise.

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.

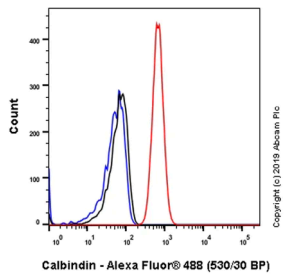
14 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calbindin antibody [EP3478] (ab108404)

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

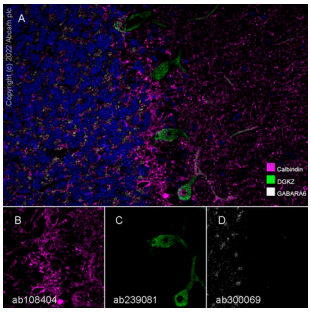
ab108404, at 1/100 dilution, staining Calbindin in paraffin-embedded Human brain tissue by Immunohistochemistry.



Flow Cytometry (Intracellular) - Anti-Calbindin antibody [EP3478] (ab108404)

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

Intracellular Flow Cytometry analysis of SH-SY5Y (Human neuroblastoma epithelial cell) cells labeling Calbindin with purified ab108404 at 1/150 dilution (10 µg/ml) (red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. 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).



Multiplex immunohistochemistry - Anti-Calbindin antibody [EP3478] (ab108404)

Calbindin Multiplex immunohistochemistry staining of Human cerebellum using rabbit Anti-Calbindin antibody

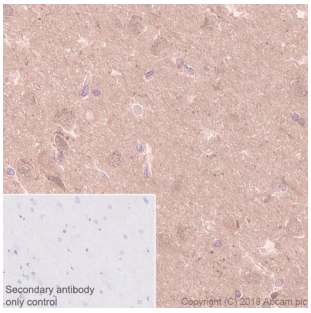
Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded Human cerebellum staining of Calbindin with ab108404 at a 1/1000 dilution, DGKZ/DGK-zeta with ab239081 at 1/5000 dilution, and GABA A Receptor alpha 6 with ab300069 at a 1/500 dilution, followed by a ready to use secondary antibody Opal Polymer HRP Ms + Rb.

Panel A: merged staining of anti-GABA A Receptor alpha 6 (gray; Opal™690), anti-DGKZ/DGK-zeta (green; Opal™520) and anti-Calbindin (magenta; Opal™570) on human cerebellum.
Panel B: anti-Calbindin stained on all layers of cerebellum.
Panel C: anti-DGKZ/DGK-zeta stained on Purkinje cells.
Panel D: anti-GABA A Receptor alpha 6 stained on the granular layer.
Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab300069, ab239081, and ab108404 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

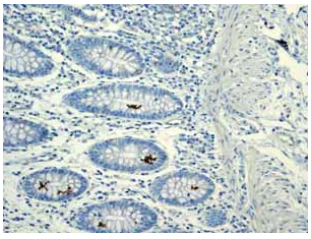
The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calbindin antibody [EP3478] (ab108404)

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

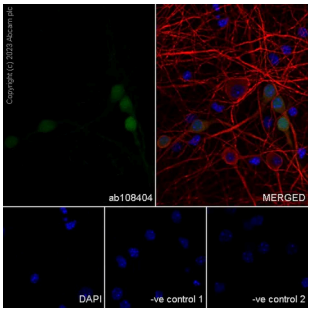
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of Human cerebrum tissue sections labeling Calbindin with purified ab108404 at 1/1000 dilution (1.49 µg/ml). Perform heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0). ImmunoHistoProbe one step HRP Polymer (ready to use) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calbindin antibody [EP3478] (ab108404)

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

ab108404 showing negative staining in Normal colon tissue.



Immunocytochemistry/ Immunofluorescence - Anti-Calbindin antibody [EP3478] (ab108404)

Calbindin Immunocytochemistry/ Immunofluorescence staining of Mouse hippocampal primary neural/glia cell using rabbit Anti-Calbindin antibody

Immunofluorescent analysis was performed on 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized mouse hippocampal primary neural/glia cells labelling Calbindin with ab108404 at 1/250 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) secondary antibody (ab150077) at dilution of 1/1000 (green).

Anti-MAP2 antibody [HM-2] (ab11267) at 1/1000 dilution was used as a counterstain, with Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed as the secondary antibody (ab150120) at dilution of 1/1000 (red).

Negative control 1: Anti-Calbindin (ab108404) at 1/250 dilution with Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed as the secondary antibody (ab150120) at dilution of 1/1000.

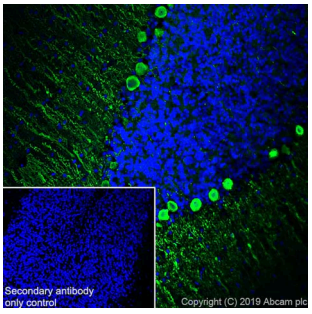
Negative control 2: Anti-MAP2 antibody [HM-2] (ab11267) at 1/200 dilution with Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) secondary antibody (ab150077) at dilution of 1/1000.

The nuclear counterstain is DAPI (blue).

Confocal image showing positive staining in subsets of mouse hippocampal primary neuron.

Confocal scanning Z step was set as 0.3 µm followed by image processing with maximum Z projection.

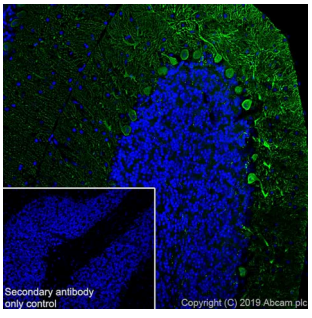
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Immunohistochemistry (Frozen sections) - Anti-Calbindin antibody [EP3478] (ab108404)

Calbindin Immunohistochemistry (Frozen sections) staining using rabbit Anti-Calbindin antibody

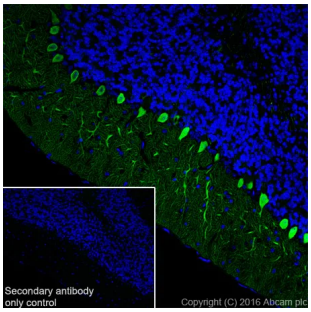
Immunohistochemistry (Frozen) analysis of rat cerebellum tissue sections labeling Calbindin with purified ab108404 at 1/500 dilution (3.0 µg/ml). The tissue section was fixed with 4% Paraformaldehyde and permeabilised with 0.1% tritonX-100. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/1000 (2 µg/ml) was used as the secondary antibody. DAPI (blue) was used as nuclear counterstain.
Secondary antibody only control: PBS instead of the primary antibody



Immunohistochemistry (Frozen sections) - Anti-Calbindin antibody [EP3478] (ab108404)

Calbindin Immunohistochemistry (Frozen sections) staining using rabbit Anti-Calbindin antibody

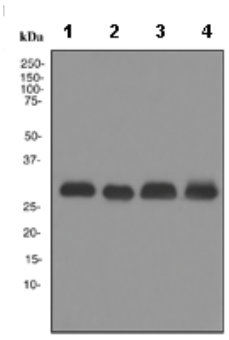
Immunohistochemistry (Frozen) analysis of mouse cerebellum tissue sections labeling Calbindin with purified ab108404 at 1/500 dilution (3.0 µg/ml). The tissue section was fixed with 4% Paraformaldehyde and permeabilised with 0.1% tritonX-100. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/1000 (2 µg/ml) was used as the secondary antibody. DAPI (blue) was used as nuclear counterstain.
Secondary antibody only control: PBS instead of the primary antibody



Immunohistochemistry (Frozen sections) - Anti-Calbindin antibody [EP3478] (ab108404)

Calbindin Immunohistochemistry (Frozen sections) staining using rabbit Anti-Calbindin antibody

Immunohistochemical analysis of mouse frozen cerebellum tissue sections with ab108404 labelling Calbindin at 1/500. Sections were fixed with 4% Paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody. Nuclei were counterstained with DAPI (blue). The image shows specific staining on Purkinje cells of mouse cerebellum.
Secondary antibody only was used as negative control and is shown in the inset.



Western blot - Anti-Calbindin antibody [EP3478] (ab108404)

Calbindin Western blot staining using rabbit Anti-Calbindin antibody

All lanes:
Western blot - Anti-Calbindin antibody [EP3478] (ab108404) at 1/1000 dilution

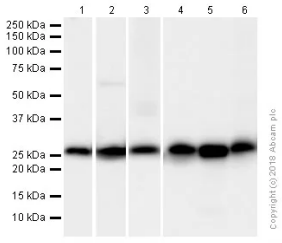
Lane 1:
Fetal brain lysate at 10 µg

Lane 2:
Fetal cerebellum lysate at 10 µg

Lane 3:
Fetal hypothalamus lysate at 10 µg

Lane 4:
Fetal pituitary lysate at 10 µg

Predicted band size: 30 kDa



Western blot - Anti-Calbindin antibody [EP3478] (ab108404)

Calbindin Western blot staining using rabbit Anti-Calbindin antibody

All lanes:
Western blot - Anti-Calbindin antibody [EP3478] (ab108404) at 1/2000 dilution

Lane 1:
Human fetal brain lysates at 20 µg

Lane 2:
SH-SY5Y (Human neuroblastoma epithelial cell) whole cell lysates at 20 µg

Lane 3:
Human kidney lysates at 20 µg

Lane 4:
Mouse brain lysates at 20 µg

Lane 5:
Mouse kidney lysates at 20 µg

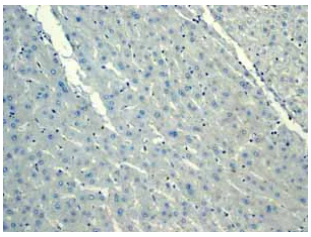
Lane 6:
Rat brain lysates at 20 µg

Secondary

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

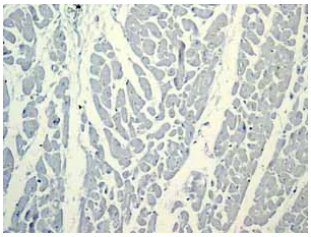
Predicted band size: 30 kDa

Observed band size: 30 kDa



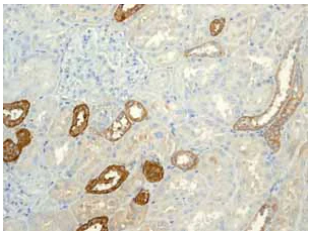
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calbindin antibody [EP3478] (ab108404)

ab108404 showing negative staining in Normal liver tissue.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calbindin antibody [EP3478] (ab108404)

ab108404 showing negative staining in Normal heart tissue.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calbindin antibody [EP3478] (ab108404)

ab108404 showing positive staining in Normal kidney tissue.

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