SANTA CRUZ BIOTECHNOLOGY, INC.

TRPM4 (G-20): sc-27540

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The Power to Question

BACKGROUND

Transient receptor potential ion channels (TRPCs) are a superfamily of six transmembrane segment-spanning, gated cation channels. TRPC subtypes mediate store-operated Ca^{2+} entry, a process involving Ca^{2+} influx and replenishment of Ca^{2+} stores formerly emptied through the action of inositol 1,4,5-trisphospate production and other Ca^{2+} mobilizing agents. TRP ion channels influence calcium-depletion induced calcium influx processes in response to chemo-, mechano- and osmoregulatory events. TRPM4 is a transient receptor potential channel with an intrinsic voltage-sensing mechanism. Voltage dependence of TRPM4 may be functionally important, especially in excitable tissues generating plateau-like or bursting action potentials. TRPM4-mediated depolarization modulates Ca^{2+} oscillations, with downstream effects on cytokine production in T lymphocytes.

REFERENCES

1. Hoth, M., et al. 1997. Mitochondrial regulation of store-operated calcium signaling in T lymphocytes. J. Cell Biol. 137: 633-648.
2. Plant, T.D., et al. 2003. TRPC4 and TRPC5: receptor-operated Ca^{2+}-permeable nonselective cation channels. Cell Calcium 33: 441-450.
3. Nilius, B., et al. 2003. Voltage dependence of the Ca^{2+}-activated cation channel TRPM4. J. Biol. Chem. 278: 30813-30820.
4. Launay, P., et al. 2004. TRPM4 regulates calcium oscillations after T cell activation. Science 306: 1374-1377.

CHROMOSOMAL LOCATION

Genetic locus: TRPM4 (human) mapping to 19q13.33; Trpm4 (mouse) mapping to 7 B4.

SOURCE

TRPM4 (G-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of TRPM4 of human origin.

PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-27540 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

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 or our catalog for detailed protocols and support products.

APPLICATIONS

TRPM4 (G-20) is recommended for detection of TRPM4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

TRPM4 (G-20) is also recommended for detection of TRPM4 in additional species, including bovine.

Suitable for use as control antibody for TRPM4 siRNA (h): sc-45439, TRPM4 siRNA (m): sc-45440, TRPM4 shRNA Plasmid (h): sc-45439-SH, TRPM4 shRNA Plasmid (m): sc-45440-SH, TRPM4 shRNA (h) Lentiviral Particles: sc-45439-V and TRPM4 shRNA (m) Lentiviral Particles: sc-45440-V.

Molecular Weight of TRPM4: 134 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206 or Jurkat whole cell lysate: sc-2204.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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. Gerzanich, V., et al. 2009. *De novo* expression of Trpm4 initiates secondary hemorrhage in spinal cord injury. Nat. Med. 15: 185-191.
2. Yu, W., et al. 2011. Expression and distribution of transient receptor potential (TRP) channels in bladder epithelium. Am. J. Physiol. Renal Physiol. 300: F49-F59.
3. Gonzales, A.L. and Earley, S. 2012. Endogenous cytosolic Ca^{2+} buffering is necessary for TRPM4 activity in cerebral artery smooth muscle cells. Cell Calcium 51: 82-93.