

# TRPV4 (K-18): sc-47527

## 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, not activating stimuli: C type (canonical or classical), V type (vanilloid receptor related), M type (melastatin related) and P type (PKD). TRPV4, also designated VRL-2, TRP12, VR-OAC and OTRPC4, belongs to the V type subfamily, and plays a role in systemic osmoregulation. TRPV4 is a calcium channel activated by various stimuli, including thermal stress, fatty acid metabolites and hypotonicity. TRPV4 is highly expressed in lung and kidney.

## REFERENCES

1. Birnbaumer, L., Yildirim, E. and Abramowitz, J. 2003. A comparison of the genes coding for canonical TRP channels and their M, V and P relatives. *Cell Calcium* 33: 419-432.
2. Alessandri-Haber, N., Dina, O.A., Yeh, J.J., Parada, C.A., Reichling, D.B. and Levine, J.D. 2004. Transient receptor potential vanilloid 4 is essential in chemotherapy-induced neuropathic pain in the rat. *J. Neurosci.* 24: 4444-4452.
3. Nilius, B., Vriens, J., Prenen, J., Droogmans, G. and Voets, T. 2004. TRPV4 calcium entry channel: a paradigm for gating diversity. *Am. J. Physiol., Cell Physiol.* 286: C195-C205.
4. Tian, W., Salanova, M., Xu, H., Lindsley, J.N., Oyama, T.T., Anderson, S., Bachmann, S. and Cohen, D.M. 2004. Renal expression of osmotically responsive cation channel TRPV4 is restricted to water-impermeant nephron segments. *Am. J. Physiol. Renal Physiol.* 287: F17-F24.
5. Vriens, J., Watanabe, H., Janssens, A., Droogmans, G., Voets, T. and Nilius, B. 2004. Cell swelling, heat, and chemical agonists use distinct pathways for the activation of the cation channel TRPV4. *Proc. Natl. Acad. Sci. USA* 101: 396-401.
6. Cohen, D.M. 2005. TRPV4 and the mammalian kidney. *Pflügers Arch.* 451: 168-175.
7. Liedtke, W. 2005. TRPV4 plays an evolutionary conserved role in the transduction of osmotic and mechanical stimuli in live animals. *J. Physiol.* 567: 53-58.
8. Kunert-Keil, C., Bisping, F., Kruger, J. and Brinkmeier, H. 2006. Tissue-specific expression of TRP channel genes in the mouse and its variation in three different mouse strains. *BMC Genomics* 7: 159.

## CHROMOSOMAL LOCATION

Genetic locus: TRPV4 (human) mapping to 12q24.11; Trpv4 (mouse) mapping to 5 F.

## SOURCE

TRPV4 (K-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an N-terminal cytoplasmic domain of TRPV4 of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-47527 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

TRPV4 (K-18) is recommended for detection of TRPV4 isoforms 1, 2, and 3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

TRPV4 (C-15) is also recommended for detection of TRPV4 isoforms 1, 2 and 3 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for TRPV4 siRNA (h): sc-61726, TRPV4 siRNA (m): sc-61727, TRPV4 shRNA Plasmid (h): sc-61726-SH, TRPV4 shRNA Plasmid (m): sc-61727-SH, TRPV4 shRNA (h) Lentiviral Particles: sc-61726-V and TRPV4 shRNA (m) Lentiviral Particles: sc-61727-V.

Molecular Weight of glycosylated TRPV4: 98-107 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

1. Zhang, D., Spielmann, A., Wang, L., Ding, G., Huang, F., Gu, Q. and Schwarz, W. 2011. Mast-cell degranulation induced by physical stimuli involves the activation of transient-receptor-potential channel TRPV. *Physiol. Res.* 61: 113-124.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.