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TRPV4 Antibody
Catalog # ASC11761

Specification

TRPV4 Antibody - Product Information

Application	**WB, IHC, IF**
Primary Accession	Q9HBA0
Other Accession	NP_067638, 59341
Reactivity	**Human**
Host	**Rabbit**
Clonality	**Polyclonal**
Isotype	**IgG**
Calculated MW	**Predicted: 96 kDa** **Observed: 110 kDa KDa**
Application Notes	**TRPV4 antibody can be used for detection of TRPV4 by Western blot at 1 µg/ml. Antibody can also be used for Immunohistochemistry starting at 5 µg/mL. For immunofluorescence start at 20 µg/mL.**

TRPV4 Antibody - Additional Information

Gene ID **59341**

Target/Specificity
TRPV4 antibody was raised against an 18 amino acid peptide near the center of human TRPV4.

The immunogen is located within amino acids 380 - 430 of TRPV4.

Reconstitution & Storage
TRPV4 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.

Precautions
TRPV4 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

TRPV4 Antibody - Protein Information

Name TRPV4

Synonyms VRL2, VROAC

Function
Non-selective calcium permeant cation channel involved in osmotic sensitivity and mechanosensitivity (PubMed:16293632, PubMed:18826956, PubMed:18695040, PubMed:29899501, PubMed:22526352, PubMed:<a href="http://www.uniprot.org/citations/23136043"

target="_blank">23136043). Activation by exposure to hypotonicity within the physiological range exhibits an outward rectification (PubMed:18826956, PubMed:18695040, PubMed:29899501). Also activated by heat, low pH, citrate and phorbol esters (PubMed:16293632, PubMed:18826956, PubMed:18695040, PubMed:25256292, PubMed:20037586, PubMed:21964574). Increase of intracellular Ca(2+) potentiates currents. Channel activity seems to be regulated by a calmodulin-dependent mechanism with a negative feedback mechanism (PubMed:12724311, PubMed:18826956). Promotes cell-cell junction formation in skin keratinocytes and plays an important role in the formation and/or maintenance of functional intercellular barriers (By similarity). Acts as a regulator of intracellular Ca(2+) in synoviocytes (PubMed:19759329). Plays an obligatory role as a molecular component in the nonselective cation channel activation induced by 4-alpha-phorbol 12,13-didecanoate and hypotonic stimulation in synoviocytes and also regulates production of IL-8 (PubMed:19759329). Together with PKD2, forms mechano- and thermosensitive channels in cilium (PubMed:18695040). Negatively regulates expression of PPARGC1A, UCP1, oxidative metabolism and respiration in adipocytes (By similarity). Regulates expression of chemokines and cytokines related to pro-inflammatory pathway in adipocytes (By similarity). Together with AQP5, controls regulatory volume decrease in salivary epithelial cells (By similarity). Required for normal development and maintenance of bone and cartilage (PubMed:26249260). In its inactive state, may sequester DDX3X at the plasma membrane. When activated, the interaction between both proteins is affected and DDX3X relocalizes to the nucleus (PubMed:29899501). In neurons of the central nervous system, could play a role in triggering voluntary water intake in response to increased sodium concentration in body fluid (By similarity).

Cellular Location
Cell membrane. Apical cell membrane; Multi-pass membrane protein. Cell junction, adherens junction {ECO:0000250|UniProtKB:Q9EPK8}. Cell projection, cilium. Note=Assembly of the putative homotetramer occurs primarily in the endoplasmic reticulum (PubMed:16293632, PubMed:20037587, PubMed:20037588). Localization to the cell membrane is inhibited by WNK kinases (WNK1, WNK2, WNK3 or WNK4) in a kinase-independent mechanism (PubMed:16403833) [Isoform 5]: Cell membrane [Isoform 4]: Endoplasmic reticulum

Tissue Location
Found in the synoviocytes from patients with (RA) and without (CTR) rheumatoid arthritis (at protein level)

TRPV4 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides

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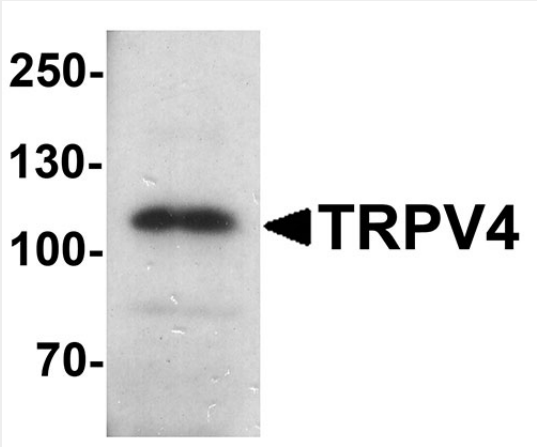
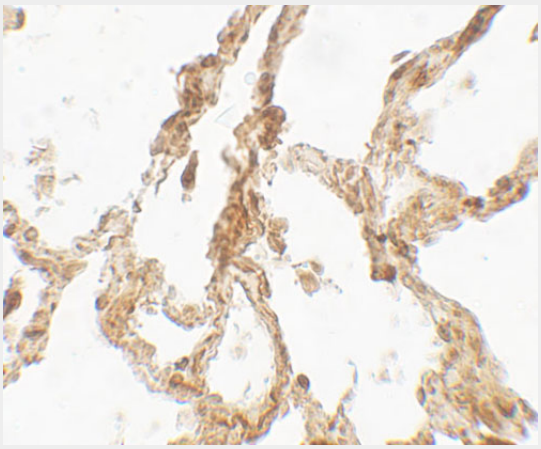
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

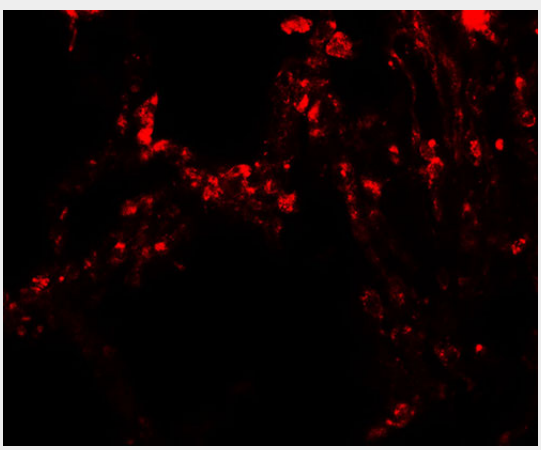
TRPV4 Antibody - Images



Western blot analysis of TRPV4 in human testis tissue lysate with TRPV4 antibody at 1 µg/ml.



Immunohistochemistry of TRPV4 in human lung tissue with TRPV4 antibody at 5 µg/mL.



Immunofluorescence of TRPV4 in human lung tissue with TRPV4 antibody at 20 µg/mL.

TRPV4 Antibody - Background

The transient receptor potential (TRP) protein family consists of a diverse group of cation channels functioning in a variety of homeostatic and regulatory pathways. Four subfamilies exist, based on channel domain homology: C type (canonical), V type (vanilloid receptor related), M type (melastatin related) and P type (PKD) (1). TRPV4, belongs to the V type subfamily and plays a role in systemic osmoregulation (2,3). TRPV4 is a calcium channel multi-pass membrane protein activated by various stimuli, including thermal stress, fatty acid metabolites and hypotonicity (3). TRPV4 is highly expressed in lung and kidney and widely expressed in brain. It plays an important role in regulating neural excitability (4).

TRPV4 Antibody - References

Birnbaumer L, Yildirim E and Abramowitz J. A comparison of the genes coding for canonical TRP channels and their M, V and P relatives. Cell Calcium 2003; 33:419-32.
Alessandri-Haber N, Dina OA, Yeh JJ, et al. Transient receptor potential vanilloid 4 is essential in chemotherapy-induced neuropathic pain in the rat. J. Neurosci. 2004; 24:4444-52.
Liedtke W. TRPV4 plays an evolutionary conserved role in the transduction of osmotic and mechanical stimuli in live animals. J. Physiol. 2005; 567:53-8.
Shibasaki K, Suzuki M, Mizuno A, et al. Effects of body temperature on neural activity in the hippocampus: regulation of resting membrane potentials by transient receptor potential vanilloid 4. J. Neurosci. 2007; 27:1566–75.