abcam

ab251295

Anti-TMC2 antibody [EPR19446] - BSA and Azide free

Recombinant | RabMAb | Advanced Validation

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	EPR19446
Concentration	1.015 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Transfected cell line - Mouse
Dilution info	-
Notes	-

Expected

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

Not recommended

Species	Transfected cell lysate - Mouse
Dilution info	-
Notes	-

WB

Tested

Species	Transfected cell lysate - Mouse
Dilution info	-
Notes	-

Expected

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

Not recommended

Species	Transfected cell line - Mouse
Dilution info	-
Notes	-

IHC - Wmt

Tested

Species	Mouse
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell line - Mouse, Transfected cell lysate - Mouse
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Transfected cell line - Mouse
Dilution info	-
Notes	-

Expected

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

Not recommended

Species	Transfected cell lysate - Mouse
Dilution info	-
Notes	-

Target data

See full target information Transmembrane channel-like protein 2

Function	Pore-forming subunit of the mechanotransducer (MET) non-selective cation channel complex located at the tips of stereocilia of cochlear hair cells and that mediates sensory transduction in the auditory system (PubMed:11850618,

PubMed:23871232). The MET complex is composed of two dimeric pore-forming ion-conducting transmembrane TMC (TMC1 or TMC2) subunits, several auxiliary proteins including LHFPL5, TMIE, CIB2/3 and TOMT, the tip-link PCDH15, and possibly the PIEZO subunits (By similarity). MET channel is activated by tension in the tip-link extending from the side wall of one stereocilium to the tip of the adjacent shorter stereocilium, where the channel is located (By similarity). TMC2 MET channel is highly permeable to calcium and likely transports monovalent cations (PubMed:23871232). Also involved in vestibular hair cell transduction current of the mammalian inner ear (PubMed:23871232).

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

ab251295 is the carrier-free version of ab200039.

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	TMC2 or Transmembrane Channel-like 2 is a protein that serves as a component of mechanotransduction channels. It has a mass of approximately 104 kDa. TMC2 is primarily expressed in sensory hair cells of the inner ear playing a critical mechanical function in the conversion of sound vibrations into electrical signals. TMC2 operates by forming part of ion channels that are essential to the sensory perception of auditory stimuli.
Biological function summary	TMC2 participates in mechanosensory systems playing an important role in hearing. It forms or associates with ion channel complexes that facilitate the flow of ions into sensory cells which is necessary for initiating receptor potentials. Its presence in sensory hair cells indicates its significant role in the auditory transduction process where it likely interacts with other integral membrane proteins to modulate ion channel activity.
Pathways	Hair cell mechanotransduction involves TMC2 contributing to the mechanotransduction pathway. This pathway is essential for the mechanical-to-electrical sound transduction process. TMC2 likely collaborates with proteins such as TMC1 and other components of the mechanotransduction complex that function in this pathway facilitating ion influx in response to hair bundle deflections caused by sound waves.
Associated diseases and disorders	Mutations or malfunctions in TMC2 are associated with hearing impairments. Genetic studies indicate its relation to deafness particularly in syndromic and non-syndromic forms of hereditary hearing loss. TMC2's functional relationship with related proteins like TMC1 highlights the critical collaboration between these proteins in maintaining normal auditory function and the risk of auditory disorders when these proteins' functions go awry.

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

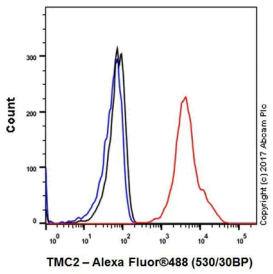
We do not recommend this combination. It is not covered by our product promise.

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.

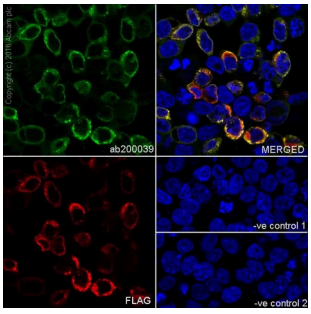
4 product images



Flow Cytometry (Intracellular) - Anti-TMC2 antibody [EPR19446] - BSA and Azide free (ab251295)

TMC2 Flow Cytometry (Intracellular) staining using rabbit Anti-TMC2 antibody

This data was developed using ab200039, the same antibody clone in a different buffer formulation.
Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized HEK-293T (human epithelial cell line from embryonic kidney transformed with large T antigen) transfected with DDDDK tagged mouse TMC2 expression vector cell line labeling TMC2 with ab200039 at 1/50 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-TMC2 antibody [EPR19446] - BSA and Azide free (ab251295)

TMC2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-TMC2 antibody

This data was developed using ab200039, the same antibody clone in a different buffer formulation.

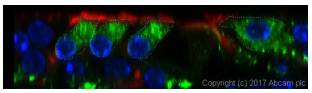
Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HEK-293T (human epithelial cell line from embryonic kidney transformed with large T antigen) cells transfected with DDDDK tagged mouse TMC2 expression vector, labeling TMC2 with ab200039 at 1/100 dilution followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining on HEK-293T cells transfected with DDDDK tagged mouse TMC2 expression vector.

The nuclear counter stain is DAPI (blue). FLAG is detected with Anti-FLAG® M2 (red) at 1/1000 dilution, followed by Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed (ab150120) secondary antibody at 1/1000 dilution.

The negative controls are as follows:

-ve control 1: ab200039 at 1/100 dilution, followed by Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed (ab150120) secondary antibody at 1/1000 dilution.

-ve control 2: Anti-FLAG® M2 at 1/200 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.



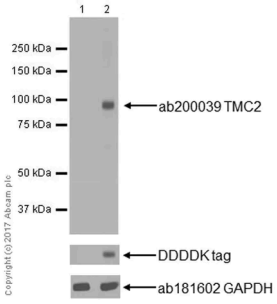
IHC - Wholemount - Anti-TMC2 antibody [EPR19446] - BSA and Azide free (ab251295)

TMC2 IHC - Wholemount staining using rabbit Anti-TMC2 antibody

This data was developed using ab200039, the same antibody clone in a different buffer formulation.
Immunohistochemical analysis of 4% PFA-fixed whole mount P21 mouse cochlea tissue labeling TMC2 with ab200039 at 1/100 dilution, followed by Goat Anti-Rabbit IgG H&L (DyLight 488) secondary antibody at 1/500 dilution (green). The results showed cytoplasmic staining on mouse cochlea inner hair cells.

Red color: F-actin.

The data was kindly provided by our collaborator Dr. Yun Shi, Nanjing University MARC.



Western blot - Anti-TMC2 antibody [EPR19446] - BSA and Azide free (ab251295)

This data was developed using ab200039, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

The Cell lysates were kindly provided by our collaborator Dr. Yun Shi. Nanjing University MARC.

The lysates were not boiled prior to loading on the gel.

All lanes:
Western blot - Anti-TMC2 antibody [EPR19446] (ab200039) at 1/5000 dilution

Lane 1:
HEK-293 (human epithelial cell line from embryonic kidney) transfected with a control vector containing DDDDK tag, whole cell lysate at 10 µg

Lane 2:
HEK-293 (human epithelial cell line from embryonic kidney) transfected with DDDDK tagged mouse TMC2 expression vector, whole cell lysate at 10 µg

Secondary

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

Developed using the ECL technique.

Predicted band size: 103 kDa

Observed band size: 101 kDa

Exposure time: 5s

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