

Product Information

Anti-TRPC6

produced in rabbit, affinity isolated antibody

Catalog Number **T6442**

Product Description

Anti-TRPC6 is produced in rabbit using as immunogen a highly purified peptide (C)RRNESQDYLLMDELG corresponding to amino acid residues 24-38 of mouse TRPC6 with an N-terminal cysteine.¹ The antibody was affinity isolated on immobilized immunogen.

Anti-TRPC6 (Transient receptor potential cation channel, subfamily C, member 6) recognizes rat and mouse TRPC6 by immunoblotting and immunohistochemistry. The epitope is identical in the rat antigen and highly homologous (15 of 16 amino acids identical) in the human antigen.

Cytosolic Ca²⁺ serves as an intracellular mediator for many extracellular signals. At rest, cells maintain a low Ca²⁺ concentration of ~ 10⁻⁷ M. Upon activation of the phospholipase C-dependent mechanism, the cytosolic Ca²⁺ concentration rises. In many vertebrate and invertebrate cells, the influx of Ca²⁺ is biphasic. Mobilization of Ca²⁺ 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 Ca²⁺ entry (CCE) or store-operated Ca²⁺ entry, occurs when the depletion of intracellular Ca²⁺ stores activates a non-voltage-sensitive plasma membrane Ca²⁺ conductance.² 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.³ 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 Ca²⁺ 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-9.³

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.³

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.

Human TRPC6 is a 931 amino acid protein. TRPC6 has been identified in placenta, lung, spleen, ovary and small intestine by Northern analysis.⁴ Human TRPC6 is a non-selective cation channel that is activated by diacylglycerol in a membrane-delimited fashion. Additionally, human TRPC6, and its close structural relative TRPC3, are the only two molecularly defined channels that are directly activated by diacylglycerols independently of protein kinase C.

Reagent

Supplied lyophilized from phosphate buffered saline, pH 7.4, containing 1% bovine serum albumin, and 0.05% 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 $2-8^{\circ}\text{C}$ for up to 2 weeks. For extended storage, freeze in working aliquots at -20°C . 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 1:200-1:400 using rat brain and lung lysates.

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. Zhu, X., et al., *Cell*, **85**, 661-671 (1996).
2. Wes, P.D. et al., *Proc. Natl. Acad. Sci. USA*, **92**, 9652-9656 (1995).
3. Harteneck, C., et al., *Trends Neurosci.*, **23**, 159-166 (2000).
4. Boulay, G., et al., *Proc. Natl., Acad. Sci. USA*, **96**, 14955-14960 (1999).

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