3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-TRPC4
produced in rabbit, affinity isolated antibody

Catalog Number **T2568**

Product Description

Anti-TRPC4 (Transient receptor potential cation channel, subfamily C, member 4; TRP4; CCE1) is produced in rabbit using as immunogen a highly purified peptide (C)KEKHAHEEDSSIDYDL corresponding to amino acid residues 943-958 of mouse TRPC4 with an N-terminal cysteine. The antibody was affinity isolated on immobilized immunogen.

Anti-TRPC4 recognizes the TRPC4 protein from rat brain by immunoblotting. The epitope is highly homologous (15 of 16 amino acids identical) in the rat and human antigen.

Cytosolic Ca^{2+} serves as an intracellular mediator for many extracellular signals. At rest, cells maintain a low Ca^{2+} concentration of ~ 10^{-7} M. Upon activation of the phospholipase C-dependent mechanism, the cytosolic Ca^{2+} concentration rises. In many vertebrate and invertebrate cells, the influx of Ca^{2+} is biphasic. Mobilization of Ca^{2+} from internal stores (sarcoplasmic reticulum in muscle cells and endoplasmic reticulum in other cell types) drives the initial burst. The second phase, referred to as capacitative Ca^{2+} entry (CCE) or store-operated Ca^{2+} entry, occurs when the depletion of intracellular Ca^{2+} stores activates a non-voltage-sensitive plasma membrane Ca^{2+} conductance.[1] The channels responsible for this conductance have been referred to as SOCs for store-operated channels.

A *Drosophila* gene, *trp* (transient receptor potential), encodes the first identified candidate for such a channel. Seven mammalian TRP channels, named TRPC1-TRPC7, have been cloned. TRP channels (TRPCs) are ubiquitous, yet are most abundant in muscles and nerves. They differ in their method of activation and in their channel conductance.[2]
All TRPCs have six transmembrane segments with a pore-forming loop between the fifth and sixth segment. This structure is similar to the pore-forming subunits of other channels including voltage-gated Na^{+}, K^{+} and Ca^{2+} channels and cyclic nucleotide gated channels.

The TRP isoforms can be divided into three sub-families based on characteristic sequence domains. The long TRP channels (LTRPCs) have four related sequences with open reading frames (ORFs) coding for approximately 1600 amino acids. The other two sub-families are characterized by shorter ORFs, coding for about 900 amino acids. These are called the short TRP (STRP) and osm-9-like (OTRP) channel families. The OTRPCs are named after the first member of this family to be identified, the *C. elegans* clone osm-9.[2]

The sub-families differ in other ways. STRPCs have two to four ankyrin domains in their N-terminal cytosolic tail, where as OTRPCs have three or more and LTRPCs have none. Furthermore, a proline-rich motif in the cytosolic C-terminal region near the sixth transmembrane segment can be found in STRPCs and LTRPCs, but not in OTRPCs.[2]

The sub-families also differ in their functional properties. The seven mammalian TRPCs (TRPC1-7) are all members of the STRPC sub-family. STRPCs are activated in response to phospholipase C activation. OTRPCs appear to be activated by physical or chemical stimuli such as heat, osmotic stress or mechanical stress. The function and activation of LTRPCs is not yet known since their ability to function as channels has not been demonstrated.

TRPC4 has been identified in adrenal gland, testis and brain.[2] Full-length cDNAs have been cloned from bovine, human, mouse and rat species. TRPC4 is a non-selective cation channel that integrates signaling pathways from G-protein-coupled receptors and receptor tyrosine kinases independently of the depletion of calcium stores.[3]

Reagent

Supplied lyophilized at 0.4 mg/mL from phosphate buffered saline, pH 7.4, containing 1 % bovine serum albumin, 5 % sucrose, and 0.025 % sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
Reconstitute the lyophilized vial with 0.05 ml or 0.2 ml deionized water, depending on the package size purchased. Antibody dilutions should be made in buffer containing 1-3% bovine serum albumin.

Storage/Stability
Prior to reconstitution, store at –20 °C. After reconstitution, the stock antibody solution may be stored at 2-8 °C for up to 2 weeks. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile
Immunoblotting: the recommended working dilution is 1:200 using anti-rabbit IgG-peroxidase and detection by chemiluminescence.

Note: In order to obtain best results and assay sensitivities of different techniques and preparations, we recommend determining optimal working dilutions by titration test.

References

1. Wes, P.D. et al., *Proc. Natl. Acad. Sci. USA* **92**, 9652-9656 (1995).
2. Harteneck, C., et al., *Trends Neurosci*. **23**, 159-166 (2000).
3. Schaefer, M. et al., *J. Biol. Chem*. **275**, 17517-17526 (2000).

JJJ,AH,PHC 10/12-1