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ORAI3 Antibody

Catalog # ASC10539

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q9BRQ5
Other Accession	Q9BRQ5, 74732916
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	31499
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	ORAI3 antibody can be used for detection of ORAI3 by Western blot at 2 - 4 g/mL. Antibody can also be used for immunocytochemistry starting at 5 g/mL. For immunofluorescence start at 10 g/mL.

Additional Information

Gene ID	93129
Other Names	ORAI3 Antibody: TMEM142C, TMEM142C, Protein orai-3, Transmembrane protein 142C, ORAI calcium release-activated calcium modulator 3
Target/Specificity	ORAI3; ORAI3 antibody is predicted to have no cross-reactivity to ORAI1 or ORAI2.
Reconstitution & Storage	ORAI3 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	ORAI3 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ORAI3
Synonyms	TMEM142C
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 (PubMed:16807233, PubMed:17442569, PubMed:19182790, PubMed:19622606, PubMed:19706554, PubMed:20354224, PubMed:32415068). Assembles with ORAI1 and ORAI2 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. 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:16807233, PubMed:17442569, PubMed:19182790, PubMed:19706554, PubMed:20354224, PubMed:32415068). Assembles with ORAI1 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).
Cellular Location	Cell membrane; Multi-pass membrane protein. Note=Colocalizes with STIM1 upon store depletion.
Tissue Location	Expressed in both naive and effector T helper cells with higher levels in effector cells.

Background

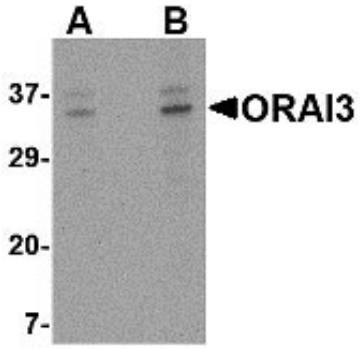
ORAI3 Antibody: Antigen stimulation of immune cells triggers Ca++ entry through Ca++ release-activated Ca++ (CRAC) channels. ORAI3 is one of two mammalian homologs to ORAI1, a recently identified four-transmembrane spanning protein that is an essential component of CRAC. All three homologs have been shown to function as Ca++ plasma membrane channels gated through interactions with STIM1, the store-activated endoplasmic reticulum Ca++ sensor. However, ORAI3 channels failed to produce detectable Ca++ selective currents in cells co-transfected with ORAI3 and STIM1, indicating that ORAI3 channels undergo a lesser degree of depotentiation than ORAI1 or ORAI2. Na+ currents through ORAI1, 2 and 3 channels were equally inhibited by extracellular Ca++, indicating that each have similar affinities for Ca++ within the selectivity filter.

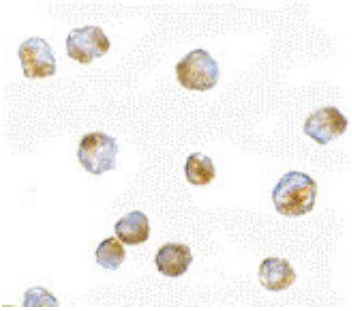
References

Lewis RS. Calcium signaling mechanisms in T lymphocytes. Annu. Rev. Immunol. 2001; 19:497-521.
Feske S, Gwack Y, Prakriya M, et al. A mutation in Orai1 causes immune deficiency by abrogating CRAC channel function. Nature 2006; 441:179-85.
Soboloff J, Spassova MA, Dziadek MA, et al. Calcium signals mediated by STIM and Orai proteins - a new paradigm in inter-organelle communication. Biochim. Biophys. Acta. 2006; 1763:1161-8.
Mercer JC, DeHaven WI, Smyth JT, et al. Large store-operated calcium selective currents due to co-expression of Orai1 or Orai2 with the intracellular calcium sensor, Stim1. J. Biol. Chem. 2006; 281:24979-90.

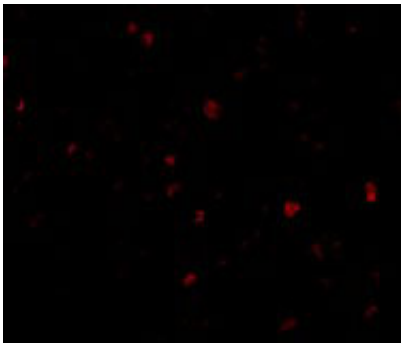
Images

Western blot analysis of ORAI3 in A20 cell lysate with ORAI3 antibody at (A) 2 and (B) 4 µg/mL.





Immunocytochemistry of ORAI3 in A20 cells with ORAI3 antibody at 5 µg/mL.



Immunofluorescence of ORAI3 in A20 cells with ORAI3 antibody at 10 µg/mL.