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TRP12/TRPV4 Rabbit pAb

Catalog # AP97705

Product Information

Application	IHC-P, IHC-F, IF
Primary Accession	Q9HBA0
Other Accession	Q9HBA0
Reactivity	Human
Predicted	Rat, Pig, Mouse, Chicken, Dog
Host	Rabbit
Clonality	Polyclonal
Calculated MW	98281
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human TRPV4
Epitope Specificity	301-400/871
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the transient receptor (TC 1.A.4) family. TrpV subfamily. TRPV4 sub-subfamily. Contains 3 ANK repeats.
SUBUNIT	Homotetramer (Probable). Self-associates in a isoform-specific manner. Isoforms 1/A and 5/D but not isoform 2/B, 4/C and 6/E can oligomerize. Interacts with calmodulin. Interacts with Map7 and Src family Tyr protein kinases LYN, SRC, FYN, HCK, LCK and YES. Interacts with CTNNB1. The TRPV4 and CTNNB1 complex can interact with CDH1. Part of a complex containing MLC1, AQP4, HEPACAM and ATP1B1.
Post-translational modifications	Phosphorylation results in enhancement of its channel function.
DISEASE	Defects in TRPV4 are the cause of brachyolmia type 3 (BRAC3) [MIM:113500]; also known as brachyrachia. The brachyolmias constitute a clinically and genetically heterogeneous group of skeletal dysplasias characterized by a short trunk, scoliosis and mild short stature. BRAC3 is an autosomal dominant form with severe kyphoscoliosis and flattened, irregular cervical vertebrae. Defects in TRPV4 are the cause of spondylometaphyseal dysplasia Kozlowski type (SMDK) [MIM:184252]. The spondylometaphyseal dysplasias (SMDs) are a group of short-stature disorders distinguished by abnormalities in the vertebrae and the metaphyses of the tubular bones. SMDK is an autosomal dominant disorder characterized by significant scoliosis and mild metaphyseal abnormalities in the pelvis. The vertebrae exhibit platyspondyly and overfaced pedicles.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	The detection of noxious stimuli (chemical, mechanical, or thermal) occurs predominantly at the peripheral terminals of primary afferent neurons. This information is ultimately transmitted to the central nervous system to evoke appropriate protective reflexes. TRPV4 is a non selective calcium permeant, swell activated, cation channel probably involved in osmotic and mechano sensitivity. Activation by exposure to hypotonicity within the physiological range, low pH, citrate and phorbol esters exhibits an outward rectification.

Once activated the channel seems to be regulated in a calmodulin dependent manner, with a negative feedback mechanism.

Additional Information

Gene ID 59341

Other Names BCYM3; CMT2C; HMSN2C; OTRPC4; SMAL; SPSMA; SSQTL1; TRP12; VRL2; VROAC; 0610033B08Rik; VR-OAC; VRL-2; TRPV4_HUMAN; TRPV4; Osm-9-like TRP channel 4 (OTRPC4); Transient receptor potential protein 12 (TRP12); Vanilloid receptor-like channel 2; Vanilloid receptor-like protein 2 (VRL-2); Vanilloid receptor-related osmotically-activated channel (VR-OAC); TRPV4_MOUSE; Vanilloid receptor-like protein 2; TRPV4_RAT; transient receptor potential cation channel subfamily V member 4; transient receptor potential cation channel, subfamily V, member 4; osmosensitive transient receptor potential channel 4

Dilution IHC-P=1:100-500,IHC-F=1:100-500,ICC/IF=1:100-500,IF=1:100-500,Flow-Cyt=1ug/test

Storage Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name TRPV4

Synonyms VRL2, VROAC

Function Non-selective calcium permeant cation channel involved in osmotic sensitivity and mechanosensitivity (PubMed:16293632, PubMed:18695040, PubMed:18826956, PubMed:22526352, PubMed:23136043, PubMed:29899501). Activation by exposure to hypotonicity within the physiological range exhibits an outward rectification (PubMed:18695040, PubMed:18826956, PubMed:29899501). Also activated by heat, low pH, citrate and phorbol esters (PubMed:16293632, PubMed:18695040, PubMed:18826956, PubMed:20037586, PubMed:21964574, PubMed:25256292). 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)

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