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# TRPV4 Recombinant Rabbit mAb

Catalog # AP98703

## Product Information

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| **Application** | WB, IHC-P, IHC-F, IF, IP, E |
| **Primary Accession** | Q9HBA0 |
| **Other Accession** | Q9HBA0 |
| **Reactivity** | Human |
| **Host** | Rabbit |
| **Clonality** | Recombinant |
| **Calculated MW** | 98281 |
| **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. |
| **Background Descriptions** | transient receptor potential cation channel subfamily V member 4(TRPV4) Homo sapiens This gene encodes a member of the OSM9-like transient receptor potential channel (OTRPC) subfamily in the transient receptor potential (TRP) superfamily of ion channels. The encoded protein is a Ca2+-permeable, nonselective cation channel that is thought to be involved in the regulation of systemic osmotic pressure. Mutations in this gene are the cause of spondylometaphyseal and metatropic dysplasia and hereditary motor and sensory neuropathy type IIC. Multiple transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Apr 2010], |

## Additional Information

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| **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; Osm-9-like TRP channel 4; Transient receptor potential protein 12; Vanilloid receptor-related osmotically-activated channel |
| **Dilution** | IHC-P=1:50-200,IHC-F=1:50-200,WB=1:500-2000,IF=1:50-200,ELISA=1:5000-10000,IP=1:50-200 |
| **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

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| **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 |

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| | 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) |

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