SANTA CRUZ BIOTECHNOLOGY, INC.

TRPC4/5 (A-2): sc-365229

BACKGROUND

Transient receptor potential cation (TRPC) channels 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-trisphosphate production and other Ca^{2+} mobilizing agents. TRPC channels influence calcium-depletion induced calcium influx processes in response to chemo-, mechano- and osmoregulatory events. Human TRPC4 protein, also known as Trp4, functions as a cation channel and is a constituent of native store-operated Ca^{2+}-permeable channels. In the presence of elevated Ca^{2+} concentrations, TRPC4 binds Calmodulin (CaM) at an interface which comprises amino acids 688-759 and 786-848 of TRPC4. The ability of TRPC4 to increase inwardly rectifying K^+ currents suggests that TRPC4 may contribute to the formation of a novel K^+ channel or upregulate endogenous inwardly rectifying K^+ channel expression or activity. The human TRPC5 protein is specifically expressed in brain and forms a nonselective cation channel with TRPC1 in the hippocampus that is activated by Gq-coupled receptors, but not by depletion of intracellular Ca^{2+} stores.

REFERENCES

1. Philipp, S., et al. 1998. A novel capacitative calcium entry channel expressed in excitable cells. EMBO J. 17: 4274-4282.
2. Harteneck, C., Pet al. 2000. From worm to man: three subfamilies of TRP channels. Trends Neurosci. 23: 159-166.
3. Hofmann, T., et al. 2000. Transient receptor potential channels as molecular substrates of receptor-mediated cation entry. J. Mol. Med. 78: 14-25.
4. McKay, R.R., et al. 2000. Cloning and expression of the human transient receptor potential 4 (TRP4) gene: localization and functional expression of human TRP4 and TRP3. Biochem. J. 351: 735-746.
5. Zhang, Z., et al. 2001. Increased inwardly rectifying potassium currents in HEK-293 cells expressing murine transient receptor potential 4. Biochem. J. 354: 717-725.
6. Trost, C., et al. 2001. The transient receptor potential, TRP4, cation channel is a novel member of the family of calmodulin binding proteins. Biochem. J. 355: 663-670.

CHROMOSOMAL LOCATION

Genetic locus: TRPC4 (human) mapping to 13q13.3, TRPC5 (human) mapping to Xq23.

SOURCE

TRPC4/5 (A-2) is a mouse monoclonal antibody raised against amino acids 1-80 mapping within an N-terminal cytoplasmic domain of TRPC5 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

TRPC4/5 (A-2) is recommended for detection of TRPC4 and TRPC5 of human origin by Western Blotting (starting dilution 1:100, 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).

Molecular Weight of TRPC4 isoforms: 112/103/96/95 kDa.

Molecular Weight of TRPC5: 112 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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 goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.