abcam

ab288766

Anti-CACNA1E antibody [EPR25385-129]

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	EPR25385-129
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Rat

Dilution info	1/500
Notes	-

Not recommended

Species	Human
Dilution info	-
Notes	-

IHC-Fr

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Rat
Dilution info	1/500
Notes	-

Not recommended

Species	Human
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

IP

Tested

Species	Mouse
Dilution info	1/30
Notes	-

Expected

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

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000

Notes	-

Not recommended

Species	Human
Dilution info	-
Notes	-

Target data

See full target information CACNA1E

Function	Voltage-sensitive calcium channels (VSCC) mediate the entry of calcium ions into excitable cells (PubMed:30343943). They are also involved in a variety of calcium-dependent processes, including muscle contraction, hormone or neurotransmitter release, gene expression, cell motility, cell division and cell death. The isoform alpha-1E gives rise to R-type calcium currents. R-type calcium channels belong to the 'high-voltage activated' (HVA) group and are blocked by nickel. They are however insensitive to dihydropyridines (DHP). Calcium channels containing alpha-1E subunit could be involved in the modulation of firing patterns of neurons which is important for information processing. Isoform 3. Voltage-sensitive calcium channels (VSCC) mediate the entry of calcium ions into excitable cells. They are also involved in a variety of calcium-dependent processes, including muscle contraction, hormone or neurotransmitter release, gene expression, cell motility, cell division and cell death. The isoform alpha-1E gives rise to R-type calcium currents.

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

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	The CACNA1E gene encodes the alpha-1E subunit of voltage-dependent calcium channels also known as Cav2.3. These channels play a role in mediating the influx of calcium ions into excitable cells. The molecular mass of the CACNA1E-encoded protein is approximately 250 kDa. Expressed widely throughout the nervous system particularly within the brain and various neurons the protein facilitates calcium ion conductance important for neuronal activity.
Biological function summary	Cav2.3 channels contribute to neurotransmitter release neuronal excitability and synaptic plasticity. They serve as integral parts of the high-voltage activated calcium channel complex sharing this role with other similar channels. Their function has implications for excitatory synaptic transmission and the modulation of neuronal circuits.
Pathways	The CACNA1E-related channels integrate into both the calcium signaling and neurotransmitter release pathways. These pathways are essential for the propagation of signals in neurons and synapses. The CACNA1E protein is related to other calcium channel alpha subunits like Cav2.1 (CACNA1A) and Cav2.2 (CACNA1B) which collectively orchestrate calcium influx necessary for neurotransmitter exocytosis.
Associated diseases and disorders	Abnormal function or expression of these channels connects to epilepsy and certain types of migraine. Mutations in CACNA1E may alter channel function impacting calcium ion homeostasis within neurons. Related proteins such as those encoded by CACNA1A have been implicated in similar neurological disorders reflecting a shared involvement within critical neural circuits.

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

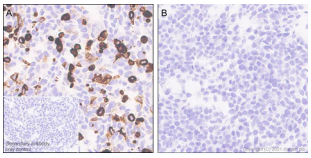
We do not recommend this combination. It is not covered by our product promise.

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.

10 product images

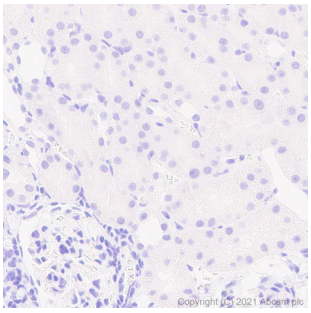


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CACNA1E antibody

Positive staining on (A) HEK-293T cells transfected with a CACNA1E expression vector containing a his tag. No staining on (B) HEK-293T cells transfected with empty vector containing a his tag. The section was incubated with ab288766 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.
Hematoxylin was used as a counter stain.

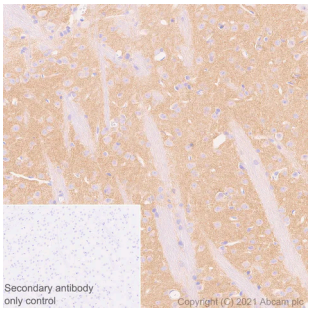
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins was performed.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CACNA1E antibody

Negative control: No staining in rat kidney. The section was incubated with ab288766 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins was used. Hematoxylin was used as a counter stain.

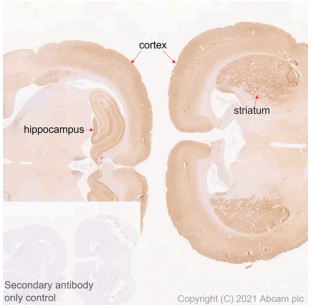


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CACNA1E antibody

Positive staining in mouse striatum. The section was incubated with ab288766 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.
Counter stain used was Hematoxylin.

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

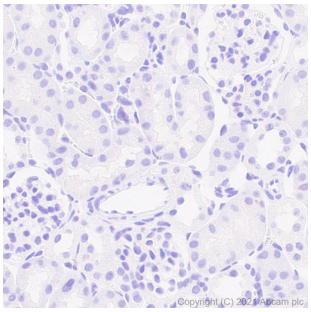


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CACNA1E antibody

Immunohistochemical analysis of paraffin-embedded rat brain tissue labelling CACNA1E with ab288766 at 1/500 (0.956 µg/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Positive staining in rat brain, and strong immunoreactivity was seen in the superficial layer of the cortex, hippocampus, and striatum. The section was incubated with ab288766 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).

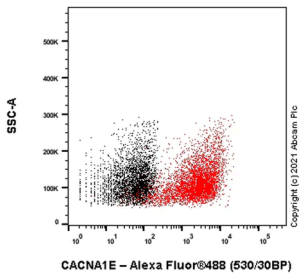
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CACNA1E antibody

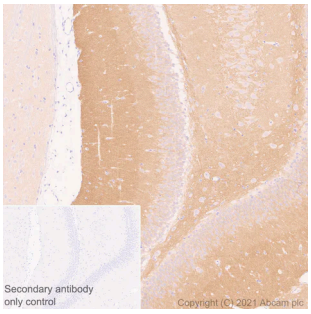
Negative control: No staining in mouse kidney. The section was incubated with ab288766 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Hematoxylin was used as a counter stain. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) was used for 20 mins.



Flow Cytometry (Intracellular) - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E Flow Cytometry (Intracellular) staining using rabbit Anti-CACNA1E antibody

Rat primary neuron cell line was stained with primary ab288766 at 1/500 (Red). Rabbit monoclonal IgG (ab172730) (Black) was used as a isotype control at 1/2000. Cells were fixed in 4% paraformaldehyde and permeabilized with 90% methanol.
Secondary antibody used is Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at a 1/2000 dilution.

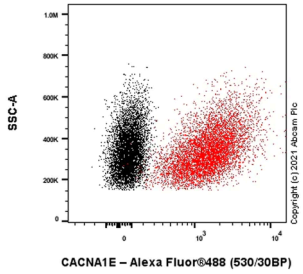


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CACNA1E antibody

Positive staining in rat hippocampus. The section was incubated with ab288766 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument.
Hematoxylin was used as a counter stain.

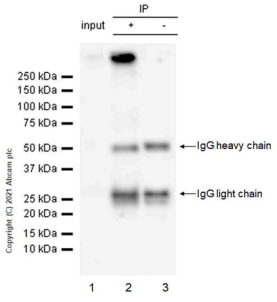
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins was used.



Flow Cytometry (Intracellular) - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E Flow Cytometry (Intracellular) staining using rabbit Anti-CACNA1E antibody

Mouse primary neuron cell line was stained with primary ab288766 at 1/500 (Red). Rabbit monoclonal IgG (ab172730) (Black) was used as a isotype control at 1/2000 dilution. Cells were fixed in 4% paraformaldehyde and permeabilized with 90% methanol.
Secondary antibody used is Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at a 1/2000 dilution.



Immunoprecipitation - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E was immunoprecipitated from 0.35 mg mouse brain tissue lysate 10 µg with ab288766 at 1/30 dilution (2 µg in 0.35 mg lysates). Western blot was performed on the immunoprecipitate using ab288766 at 1/1000 dilution. VeriBlot for IP secondary antibody (HRP) (ab131366) was used at 1/5000 dilution.
Lane 1: Mouse brain tissue lysate 10 µg

Lane 2: ab288766 IP in mouse brain tissue lysate

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab288766 in mouse brain tissue lysate

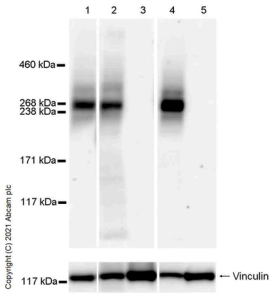
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 67 seconds.

All lanes:
Immunoprecipitation - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

Predicted band size: 262 kDa

Observed band size: 257 kDa



Western blot - Anti-CACNA1E antibody [EPR25385-129] (ab288766)

CACNA1E Western blot staining using rabbit Anti-CACNA1E antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
Lane 1: 103 seconds
Lane 2-5: 70 seconds

The molecular weight and expression pattern is consistent to what has been described in previous reports (PMID: 31704946, PMID: 30846929)

Samples are non-boiled as boiling may cause protein aggregates.

All lanes:
Western blot - Anti-CACNA1E antibody [EPR25385-129] (ab288766) at 1/1000 dilution

Lane 1:
Mouse brain tissue lysate at 40 µg

Lane 2:
Mouse hippocampus tissue lysate at 40 µg

Lane 3:
Mouse kidney tissue lysate at 40 µg

Lane 4:
Rat hippocampus tissue lysate at 40 µg

Lane 5:
Rat kidney tissue lysate at 40 µg

Secondary

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

Predicted band size: 262 kDa

Observed band size: 257 kDa

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