10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

Anti-Orai1 Antibody

Catalog # ABO11166

Product Information

Application	WB
Primary Accession	Q96D31
Host	Rabbit
Reactivity	Human, Mouse, Rat
Clonality	Polyclonal
Format	Lyophilized
Description	Rabbit IgG polyclonal antibody for Calcium release-activated calcium channel protein 1(ORAI1) detection. Tested with WB in Human;Mouse;Rat.
Reconstitution	Add 0.2ml of distilled water will yield a concentration of 500ug/ml.

Additional Information

Gene ID	84876
Other Names	Calcium release-activated calcium channel protein 1, Protein orai-1, Transmembrane protein 142A, ORAI1, CRACM1, TMEM142A
Calculated MW	32668
Application Details	Western blot, 0.1-0.5 □g/ml, Human, Mouse, Rat
Subcellular Localization	Cell membrane ; Multi-pass membrane protein . Cytoplasmic vesicle, autophagosome . Isoform beta is more mobile in the plasma membrane. Colocalizes with UBQLN1 in the autophagosome. .
Source	Eukaryota
Protein Name	Calcium release-activated calcium channel protein 1
Contents	Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg Thimerosal, 0.05mg NaN3.
Immunogen	A synthetic peptide corresponding to a sequence at the C-terminus of human Orai1(278-301aa EFARLQDQLDHRGDHPLTPGSHYA), different from the related rat and mouse sequences by two amino acids.
Purification	Immunogen affinity purified.
Cross Reactivity	No cross reactivity with other proteins
Storage	At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated

	freezing and thawing.
Sequence Similarities	Belongs to the Orai family.

Protein Information

Name	ORAI1 {ECO:0000303|PubMed:16921383, ECO:0000312|HGNC:HGNC:25896}
Function	Pore-forming subunit of two major inward rectifying Ca(2+) channels at the plasma membrane: Ca(2+) release-activated Ca(2+) (CRAC) channels and arachidonate-regulated Ca(2+)-selective (ARC) channels (Probable) (PubMed:16645049, PubMed:16733527, PubMed:16807233, PubMed:16921383, PubMed:19249086, PubMed:19706554, PubMed:23307288, PubMed:26956484, PubMed:28219928). Assembles with ORAI2 and ORAI3 to form hexameric CRAC channels that mediate Ca(2+) influx upon depletion of endoplasmic reticulum Ca(2+) store and channel activation by Ca(2+) sensor STIM1, a process known as store-operated Ca(2+) entry (SOCE). Various pore subunit combinations may account for distinct CRAC channel spatiotemporal and cell-type specific dynamics. ORAI1 mainly contributes to the generation of Ca(2+) plateaus involved in sustained Ca(2+) entry and is dispensable for cytosolic Ca(2+) oscillations, whereas ORAI2 and ORAI3 generate oscillatory patterns. CRAC channels assemble in Ca(2+) signaling microdomains where Ca(2+) influx is coupled to calmodulin and calcineurin signaling and activation of NFAT transcription factors recruited to ORAI1 via AKAP5. Activates NFATC2/NFAT1 and NFATC3/NFAT4-mediated transcriptional responses. CRAC channels are the main pathway for Ca(2+) influx in T cells and promote the immune response to pathogens by activating NFAT-dependent cytokine and chemokine transcription (PubMed:16582901, PubMed:17442569, PubMed:19182790, PubMed:20354224, PubMed:22641696, PubMed:26221052, PubMed:32415068, PubMed:33941685). Assembles with ORAI3 to form channels that mediate store-independent Ca(2+) influx in response to inflammatory metabolites arachidonate or its derivative leukotriene C4, termed ARC and LRC channels respectively (PubMed:19622606, PubMed:32415068). Plays a prominent role in Ca(2+) influx at the basolateral membrane of mammary epithelial cells independently of the Ca(2+) content of endoplasmic reticulum or Golgi stores. May mediate transepithelial transport of large quantities of Ca(2+) for milk secretion (By similarity) (PubMed:20887894).
Cellular Location	Cell membrane; Multi-pass membrane protein. Basolateral cell membrane {ECO:0000250|UniProtKB:Q8BWG9}; Multi-pass membrane protein. Note=Upon store depletion, colocalizes with STIM1 in membrane punctae at ER-PM junctions (PubMed:19182790, PubMed:19249086, PubMed:26221052, PubMed:27185316) [Isoform beta]: Cell membrane
Tissue Location	Expressed in naive CD4 and CD8 T cells (at protein level) (PubMed:26956484). Expressed at similar levels in naive and effector T helper cells (PubMed:20354224)

Background

ORAI1(ORAI calcium release-activated calcium modulator 1), also known as CRACM1, TMEM142A, Calcium release-activated calcium channel protein 1, Protein orai-1, Transmembrane protein 142A, FLJ14466, is a calcium selective □ion channel □that in humans is encoded by the □ORAI1 □gene. Orai1 channels play an important role in the activation of T-lymphocytes. The loss of function mutation of Orai1 causes □severe combined immunodeficiency(SCID) in humans. The mammalian orai family has two additional homologs, orai2 and orai3. Orai proteins share no homology with any other ion channel family of any other known

proteins. They have 4 transmembrane domains and form tetramers. Prakriya et al.(2006) showed that ORAI1 is a PM protein, and that CRAC channel function is sensitive to mutation of 2 conserved acidic residues in the transmembrane segments. Glu106-to-asp(E106D) and glu190-to-gln(E190Q) substitutions in transmembrane helices 1 and 3, respectively, diminished calcium ion influx, increased current carried by monovalent cations, and rendered the channel permeable to cesium ion. Prakriya et al.(2006) showed that ORAI1 is a PM protein, and that CRAC channel function is sensitive to mutation of 2 conserved acidic residues in the transmembrane segments.

Images



Anti- Orai1 antibody, ABO11166, Western blottingAll lanes: Anti Orai1 (ABO11166) at 0.5ug/mlWB: SKOV Whole Cell Lysate at 40ugPredicted bind size: 33KDObserved bind size: 50KD

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