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TRPM7 (CHAK1) Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP8052b

Product Information

Application	WB, IHC-P, E
Primary Accession	Q96QT4
Other Accession	Q9BXB2
Reactivity	Human, Rat, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	212697
Antigen Region	1821-1850

Additional Information

Gene ID	54822
Other Names	Transient receptor potential cation channel subfamily M member 7, Channel-kinase 1, Long transient receptor potential channel 7, LTrpC-7, LTrpC7, TRPM7, CHAK1, LTRPC7
Target/Specificity	This TRPM7 (CHAK1) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 1821-1850 amino acids from the C-terminal region of human TRPM7 (CHAK1).
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	TRPM7 (CHAK1) Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	TRPM7
Synonyms	CHAK1, LTRPC7 {ECO:0000303|PubMed:113855
Function	Bifunctional protein that combines an ion channel with an intrinsic kinase

	domain, enabling it to modulate cellular functions either by conducting ions through the pore or by phosphorylating downstream proteins via its kinase domain. The channel is highly permeable to divalent cations, specifically calcium (Ca2+), magnesium (Mg2+) and zinc (Zn2+) and mediates their influx (PubMed:11385574, PubMed:12887921, PubMed:15485879, PubMed:24316671, PubMed:35561741, PubMed:36027648). Controls a wide range of biological processes such as Ca2(+), Mg(2+) and Zn(2+) homeostasis, vesicular Zn(2+) release channel and intracellular Ca(2+) signaling, embryonic development, immune responses, cell motility, proliferation and differentiation (By similarity). The C-terminal alpha-kinase domain autophosphorylates cytoplasmic residues of TRPM7 (PubMed:18365021). In vivo, TRPM7 phosphorylates SMAD2, suggesting that TRPM7 kinase may play a role in activating SMAD signaling pathways. In vitro, TRPM7 kinase phosphorylates ANXA1 (annexin A1), myosin II isoforms and a variety of proteins with diverse cellular functions (PubMed:15485879, PubMed:18394644).
Cellular Location	Cell membrane; Multi-pass membrane protein {ECO:0000250|UniProtKB:Q923J1}. Cytoplasmic vesicle membrane {ECO:0000250|UniProtKB:Q923J1}; Multi-pass membrane protein {ECO:0000250|UniProtKB:Q923J1}. Note=Localized largely in intracellular Zn(2+)-storage vesicles. {ECO:0000250|UniProtKB:Q923J1}

Background

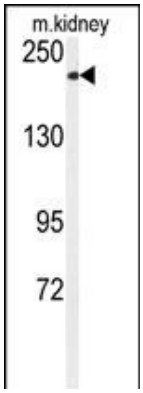
TRPCs, mammalian homologs of the Drosophila transient receptor potential (trp) protein, are ion channels that are thought to mediate capacitative calcium entry into the cell. TRP-PLIK is a protein that is both an ion channel and a kinase. As a channel, it conducts calcium and monovalent cations to depolarize cells and increase intracellular calcium. As a kinase, it is capable of phosphorylating itself and other substrates. The kinase activity is necessary for channel function, as shown by its dependence on intracellular ATP and by the kinase mutants.[supplied by OMIM]

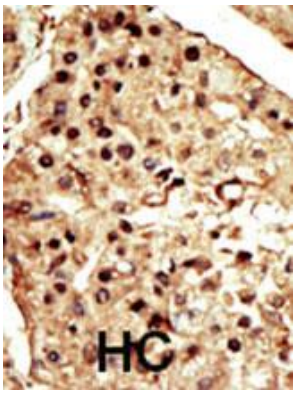
References

Blume-Jensen P, et al. Nature 2001. 411: 355.
Cantrell D, J. Cell Sci. 2001. 114: 1439.
Jhiang S Oncogene 2000. 19: 5590.
Manning G, et al. Science 2002. 298: 1912.
Moller, D, et al. Am. J. Physiol. 1994. 266: C351-C359.
Robertson, S. et al. Trends Genet. 2000. 16: 368.
Robinson D, et al. Oncogene 2000. 19: 5548.
Van der Ven, P, et al. Hum. Molec. Genet. 1993. 2: 1889.
Vanhaesebroeck, B, et al. Biochem. J. 2000. 346: 561.
Van Weering D, et al. Recent Results Cancer Res. 1998. 154: 271.

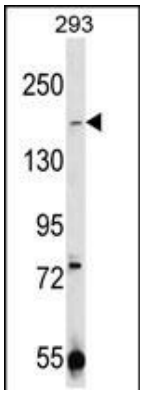
Images

Western blot analysis of anti-CHAK1 Antibody (C-term) (Cat.#AP8052b) in mouse kidney tissue lysates (35ug/lane). CHAK1 (arrow) was detected using the purified Pab.





Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.



CHAK1 Antibody (F1835) (Cat. #AP8052b) western blot analysis in 293 cell line lysates (35ug/lane).This demonstrates the CHAK1 antibody detected the CHAK1 protein (arrow).

Citations

- Cyanidin Increases the Expression of Mg Transport Carriers Mediated by the Activation of PPARα in Colonic Epithelial MCE301 Cells.
- Zinc-induced neurotoxicity mediated by transient receptor potential melastatin 7 channels.
- Expression of ion channels of the TRP family in articular chondrocytes from osteoarthritic patients: changes between native and in vitro propagated chondrocytes.